



EUROPEAN COMMISSION
HEALTH AND CONSUMERS DIRECTORATE-GENERAL

Director General

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*Programmes for the eradication, control and monitoring of certain
animal diseases and zoonoses*

**The programme for
the control of certain zoonotic salmonella in breeding,
laying and broiler flocks of Gallus gallus and in flocks of
turkeys (Meleagris gallopavo)**

Croatia

Approved* for 2013 by Commission Decision 2012/761/EU

* in accordance with Council Decision 2009/470/EC

NATIONAL PROGRAMME FOR THE CONTROL OF SALMONELLOSIS IN LAYING HENS OF *GALLUS GALLUS* IN THE REPUBLIC OF CROATIA

ANNEX II - PART A

General requirements for the national salmonella control programmes

(a) State the aim of the programme

The aim of the national control programme is to reduce the prevalence of *S. Enteritidis* and *S. Typhimurium* (including monophasic *Salmonella Typhimurium* with the antigenic formula 1,4,[5],12:i:-) in flocks of laying hens of *Gallus gallus* in accordance with Article 5 of the Ordinance on the control of salmonella and other specified food-borne zoonotic agents (Official Gazette 58/12) for at least 10 % annually in all agricultural holdings in the country which produce table eggs.

The national control programme in laying hen flocks of *Gallus gallus* is implemented throughout the Republic of Croatia from 1 January to 31 December of the calendar year and is fully aligned with the provisions of Regulation 517/2011.

(b) Animal population and phases

Demonstrate the evidence that it complies with the minimum sampling requirements laid down in part B of Annex II to Regulation (EC) of production which sampling must cover

Laying hens:

- rearing flocks - day-old chicks
 - 12-week old chicks
 - pullets two weeks before moving to laying phase or laying unit
- laying flocks - non vaccinated poultry in flocks with 350 and more birds every four weeks
 - vaccinated poultry in flocks with 350 and more birds every eight weeks
 - poultry in flocks with less than 350 birds samples four times/year in three-month periods

A sample type which is submitted for laboratory testing depends on the type of keeping of birds (cage/free range/floor system).

All flocks, regardless of the category and registration, the products of which are intended for public consumption are included in the implementation of the Programme.

“Flock” means all poultry of the same health status kept on the same premises or in the same enclosure and constituting a single epidemiological unit; in the case of housed poultry, this includes all birds sharing the same airspace.

The sampling is carried out in accordance with the requirements set out in Annex II, Part B of the Ordinance on the control of *Salmonella* and other specified food-borne zoonotic agents (Official Gazette 58/12) which is fully aligned with Part B of Annex II of Regulation 2160/2003.

(c) Specific requirements

Demonstrate the evidence that it complies with the specific requirements laid down in Parts C, D and E of of Regulation 2160/2003.

Flock of adult laying hens (flock in production) in case of suspicion of *S. Enteritidis* or *S. Typhimurium*

A flock suspicious of being infected with *S. Enteritidis* or *S. Typhimurium* is any flock in which, by laboratory examination of submitted samples, the presence of the aforementioned salmonella

serotypes is confirmed or if, on the basis of the conducted epidemiological examination, a relation with the cases of infection in humans is confirmed.

- After obtaining the first positive finding, and for the purpose of excluding/confirming the suspicion, a competent veterinary inspector must order the approved veterinary organisation to take additional samples from the suspicious flock and to deliver them promptly to an official laboratory.
- The additional sample must be examined in a manner described in item 3 of Annex to the Ordinance concerning the testing scheme for the reduction of the prevalence of certain salmonella serotypes in laying hens of *Gallus gallus* (Official Gazette 47/12), it must not derive from birds treated with antimicrobials which may affect the results of laboratory examination, and it consists of:

a) In case of cage flocks:

- five pooled samples of naturally mixed faeces collected from dropping belts, scrapers or deep pits, depending on type of cage houses (samples are collected in the house after running the manure removal system). Each of five pooled samples collected at the farm must be approximately 200 to 300 g,
- two pooled samples of dusty material (dust) in the quantity of 2x100 g/250ml collected in the facility (best beneath cages),
- Samples of cloacal swabs collected from 300 hens (bacteriological examination). If there are less than 300 hens in a facility, it is necessary to take a sample of cloacal swabs from all hens, and
- Five hens (sacrificed or dead)/facility, whereby all organs must be laboratory examined.

In case of free range flocks (barn, floor or free range)

- five pairs of boot swabs (one pair = one pooled sample),
- one pooled sample of dust from egg belts,
- one pooled sample of dust collected in different places of the house (100g dust /250 ml),
- Samples of cloacal swabs collected from 300 hens (bacteriological examination). If there are less than 300 hens in a facility, it is necessary to take a sample of cloacal swabs from all hens, and
- Five hens (sacrificed or dead)/facility, whereby all organs must be laboratory examined.

In case of a suspicion of *S. Enteritidis* or *S. Typhimurium* in a flock of adult laying hens (flock in production), a competent veterinary inspector must order the implementation of the following measures to the bird holder:

- Prohibition of use of antimicrobials for the treatment of flocks of adult laying hens (flock in production) suspicious of salmonella infection caused by *S. Enteritidis* or *S. Typhimurium*,
- Prohibition of movement of poultry and eggs from the holding except with a special authorisation issued by a competent veterinary inspector,
- Prohibition of movement of feed from the holding,
- Prohibition of removal of manure from the holding,
- Appropriate cleaning, washing and disinfection of premises, devices and equipment in the sites for production and storage of poultry feed,
- Disinfection and cleaning of vehicles by appropriate means;
- A competent veterinary inspector must conduct epidemiological investigation to determine a source of infection.

The measures remain in force until the presence of *S. Enteritidis* or *S. Typhimurium* serotypes is excluded by repeated laboratory testing.

In case that some other disease appears in a flock of adult laying hens (flock in production) suspicious of salmonella infection, treatment must be conducted in compliance with the

provisions of Article 2, paragraph 2), item (c) of the Ordinance on specific control methods in the framework of the national programmes for the control of salmonella in poultry (Official Gazette 72/08).

In such exceptional cases antimicrobials must be used on the basis of results of bacteriological examination and antibiograms. A competent veterinary inspector or official veterinarian must conduct regular supervision of the use of antimicrobials, and he must submit reports on conducted supervision to the Veterinary Directorate on a quarterly basis.

After conducted treatment, it is necessary to carry out a control of efficacy of the implemented therapy in a manner that control samples are taken from poultry twice, on the 7th and 14th day from the beginning of the therapy, and delivered to a laboratory for analysis.

Treatment of a flock may be conducted by approved veterinary organisations or an approved veterinary service. Each treatment of a flock must be recorded in the *Records on Animal Treatment and Waiting Period*.

Flock of laying hens in which the presence of *S. Enteritidis* or *S. Typhimurium* is confirmed by additional laboratory tests

A flock of laying hens is considered infected if:

- the presence of *S. Enteritidis* or *S. Typhimurium* (other than vaccine strains) is detected by additional testing in one or more faeces samples, cloacal swabs, dust, organs of sacrificed or dead hens, or
- Antimicrobials or bacterial growth inhibitors are detected, and the presence of *S. Enteritidis* or *S. Typhimurium* is not detected.

A competent veterinary inspector must order the implementation of the following measures to the bird holder in a positive flock of laying hens :

- Prohibition of use of antimicrobials for the treatment of flocks of laying hens infected by *S. Enteritidis* or *S. Typhimurium*;
- Prohibition of placing on the market of eggs classified as "A" class eggs in compliance with the Ordinance on the quality of eggs (Official Gazette 115/06, 69/07 and 78/08);
- Eggs deriving from an infected flock:
 - a) are considered as "B" class eggs in compliance with the Ordinance on the quality of eggs (Official Gazette 115/06, 69/07 and 78/08);
 - b) may be used for human consumption only if they are treated in a manner which guarantees destruction of all salmonella serotypes with public health significance in compliance with food hygiene rules;
 - c) must be labelled in compliance with the provisions of Article 16 of the Ordinance on the quality of eggs (Official Gazette 115/06, 69/07 and 78/08);
 - d) it is not permitted to dispatch them to packing centres if a competent veterinary inspector is not satisfied with the implementation of measures for the prevention of possible cross contamination of eggs deriving from other flocks.
- Appropriate cleaning, washing and disinfection of premises, devices and equipment in the sites for production and storage of poultry feed;
- Cleaning, washing and disinfection of vehicles by appropriate disinfection means;
- Disinfection, disinfestation and deratisation of infected facilities for breeding and keeping of poultry; when disinfection is completed, its efficiency should be bacteriologically controlled;
- Removal and sanitary treatment of manure in a prescribed manner;
- It is prohibited to introduce new poultry into the facility until a negative control result of disinfection efficiency is obtained;
- If the owner of a positive flock decides to send a flock of laying hens infected by salmonellosis caused by *S. Enteritidis* or *S. Typhimurium* to slaughter or destruction, all measures must be taken so as to reduce as much as possible the risk of spreading the disease. Slaughtering of birds must be conducted in compliance with special regulations on food hygiene.

- Products derived from such birds may be placed on the market for human consumption if they are in compliance with Part E of Annex II of the Ordinance (Official Gazette 58/12) and the provisions of special regulations on food hygiene and microbiological criteria:
- If not destined for human consumption, such products must be used or disposed of in accordance with the Ordinance on animal by-products not intended for human consumption (Official Gazette 87/09).
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When taking the decision on whether the flock will be sent on slaughter or will stay in production (only for B class eggs) the owner is advised by competent veterinary inspector. The inspector always takes into account the age of the flock, the possible costs of the compensation from the state budget and losses of the producer. In 2011/2012 all flocks and eggs originating from positive flocks were destroyed immediately upon SE/ST confirmation due to no interest for such flocks and eggs on Croatian market.

Flock of unknown health status

In case of eggs originating from a flock of unknown health status:

- suspicious of being infected; or
- infected by *S. Enteritidis* or *S. Typhimurium*; or
- identified as a source of infection in a specific case of human infection;

a competent veterinary inspector must order the following measures to the bird holder:

- Prohibition of placing on the market of eggs classified as "A" class eggs in compliance with the Ordinance on the quality of eggs (Official Gazette 115/06, 69/07 and 78/08);
- Eggs originating from a flock of unknown health status:
 - a) are considered as "B" class eggs in compliance with the Ordinance on the quality of eggs (Official Gazette 115/06, 69/07 and 78/08);
 - b) may be used for human consumption only if they are treated in a manner which guarantees destruction of all salmonella serotypes with public health significance in compliance with food hygiene rules;
 - c) must be labelled in compliance with the provisions of Article 16 of the Ordinance on the quality of eggs (Official Gazette 115/06, 69/07 and 78/08);
 - d) It is not permitted to dispatch them to packing centres if a competent veterinary inspector is not satisfied with the implementation of measures for the prevention of possible cross contamination of eggs deriving from other flocks.
- Appropriate cleaning, washing and disinfection of premises, devices and equipment in the sites for production and storage of poultry feed;
- Cleaning, washing and disinfection of vehicles by appropriate means;
- Disinfection, disinfestation and deratisation of infected facilities for breeding and keeping of poultry; when disinfection is completed, its efficiency should be bacteriologically controlled;
- Removal and sanitary treatment of manure in a prescribed manner;

(d) Specification of the following points:

1. General

1.1 A short summary referring to the occurrence of Salmonellosis (Zoonotic Salmonella)

A short summary referring to the occurrence of the salmonellosis [zoonotic salmonella] in the Member State with specific reference to the results obtained in the framework of monitoring in accordance with Article 4 of Directive 2003/99/EC, particularly highlighting the prevalence values of the salmonella serovars targeted in the salmonella control programmes.

Salmonellosis and *Salmonella* infections in poultry

Salmonellosis and *Salmonella* infections in poultry have been systematically monitored in the Republic of Croatia in the diagnostic laboratory of the Croatian Veterinary Institute since the seventies of the last century. Due to the implementation of strict measures under the National Programme for the Control and Eradication of Fowl Typhoid, *Salmonella*-specific serotypes *S.*

gallinarum and *S. pullorum* have become economically insignificant and limited to individual rare cases in extensive production systems (the last case was recorded in 1993).

The development of intensive poultry farming and ever-increasing production and consumption of meat, eggs and related products have facilitated the spread of *Salmonella* infections caused by non-host-specific invasive serotypes – paratyphoid *Salmonellas*, which can not only cause severe infections in poultry, but can also spread through food and cause disease in humans.

Thanks to the systematic and years-long implementation of disease monitoring and control measures prescribed by the annual Order on measures to protect animals from infectious and parasitic diseases and the financing thereof, the total number of isolated *Salmonellas* has significantly decreased.

According to monitoring programme for 2009, 2010, 2011 and 2012 all laying hen flocks of *Gallus gallus* comprising at least 350 birds in the country had to be tested on *Salmonella* spp. presence. Also all flocks, regardless of their category and registration, the products of which are intended for public consumption, must be examined by submitting official samples to an official laboratory.

Eggs for human consumption ("A" class eggs) may be placed on the market only if they come from salmonella-free flocks (*S. Enteritidis* or *S. Typhimurium* other than vaccine strains) and if flock holders possess health certificates for the flock issued by an official laboratory. The certificate is issued on the basis of officially submitted samples.

The baseline study has not been carried out but the prevalence is calculated based on data collected throughout regular monitoring programme. The prevalence of *Salmonella* spp. and *S. Enteritidis* and *S. Typhimurium* in laying hen flocks of *Gallus gallus* poultry for 2009, 2010 and 2011 was as mentioned in Table 1.:

Table 1. Results of salmonella monitoring programme for laying hen flocks of *Gallus gallus* in 2009-2011

Year	Type of <i>Gallus gallus</i> poultry	Total No of tested flocks	Total No of <i>Salmonella</i> spp. positive flocks	Total No <i>S. Enteritidis</i> positive flocks	Total No <i>S. Typhimurium</i> positive flocks	Total No other <i>Salmonella</i> spp. positive flocks
2009	Laying hens	318	49	47	2	0
2010	Laying hens	308	19	12	0	7
2011	Laying hens	317	58	14	0	44

In 2009 (the first year of monitoring programme), 318 laying hen flocks were tested on *Salmonella* spp. and out of them 49 flocks were positive on *S. Enteritidis/S. Typhimurium*. The prevalence of *S. Enteritidis* in laying hen flocks was 14,8% and *S. Typhimurium* 0,6%.

In 2010, 308 laying hen flocks were tested on *Salmonella* spp. and out of them 19 flocks were positive on *Salmonella* spp.. The prevalence of *Salmonella Enteritidis* in laying hen flocks was 3,4%.

In 2011, 317 laying hen flocks were tested on *Salmonella* spp. and out of them 58 flocks were positive on *Salmonella* spp.. The prevalence of *Salmonella Enteritidis* in laying hen flocks was 4,4%.

Salmonellosis and *Salmonella* infections in humans

Salmonellosis are the most significant zoonoses in Croatia. On average, about 3500 positive cases of human salmonellosis are reported annually. These are most often the outbreaks caused by *S. Enteritidis*.

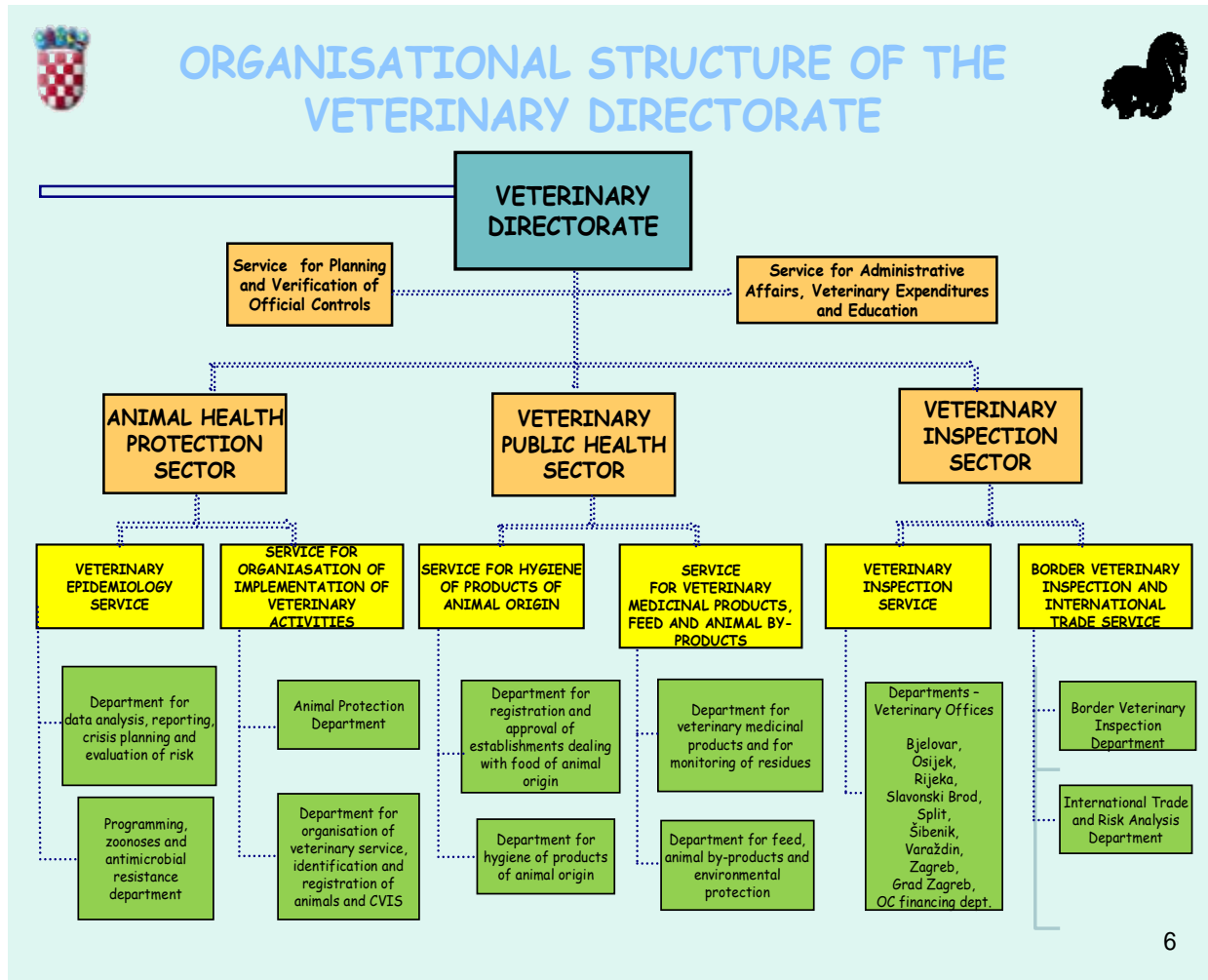
In Croatia, most outbreaks are so-called family outbreaks, whereas only a small number of outbreaks are associated with public catering premises and, as a rule, are not linked to industrially produced food and products.

Table 2. DISTRIBUTION OF HUMAN SALMONELLOSIS IN THE PERIOD 1998-2010		
Year	Number of diseased	Number of deaths
1998	4288	-
1999	4121	3
2000	5134	3
2001	5620	-
2002	6570	1
2003	5755	4
2004	4940	3
2005	5619	1
2006	4734	1
2007	3331	-
2008	3664	-
2009	3158	1
2010	2098	1

The level of salmonellosis in humans has the lowest figure in 2010 (2098) owing to complex preventive measures aimed to control all possible sources in humans and animals (zoonosis). The most common isolated strains of *Salmonella* spp. from samples of diseased humans are *Salmonella* Enteritidis (84% of all isolates), *Salmonella* senftenberg (2% of all isolates), *Salmonella* typhimurium (1% of all isolates), *Salmonella* infantis (1% of all isolates), *Salmonella* virchow (1% of all isolates), *Salmonella* thompson (1% of all isolates), *Salmonella* derby (1% of all isolates), *Salmonella* coeln (1% of all isolates). Data on human salmonellosis are provided by Croatian national institute of public health.

1.2 The structure and organization of the relevant competent authorities.

Please refer to the information flow between bodies involved in the implementation of the programme.



In accordance with the current internal organisation of Ministry of Agriculture (MA), the competent authority (CA) in the veterinary field is the Veterinary Directorate.

The Veterinary Directorate has five organisational units:

1. Service for Planning and Verification of Official Controls (SPVOC),
2. Service for Administrative Affairs, Veterinary Expenditures and Education,
3. Animal Health Protection Sector,
4. Animal Public Health Sector,
5. Veterinary Inspection Sector.

The Service for Planning and Verification of Official Controls (SPVOC):

- participates in the preparation of annual plan for official controls of the Veterinary inspection service;
- participates in the implementation of risk assessment in establishments dealing with food, feed and products of animal origin, in order to determine the appropriate frequency of official controls in mentioned establishments;
- monitors the implementation of acts and regulations in the veterinary inspection jurisdiction, and the legality of the actions of all veterinary offices in their respective areas of jurisdiction;

- verifies the performance of official controls on the basis of the supervision of the veterinary inspectors and official veterinarians and their reports on conducted official controls;
- performs official controls in registered establishments, approved establishments and establishments approved under special conditions dealing with food and products of animal origin, which are under the veterinary inspection competence and in registered and approved establishments dealing with feed;
- conduct official controls in registered and approved establishments dealing with animal by-products and supervises the implementation of official controls in these establishments carried out by the state veterinary inspectors and official veterinarians;
- performs official controls regarding production and distribution of veterinary medicinal products and the laboratories which conducts testing and control of veterinary medicinal products;
- supervises the implementation of monitoring in regard to veterinary inspection;
- performs official controls and supervision on the enforcement of measures for preventing and eradication of infectious and parasitic diseases and zoonoses;
- supervises activities of control bodies and authorised veterinary organisations;
- performs official controls on animal welfare, transportation and identification of animals;
- performs official controls on production and storage of semen and embryos, as well as on breeding and reproduction of farm animals;
- performs official controls on laboratories which conduct analysis in the field of veterinary medicine;
- participates in the organisation and delivery of training for State veterinary inspectors, official veterinarians and authorised veterinarians;
- participates in the drafting of legislation drawn up by the competent authority and performs other duties in accordance with national regulations.

The Service for Administrative Affairs, Veterinary Expenditures and Education is competent for monitoring and co-ordination of work on the alignment of legislation in the veterinary field and international agreements in the veterinary field; prepares, monitors and co-ordinates the preparation of regulations governing in the expenditures in field of veterinary medicine, participates in preparation of program funding in the veterinary field (measures for animal health protection and all other measures in the veterinary field of veterinary medicine); prepares proposal for the budget plan for expenditures in field of veterinary medicine; participates in drafting the costs of laboratory diagnostics and analytics monitoring implementation of financing of measures that are paid from the state budget; monitors and aligns Croatian legislation in field of veterinary medicine with the *acquis communautaire* and co-ordinates the work in field of harmonization and application of veterinary legislation, prepares reports of compliance of veterinary legislation with EU legislation, plans legislative actions to transpose and implement the *acquis* relating to the veterinary legislation and follows up and reports on its implementation, participates in the drafting of international treaties and other legal forms of international co-operation in the veterinary field and coordinates process of their execution and implementation; co-operates with the competent authorities of other countries in the field of veterinary medicine and international organizations (Codex); is a contact point for co-ordination with the World organization for animal Health (OIE) develops a draft Pre-Accession Economic program (PEP) in the part relating to the Veterinary Directorate; participates in the process of authorizing official and reference laboratories in the field of veterinary medicine; is a contact point in co-operation with TAIEX (Technical Assistance and Information Exchange); participates in the preparation of training programs and maintains records of trainings of VD employees and authorized veterinarians and participates in the organization of training conducted by the VD, provides technical assistance in the processing of legal issues related to the implementation of laws and within the scope of VD, provides technical assistance in the conduct of officials in the administrative proceedings, gives opinions and explanations concerning the implementation of regulations in field of veterinary medicine; drafts contracts and other civil rights legislation from in the field of veterinary medicine.

The Animal Health Protection Sector develops policies and manages activities related to:

animal health surveillance and monitoring; control and eradication of animal diseases including zoonoses; contingency planning and crisis management; animal welfare; financing of measures on early detection and eradication of animal diseases, as well as activities related to identification of animals and registration of their movements. It also performs tasks regarding the organisation and functioning of the veterinary service and development and maintenance of the Central Veterinary Information System designed to provide a unified system of all registers and software in the veterinary field. The Sector comprises two Services (Veterinary Epidemiology and Organisation of implementation of veterinary activities) and four departments: Data analysis and contingency planning; Programming and zoonosis; Organisation of veterinary service, identification and registration of animals and CVIS (Central Veterinary Information System) and Animal Protection Department. CVIS will support access or data exchange with information systems from other state organizations, institutes and agencies.

The Veterinary Public Health Sector (VPHS) is competent for the safety of: food of animal origin and feed; veterinary medicinal products and veterinary medical devices; monitoring of residues; animal by-products; drafting of legislation and other relevant programmes; organizing educations on implementation of the legislation as well as drafting written instructions for authorised veterinarians, official veterinarians and veterinary inspectors; legal, administrative and related activities. VPHS manages activities related to NCRP, the residue programme for feed and the monitoring programme for bivalves. The Sector comprises two services: Service for Hygiene of Products of Animal Origin and Service for Veterinary Medicinal Products and Feedstuffs.

The Veterinary Inspection Sector (VIS) has two services and is organised as it follows:

- Border Veterinary Inspection and International Trade Service;
- Veterinary Inspection Service.

The Veterinary Inspection Service has ten departments; the Department for Financing Official Controls which is responsible for legal issues and activities related to financing of official controls in the veterinary field and nine Regional Veterinary Inspection Departments (veterinary offices) located in City of Zagreb, Zagreb, Varaždin, Bjelovar, Osijek, Slavonski Brod, Šibenik, Rijeka and Split. These Inspection Departments have 65 branch offices. The veterinary Inspection Service is responsible for implementation of official controls regarding animal health, animal welfare and production, and also in trade of food and feed in line with the Veterinary Act, the Food Act, the Animal Protection Act, and the Act on the Veterinary Medicinal Products. The Border Veterinary Inspection and International Trade Service is organised into two departments: the Border Veterinary Inspection Department and International Trade and Risk Analysis Department. The Border Veterinary Inspection Department is responsible for veterinary checks and controls at BIPs on consignments of animals, products of animal origin, feed of animal origin and other objects that may transmit infectious or parasitic diseases or jeopardise human and animal health. The International Trade and Risk Analysis Department is competent for legal and administrative activities in the field of international trade. These activities include: determining veterinary conditions for the import and transit of consignments of animals and products of animal origin; drafting models of export and import veterinary certificates; keeping abreast of international legislation; drafting of legislation on the control of trade of animals and products of animal origin; drafting orders on security measures for import control of live animals and products of animal origin related to animal diseases and other agents that may harm human and animal health; drafting of the annual monitoring plan for import consignments; and other related activities.

Under the Veterinary Act (OG 41/07, 55/11) official controls are performed by the Official Veterinarians (OV).

Certain tasks of official controls may be delegated to control bodies (veterinary organisations accredited to ISO 17020:1998). Control bodies must be impartial and free from any conflict of interest. According to Article 116 of the Veterinary Act, the costs of veterinary checks, certification, veterinary supervision and monitoring are paid from the state budget. All fees for official controls are paid to the state budget and control bodies are paid from that budget. Under the Ordinance on official controls to ensure the verification of compliance with feed and food, animal health and animal welfare law (OG 99/07, 74/08), administrative measures in case of non-compliance are not delegated. When an authorised veterinarian (AV), performing delegated tasks finds non-compliance, he must notify the OV. The relevant competent

authority (CA) may delegate specific tasks to a particular control body under the following conditions:

- There is an accurate description of the tasks to be carried out and the conditions for their implementation;
- There is proof that the control body: has the expertise, equipment and infrastructure required to carry out the tasks delegated to it; sufficient suitably qualified and experienced staff. It must also be impartial and free from conflict of interest as regards the exercise of the tasks delegated to it;
- The control body works to, and is accredited in accordance with, ISO 17020, and communicates the results of the controls carried out to the competent authority;
- There is efficient and effective co-ordination between the delegating competent authority and the control body.

The Ordinance on requirements to be met by veterinary organisations performing veterinary activities (OG 45/09, 80/10) requires the authorized veterinary organizations and control bodies to be impartial and free from any conflict of interest regarding the tasks delegated to them.

138 veterinary organisations, which employ 894 AV, are involved in official controls. According to the Veterinary Act (Official Gazette No 41/07, 55/11) veterinary activities shall be conducted by legal persons through veterinary surgeries, veterinary stations, veterinary hospitals, veterinary clinics, centres for reproduction and artificial insemination, and veterinary pharmacies (veterinary organisations). Veterinary organisations are established as companies. Certain veterinary activities, in accordance with the provisions of the Veterinary Act, are conducted by the Croatian Veterinary Institute as well as by the Faculty of Veterinary Medicine. A veterinary organisation, veterinary practice and veterinary service may be founded provided that an opinion of the Croatian Veterinary Chamber and a veterinary consent of the competent veterinary inspection office have been obtained and may start to conduct their activities on the basis of a Decision on the compliance with the stipulated conditions regarding the arrangement of the facilities, premises, veterinary equipment and professional staff, adopted by the Director at the proposal of an expert commission founded by the Director of the Veterinary Directorate. In the Veterinary Act it is laid down that certain activities can be performed only by veterinary stations and veterinary surgeries which, on the basis of the carried out competition, are authorised by the Veterinary Directorate to perform these activities for the period of 5 years.

According to the Veterinary Act (Official Gazette No 41/07, 55/11) authorised veterinarian may conduct the following activities:

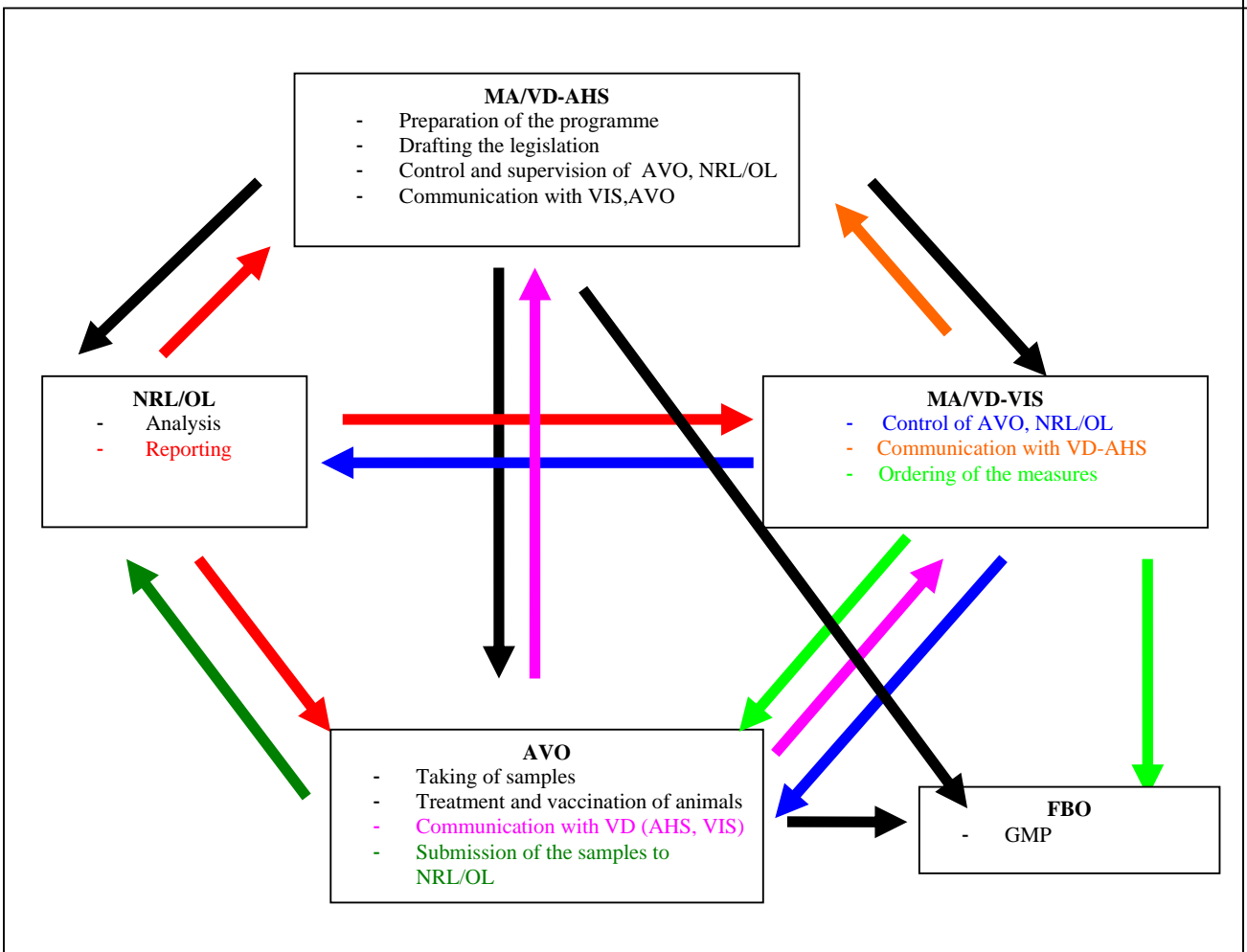
1. veterinary checks and controls on husbandries, farms, livestock markets, animal gatherings, buyout points, facilities for resting of animals, animal exhibitions and other facilities if the veterinary organisation in which he is employed is authorised to do so,
2. issue animal health certificates, certificates for consignments of products of animal origin and feed in internal trade,
3. enforce compulsory identification of animals and keep the stipulated records on the identification and registration of movement animals,
4. implement the stipulated measures for the detection, prevention, combating and control infectious or parasitic diseases,
5. take diagnostic material of animals, samples of products of animal origin and animal waste matter for the purpose of examining the health of animals, i.e. safety of products of animal origin,
6. prohibit the dispatching of animals, products of animal origin and animal waste matter if it is established in the course of a veterinary examination that the consignment has been infected or if contamination is suspected, if it originates from an infected area, if it fails to comply with other stipulated safety conditions, if it is not accompanied by the stipulated and correct documentation, or if the transport vehicle fails to meet the stipulated veterinary conditions.

Epizootiological regions	Authorised veterinary organisations	Authorised veterinarians
Dubrovnik - Neretva County	2	3
Splitsko - Dalmatia County	11	40
Šibensko - Knin County	4	17
Lika - Senj County	7	13
Zadar County	6	20
Primorje - Gorski Kotar County	6	25
Istra County	8	33
Sisak - Moslavina County	8	48
Karlovac County	8	32
City of Zagreb	3	52
Zagreb County	10	104
Varaždin County	5	57
Međimurje County	2	35
Koprivnica - Križevci County	4	96
Virovitica - Podravina County	5	25
SlavonskiBrod - Posavina County	11	34
Požega - Slavonia County	3	24
Osijek - Baranja County	10	67
Vukovar - Srijem County	7	54
Krapina - Zagorje County	7	29
Bjelovar - Bilogora County	11	80
TOTAL	138	894

In August 2010, Croatia issued the "Ordinance on designation of official and reference laboratories in the implementation of veterinary activities" (OG No 102/10), which provides that all laboratories which perform official control in the field of veterinary medicine including feed and some parts of food of animal origin should be accredited by the Croatian Accreditation Agency to EN ISO 17025:2007.

Information on flow between bodies involved in the implementation of the programme is described in the *flow diagram* below

Flow diagram



Abbreviations:

- MA/VD-AHS – Ministry of Agriculture/Veterinary Directorate-Animal Health Sector
- MA/VD-VIS – Ministry of Agriculture/Veterinary Directorate- Veterinary Inspection Sector
- AVO- authorized veterinary organizations
- NRL-National referent laboratory
- OL – Official laboratory
- FBO-Food business operator

1.3 Approved laboratories where samples collected within the programme are analysed.

NRL IN CROATIA

The national reference laboratory for Salmonella in poultry is the Croatian Veterinary Institute – Poultry Centre, Heinzelova 55, Zagreb.

The national reference laboratory for antimicrobial resistance in animals is the Croatian Veterinary Institute Zagreb, Department for Bacteriology and Parasitology, Laboratory for General Bacteriology and Microbiology, Savska cesta 143, Zagreb

Other official laboratories involved in the implementation of this Programme are:

- Croatian Veterinary Institute Zagreb, Savska cesta 143, Zagreb;
- Croatian Veterinary Institute, Regional Branch Split, Poljička cesta 33, Split;
- Croatian Veterinary Institute, Regional Branch Križevci, Zakmardijeva 10, Križevci;
- Croatian Veterinary Institute, Regional Branch Vinkovci, J. Kozarca 24, Vinkovci;
- Croatian Veterinary Institute, Regional Branch Rijeka, Podmurvice 29, Rijeka;
- Bioinstitut d.o.o., R. Steinera 7, Čakovec.

Accreditation status of laboratories

The laboratories involved in salmonella national programmes are accredited to the required standards and fully comply with the provisions of the Article 11 and Article 12 of Regulation 2160/2003 and Ordinance on authorization of the official and reference laboratories regarding the implementation of veterinary activities (Official Gazette 102/10).

Due to the above mentioned all official laboratories providing diagnostic testing of the samples taken from poultry within this programme are accredited in accordance with the:

- HRN EN ISO/IEC 17025 standard;
- Current version of Annex D of HRN EN/ISO 6579: 2003: „Detection of *Salmonella* spp. in animal faeces and in samples of the primary production stage“.

Official laboratories are obliged to regularly participate in collaborative testing organised or coordinated by the national reference (NRL). NRL is obliged to organize interlaboratory testing for official laboratories in Croatia at least once per year. Testing for the presence of salmonella is carried out using the methods and protocols recommended by international standardization bodies.

1.4 Methods used in the examination of the samples in the framework of the programme.

Samples are prepared and tested in a laboratory in accordance with the requirements set forth in Regulation 517/2011 and the Ordinance on harmonised monitoring of antimicrobial resistance in *Salmonella* in poultry and pigs (Official Gazette 75/09).

The detection of the relevant *Salmonella* serotypes shall be carried out according to Amendment 1 of HRN EN/ISO 6579: 2003/Amd1:2007. 'Microbiology of food and animal feeding stuffs – Horizontal method for the detection of *Salmonella* spp. — Amendment 1: annex D: Detection of *Salmonella* spp. in animal faeces and in environmental samples from the primary production stage. At least one isolate is serotyped according to the Kaufmann-White scheme.

1.5 Official controls (including sampling schemes) at feed, flock and/or herd level

Official controls at the primary production stage

All laying hen flocks, regardless of their category and registration, the products of which are intended for public consumption, must be examined by submitting official samples to an official laboratory. Eggs for human consumption ("A" class eggs) may be placed on the market only if they come from salmonella-free flocks (*S. Enteritidis* or *S. Typhimurium* other than vaccine strains) and if flock holders possess health certificates for the flock issued by an official laboratory. The certificate is issued on the basis of officially submitted samples.

Sampling is conducted in compliance with the requirements specified in Part B of Annex II to the Ordinance on the control of salmonella and other specified food-borne zoonotic agents (Official Gazette 58/12) and the Regulation 517/2011. Samples for the purposes of official control at the primary production stage shall be taken by official veterinarians.

Samples must be submitted for testing to the National Reference Laboratory for salmonellosis in poultry. Laboratory analysis of samples shall be carried out in accordance with the provisions of Regulation 517/2011.

Official controls on feedingstuffs for the presence of *Salmonella* spp.

In accordance with Articles 66 and 67 of the Food Act (Official Gazette 46/07, 55/11), the competent authority (the Ministry of Agriculture is the central state administration authority in charge of safety, hygiene and quality of food and feed and the organisation of official controls) must ensure that official controls on feed safety are carried out in all stages of production, warehousing, distribution and use.

Regulation (EC) No 882/2004, which lays down the general rules for the organization and implementation of official controls, has been transposed into national legislation through the Ordinance on official controls performed to ensure the verification of compliance with feed and food law, animal health and animal welfare rules (OG 99/07).

An annual action plan of the Veterinary Inspection Sector is distributed to veterinary offices, defines an annual plan for the implementation of official controls as well as feed monitoring carried out by state veterinary inspectors and official veterinarians. Reports on official controls performed are collected once a month, via a web application, from all state veterinary inspectors and are submitted to the Head of the Veterinary Inspection Sector and CVO.

Checklists for carrying out official controls in the veterinary field are prepared in the central office of the Veterinary Directorate and are intended to assist staff carrying official controls. These checklists are distributed to all veterinary offices and their use is mandatory. Written procedures for carrying out official controls have also been developed and distributed to veterinary offices, as have been the operational instructions for carrying out inspections and audits in the area of food of animal origin.

The annual plan of activities of state veterinary inspectors and official inspectors includes official controls of the following:

- Inspection of veterinary organisations, private veterinary surgeries and veterinary services in performing their veterinary activity;
- Inspection of establishment where animals are bred, kept, and produced
- Inspection of establishments involved in trade in animals, vehicles used for the transportation of animals, and trade in animals;
- Inspection of establishments involved in temporary storage and processing of animal by-products.

Official controls in establishments handling food of animal origin are carried out at a frequency based on risk assessment for each individual establishment. The risk assessment database is kept in the central office of the Veterinary Directorate and is updated as new information becomes available, and the data are sent electronically to field offices.

Official controls and scheme of sampling at feed

All feed businesses operators must satisfy the conditions stipulated by Annex II to the Ordinance on feed hygiene (Official Gazette 41/08) in each of the registered or approved establishments as well as to establish and implement an internal control system based on the HACCP principles, except in registered establishments engaged in primary production or mixing of complementary feed (formerly "superconcentrates") with feed material, where they must satisfy the conditions stipulated by Part A, Annex I to the abovementioned Ordinance.

To define the frequency of official controls in feed establishments, the following risk factors were taken into account:

- type of establishment or risks posed by registered or approved activities
- quantities produced (in tonnes)
- risks posed by used raw materials or products, especially by-products of other industries

- origin of used feed material, feed additives or pre-mixtures (e.g. imports from distant countries)
- product range
- frequency of batch changes (different types of feed for different animal species)
- use of feed additives (cocciostats) or risk types of feed materials (fishmeal, fish oil).

Drafting of the sampling plan

When defining a number and types of analytical tests within the monitoring plan, as one of the official control methods, risk levels associated with registered or approved activities in feed establishments, produced quantities, types of raw materials or products (including potential by-products of other industries), use of fishmeal or production of medicated feedingstuffs are taken into account. The notifications obtained through the Rapid Alert System for Food and Feed (RASFF) were also taken into account.

The activities carried out in approved establishments are generally considered to be connected with the use of more dangerous or higher risk substances or products. It has been also established that the annual quantities of finished products produced in approved establishments are higher than those in registered establishments, and that such finished products are distributed to a higher number of customers. Consequently, the frequency of sampling and laboratory analyses (monitoring) of raw materials and finished products from approved establishments should be higher than that for other feed establishments.

Criteria for feed sampling for microbiological analysis

Sampling should focus on poultry feed. The sampling records must state the exact category of poultry for which the compound feed is intended (parent flock, breeding chicken, table egg laying hens, laying hens for hatching eggs, broilers) and its age range. The same applies to pig feed, especially that for piglets.

Sampling basically covers *Salmonella spp.* in order to prove the safety of compound feed. Sampling is carried out in accordance with the feed monitoring plan. Article 71 of the Ordinance on the quality of animal feed (Official Gazette 26/98, 120/98, 55/99, 76/2003, 22/06) sets the zero (0) tolerance requirement for *Salmonella spp.* If *Salmonella spp.* are, however, present in compound feed, such feed is safely disposed of.

In accordance with the aforementioned annual plan of official controls and feed monitoring, sampling should be carried out throughout the year. Sampling is carried out in accordance with the provisions of the Ordinance on methods of sampling of feedingstuffs (Official Gazette 128/06), except for sampling of feed for pesticide residues and that for microbiological testing. Sampling for microbiological testing should be based on a random sample taken in the quantity that may be divided into four samples of a minimum 0.5 kg weight.

All columns of the sampling and analytical method records template, which is given in the Annex to the annual plan, should be completed during the sampling procedure.

The original copy of the records should be kept by the official veterinarian or the state veterinary inspector who conducted sampling, a copy of the records delivered to a client/feed business operator, and another copy delivered to a laboratory.

Sampling for monitoring purposes

Only one sample is taken during feed sampling as stipulated by the annual monitoring plan. If the analytical results show that the submitted sample does not comply with the provisions on feed, the veterinary inspector/official veterinarian must take additional samples and request the analytical testing of samples beyond the scope of this monitoring plan. On family farms and agricultural holdings, samples may be taken at the same time the holding is inspected or the live animals on farms monitored for residues.

Sampling for official controls

Sampling for official controls, other than sampling for monitoring purposes, should be targeted, i.e. the official veterinarian or the state veterinary inspector must provide an explanation for each sample taken and analytical test chosen, except in the case of sampling for monitoring purposes.

If samples should be taken and analysed during inspection (other than sampling for monitoring purposes), the veterinary inspector/official veterinarian must notify the client/feed business operator about the right to take two identical official samples. One sample is delivered to the official or the reference laboratory and the other sample is intended for potential re-testing, if

so required by the client /feed business operator. After the latter is officially packed (in a sealed packaging), it is kept by the feed business operator. The deadline for requesting repeated analysis is eight days following the date of delivery of analytical results for the first sample to the client /feed business operator.

The client /feed business operator must be informed that the sample should be kept under appropriate storage conditions, which should be identical to those for that specific type of the raw material or the product.

This second sample is sent to the reference laboratory or to the accredited official laboratory for re-testing (this may be the same laboratory which carried out the first analysis). The results of this analysis are final and relevant.

Microbiological criteria control

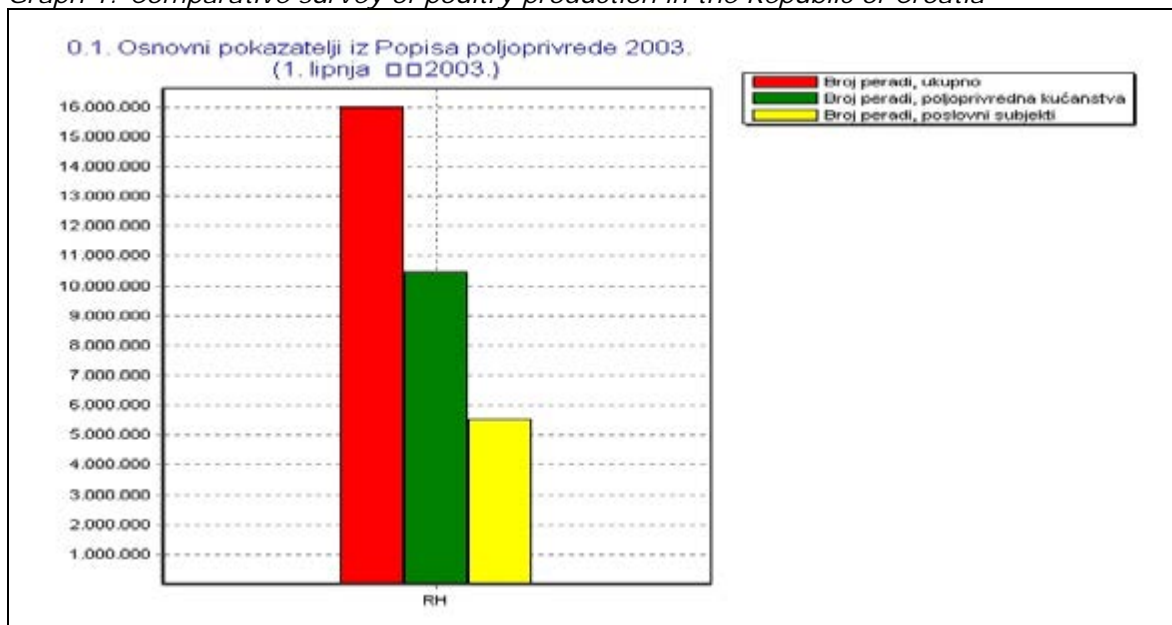
Ordinance on microbiological criteria for foodstuffs (Official Gazette 74/08,156/08, 89/10 i 153/11) requires that samples be taken in slaughterhouses and poultry meat processing plants for bacteriological testing for *Salmonella* spp..

2. Food and business covered by the programme

2.1 The structure of the production of the given species and products thereof

Organisation of and method for poultry production

Graph 1: Comparative survey of poultry production in the Republic of Croatia



0.1 Basic indicators in Agricultural Census 2003 (1 June 2003)

(red) Number of poultry, total

(green) Number of poultry, agricultural holdings

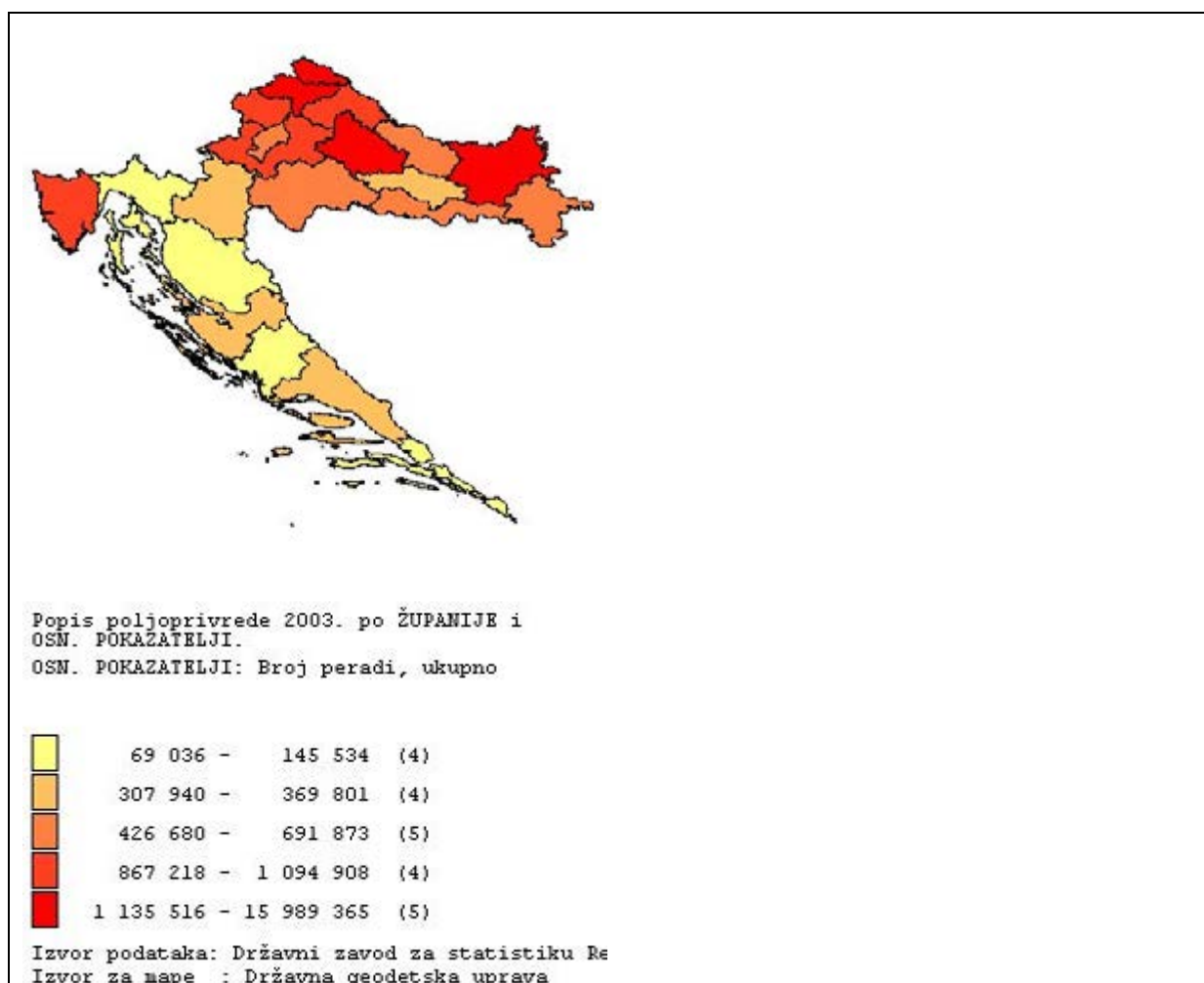
(yellow) Number of poultry, business entities

Table 3.: Number of business entities by the number of poultry per counties

County	By number of poultry, total	By number of poultry, 1 – 50	By number of poultry, 51 – 100	By number of poultry, 101 – 500	By number of poultry, 501 – 1 000	By number of poultry, 1 001 – 3 000	By number of poultry, 3 001 – 5 000
Total Republic of Croatia	498	204	70	41	15	39	20
Zagreb County	28	14	4	2	0	3	1
Krapina-Zagorje County	17	0	1	1	0	0	1
Sisak-Moslavina County	16	4	3	2	1	1	1
Karlovac County	6	2	0	1	1	1	1
Varaždin County	28	2	3	0	1	1	2
Koprivnica-Križevci County	8	3	1	2	0	1	0
Bjelovar-Bilogora County	45	30	6	2	2	3	0
Primorje-Gorski Kotar County	13	1	2	5	1	3	0
Lika-Senj County	0	0	0	0	0	0	0
Virovitica-Podravina County	26	19	3	3	0	1	0
Požega-Slavonia County	10	5	1	0	0	1	1

Brod-Posavina County	57	25	6	5	0	2	3
Zadar County	5	0	0	0	1	2	0
Osijek-Baranja County	77	37	19	8	2	3	2
Šibenik-Knin County	4	1	0	0	1	2	0
Vukovar-Srijem County	48	25	14	2	2	0	3
Split-Dalmatia County	12	2	0	2	2	4	0
Istra County	24	8	2	1	0	6	1
Dubrovnik-Neretva County	3	0	0	0	1	1	1
Međimurje County	60	25	4	4	0	3	3
The City of Zagreb	11	1	1	1	0	1	0

*Scheme 2: Density of poultry per counties **



Agricultural Census 2003 per COUNTIES and BASIC INDICATORS

BASIC INDICATORS: Number of poultry, total

*Source of data: Central Bureau of Statistics of the Republic of Croatia, Croatian Agricultural Agency

Source of maps: State Geodetic Administration

Table 4: Food and Agricultural commodities production*

Commodity	Year										
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Hen Eggs, in shell	46,47	47,21	45,70	52,38	48,05	45,70	50,73	48,20	47,24	40,05	34,27
Indigenous Chicken Meat	24,70	25,60	34,54	41,38	38,50	30,26	29,20	30,86	30,80	43,12	33,09
Indigenous Turkey Meat	6,60	6,64	7,06	7,51	11,36	8,77	8,12	-	8,86	-	-

*Source of data: FAOSTAT

Table 5: Total No of *Gallus gallus* poultry in Croatia 2010-2011

Year	Type of <i>Gallus gallus</i> poultry	Total No of flocks	Total no poultry
2011	Breeding flocks	147	233772
2011	Laying hens	317	2331279
2011	Broilers	3004	36179783
2010	Broilers	2093	36627830
2010	Laying hens	308	2268058
2010	Breeding flocks	123	546267

2.2 Structure of the production of feed

Organisation of and method for feed production

Feed business operators are authorised and registered pursuant to the Veterinary Act (Official Gazette 46/07, 55/11) and the Food Act (Official Gazette 46/07, 55/11). Veterinary Public Health Sector within Veterinary Directorate is responsible for drafting legislation in the area of feedingstuffs, approval and registration of the establishments dealing with feed, maintaining the registers of all approved and registered establishments dealing with feed and publishing registers on the website of MA.

Current situation regarding approved/registered feed business establishments in Croatia is as follows:

- 130 approved establishments dealing with feed
- 1197 registered establishments dealing with feed
- 148 registered establishments for production dealing with feed
- 291 registered family agricultural holdings dealing with feed

Data available at <http://www.mps.hr/default.aspx?id=5905>.

Table 6: Data on feed production in 2009

Premixes	13.092 t
Pigs	186.637 t
Cattle	99.268 t
Poultry	281.797 t
Other Animals	9.784 t

Source – Croatian Chamber of Economy (CCE)
Croatian Feed Industry Association (CFIA) –associate member FEFAC-a

Table 7: Data on import & export compound feed and premixes in 2009

Import compound feed from EU	23.757 t
Import compound feed from third countries	1.363 t
Export compound feed and premixes in EU	468t
Export compound feed and premixes in third countries	15.936 t

Source – Croatian Chamber of Economy (CCE)

2.3 Relevant guidelines for good animal husbandry practices or other guidelines mandatory or voluntary) on biosecurity measures

Guidelines of good manufacturing practice

The guidelines of good manufacturing practice are stipulated by the Veterinary Act, the Food Act and the implementing secondary regulations. Continuous education of veterinarians, producers and animal holders is conducted through the Croatian Veterinary Chamber, the Croatian Chamber of Economy and the Advisory Services of the Ministry of Agriculture. The guidelines are elaborated in accordance with the recommendations of the European Commission, the World Organisation for Animal Health (OIE) and the latest scientific developments.

Primary production establishments and food and feed business operators must ensure the following:

- implementation of hygienic measures on holdings, in establishments and during transport in a regulated manner,
- implementation of measures for the prevention of disease introduction,
- disposal of biological waste,
- respect of animal welfare.

Croatian Chamber of Economy (CCE)-Croatian Feed Industry Association (CFIA) is associate member FEFAC-a. They developed and published guidelines on GMP in animal feed sector on their website:

<http://www.hgk.hr/wps/portal/!ut/p/ s.7 0 A/7 0 P5?legacyWcmClippingUrl=http%3A%2F%2Fhgk.biznet.hr%2Fhgk%2Ftekst3.php%3Fa%3Db%26page%3Dtekst%26id%3D2152%26kid%3D1605%26skid%3D2339>

2.4 Routine veterinary supervision of farms

The animal holder is responsible for the care of poultry health and welfare on the holding. Approved veterinarians are conducting supervision on holdings and establishments on a daily basis. The Veterinary Act and the Order on measures to protect animals from infectious and parasitic diseases and the financing thereof in 2011 and 2012 regulates the obligations of authorised veterinary organisations relating to regular control of holdings regarding animal diseases and reporting to county veterinary inspectors.

Approved veterinarians and veterinary inspectors also conduct regular supervision regarding control of animal welfare on farms and sampling within the national residue monitoring programme.

Veterinary inspectors conduct their regular controls in accordance with the Annual Plan of Activities through out planned are the controls of:

- establishments for breeding, keeping and production of animals;
- veterinary organisations, private practices and veterinary services;
- establishments for slaughter, treatment, processing and storage;
- markets, livestock markets and trade of animals and products of animal origin;
- quarantine facilities;
- implementation of measures for the control of infectious and parasitic diseases of animals;
- trade, use and storage of veterinary medicinal products and veterinary medical devices;
- facilities for hatching of domestic poultry and wild feathered game.

2.5 Registration of farms

Pursuant to the the provisions of Article 38, paragraph 1 of Veterinary Act, farms of ungulates and equidae exceeding 20 conditional animal units, poultry and rabbit farms exceeding 10 conditional animal units, hatcheries, wild game breeding farms, establishments for farming of fish and molluscs and other facilities of aquaculture must comply with the stipulated veterinary-health and zoohygiene conditions.

Pursuant to the provisions of Article 38, paragraph 3 of the Veterinary Act, all farms are to be registered in the Farms Register, which is an integral part of the Central Register of Domestic Animals, the responsibility for which lies with the MA's Veterinary Directorate. The Directorate has entered into contract with the Croatian Agricultural Agency, delegating to it the maintenance of the Central Register of Domestic Animals.

In Croatia all laying hen farms of *Gallus gallus* are registered. Updates on this are kept in the Croatian Agricultural Agency.

2.6 Record keeping at farm

The animal holder must keep and regularly update stipulated records and registers on on all movements of animals/flocks onto and off the holding, deaths, medical treatments including vaccinations and made them available at the request of an authorised person. Laboratory results of sampling for *Salmonella* should be kept on the holding. All documents must be kept for 5 years. All documents must be available for inspection.

Hatcheries and keepers of breeding flocks are obliged to keep the records on all movements of poultry or hatching eggs onto and/or out of the premises. The records must contain the information on the number of eggs/chickens, date and origin of the final destination. Hatcheries are obliged to keep the evidences prescribed by the Ordinance on conditions to be met by facilities for hatching domestic poultry and game birds (OG 36/95). The evidence contains data on number of eggs intended for incubation, number and percentage of hatched eggs, dates of hatching, hygienic control, hatchery waste etc.

2.7 Documents to accompany animals when dispatched

Certificates accompanying animals when placed on the market

Conditions for placing on the market of animals, products of animal origin and feed are stipulated by the Veterinary Act. Animals, their products and feed must come from holdings or establishments in which stipulated veterinary checks have been conducted.

Internal trade

For internal trade, the animal holder must obtain the certificate of health and place of origin of the animal (hereinafter: internal certificate). The internal certificate is issued by an approved

veterinarian who keeps official records on the issued internal certificates. The trade in animals and products of animal origin is permitted only if a country, a region or the holding from which the animal originates has no trade restrictions, that is no protective measures due to animal diseases have been introduced. The internal certificate may not be issued if, in the place of origin of the animals, the existence of an infectious or parasitic disease which can be transmitted by this species of animal is confirmed.

The internal certificate is a public document and it contains data on the animal holder, the identity of the animal (obligatory identification), its origin and health condition. The certificate guarantees that the animals are included in the implementation of imposed measures, that the animals for slaughter are included in the residue monitoring programme, that the animals are not medically treated and, if treated, that the stipulated withdrawal period for permitted veterinary medicinal products has expired, and that they are not treated with prohibited veterinary medicinal products and hormone preparations. The certificate confirms that in the place of origin of the animals or of their keeping, the existence of infectious diseases which can be transmitted by this species of animals has not been confirmed.

International trade

Consignments of animals, products of animal origin and feed must be checked and certified before dispatching to other country in the manner laid down in the legislation of the country of destination.

Ordinance on issuing the certificates for live animals and products of animal origin in international trade (OG 137/08, 97/09) which is aligned with Council Directive 96/93/EC lays down the rules to be observed in issuing the certificates required by veterinary legislation. Ministry of agriculture is in charge of issuing the original certificates, with serial number and water stamp, and for the distribution to the veterinary organisations whose veterinarians are authorised as certifying officers. Copies of the issued certificates must be kept for three years. During the check at the place of dispatch it is controlled whether the consignment fulfils the stipulated conditions for dispatch to the country of destination. In the certification procedure it is checked whether the stipulated checks or tests have been carried out and whether the consignments of animals or products fulfil the stipulated conditions.

The international health certificate or public health certificate for the consignment (hereinafter: certificate) confirms that at the consignment's place of origin the stipulated veterinary checks were conducted and that all guarantees listed in the certificate have been fulfilled. The certification procedure is conducted and the certificate is confirmed by the official veterinarian. In individual cases, in regions where an official veterinarian has not been appointed or where a sufficient number of official veterinarians have not been appointed, the certificate may be confirmed by an approved veterinarian. In the certification procedure an authorised/official veterinarian verifies whether the stipulated checks or tests have been carried out and whether the consignments of animals or products fulfil the stipulated conditions.

The certification procedure is same for commodities of products of animal origin as for commodities of live animals.

An approved veterinarian is a veterinarian designated to conduct activities that are to be performed by authorized veterinary organizations, except activities of veterinary examinations and checks for the purposes of the veterinary organization in which he is employed. The person eligible for the position of an approved veterinarian can be a veterinarian with at least two years of work experience in the profession, holding a license and having passed the state occupational examination for an approved veterinarian. An approved veterinarian is designated by the Director of VD at the proposal of an authorized veterinary organization. VD keeps and updates a register of approved veterinarians.

An official veterinarian is appointed by the minister. An official veterinarian must have three years of experience in positions requiring the qualification of a veterinarian and requiring a valid license as well as completed practical training during the probationary period in the duration of at least 200 hours, under the supervision of other official veterinarians. An official veterinarian must complete training, on an annual basis, designed according to the curriculum drawn up by the VD.

The traceability of the confirmed certificate must be ensured in a manner which enables a connection between the certificate and the official veterinarian who confirmed it. From 1st January 2010 the Ordinance on TRACES (Official Gazette 5/10) setting out an obligation for official bodies and economical operators to use TRACES for certification and CVED procedures has been in force.

ANNEX II - PART B

1. Identification of the programme

Disease: Zoonotic Salmonella

Animal population: Laying hen flocks of Gallus gallus

Request of Community co-financing for year of implementation: 2013

1.1 Contact

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2. Historical data on the epidemiological evolution of the disease

Salmonellosis and Salmonella infections in poultry

Salmonellosis and Salmonella infections in poultry have been systematically monitored in the Republic of Croatia in the diagnostic laboratory of the Croatian Veterinary Institute since the seventies of the last century. Due to the implementation of strict measures under the National Programme for the Control and Eradication of Fowl Typhoid, Salmonella-specific serotypes *S. gallinarum* and *S. pullorum* have become economically insignificant and limited to individual rare cases in extensive production systems (the last case was recorded in 1993).

The development of intensive poultry farming and ever-increasing production and consumption of meat, eggs and related products have facilitated the spread of Salmonella infections caused by non-host-specific invasive serotypes – paratyphoid Salmonellas, which can not only cause severe infections in poultry, but can also spread through food and cause disease in humans.

Thanks to the systematic and years-long implementation of disease monitoring and control measures prescribed by the annual Order on measures to protect animals from infectious and parasitic diseases and the financing thereof, the total number of isolated Salmonellas has significantly decreased.

According to monitoring programme for 2009, 2010, 2011 and 2012 all laying hen flocks, regardless of the category and registration, the products of which are intended for public consumption had to be tested on Salmonella spp. presence.

Laying hen flocks are tested according to following scheme

- rearing flocks - day-old chicks
 - 12-week old chicks
 - pullets two weeks before moving to laying phase or laying unit
- laying flocks - non vaccinated poultry in flocks with 350 and more birds every four weeks
 - vaccinated poultry in flocks with 350 and more birds every eight weeks
 - poultry in flocks with less than 350 birds samples four times/year in three-month periods

A sample type which is submitted for laboratory testing depends on the type of keeping of birds (cage/free range/floor system).

The baseline study has not been carried out but the prevalence is calculated based on data collected throughout regular monitoring programme. The prevalence of *Salmonella* spp. and *S. Enteritidis* and *S. Typhimurium* in flocks of *Gallus gallus* poultry for 2009, 2010 and 2011 was as mentioned in Table 1.:

Table 1. Results of salmonella monitoring programme for *Gallus gallus* in 2009-2011

Year	Type of <i>Gallus gallus</i> poultry	Total No of tested flocks	Total No of <i>Salmonella</i> spp. positive flocks	Total No <i>S. Enteritidis</i> positive flocks	Total No <i>S. Typhimurium</i> positive flocks	Total No other <i>Salmonella</i> spp. positive flocks
2009	Breeding flocks	192	0	0	0	0
2009	Laying hens	318	49	47	2	0
2009	Broilers	777	169	36	4	129
2010	Breeding flocks	123	2	2	0	0
2010	Laying hens	308	19	12	0	7
2010	Broilers	2093	58	14	0	44
2011	Breeding flocks	147	1	1	0	0
2011	Laying hens	317	58	14	0	44
2011	Broilers	3004	76	38	3	35

In 2009 (the first year of monitoring programme), 318 laying hen flocks were tested on *Salmonella* spp. and out of them 49 flocks were positive on *S. Enteritidis/S. Typhimurium*. The prevalence of *S. Enteritidis* in laying hen flocks was 14,8% and *S. Typhimurium* 0,6%.

In 2010, 308 laying hen flocks were tested on *Salmonella* spp. and out of them 19 flocks were positive on *Salmonella* spp.. The prevalence of *Salmonella Enteritidis* in laying hen flocks was 3,4%.

In 2011, 317 laying hen flocks were tested on *Salmonella* spp. and out of them 58 flocks were positive on *Salmonella* spp.. The prevalence of *Salmonella Enteritidis* in laying hen flocks was 4,4%.

Salmonellosis and *Salmonella* infections in humans

Salmonellosis are the most significant zoonoses in Croatia. On average, about 3500 positive cases of human salmonellosis are reported annually. These are most often the outbreaks caused by *S. Enteritidis*.

In Croatia, most outbreaks are so-called family outbreaks, whereas only a small number of outbreaks are associated with public catering premises and, as a rule, are not linked to industrially produced food and products.

Table 2. DISTRIBUTION OF HUMAN SALMONELLOSIS IN THE PERIOD 1998-2010		
Year	Number of diseased	Number of deaths
1998	4288	-
1999	4121	3
2000	5134	3
2001	5620	-
2002	6570	1
2003	5755	4
2004	4940	3
2005	5619	1
2006	4734	1

2007	3331	-
2008	3664	-
2009	3158	1
2010	2098	1

The level of salmonellosis in humans has the lowest figure in 2010 (2098) owing to complex preventive measures aimed to control all possible sources in humans and animals (zoonosis). The most common isolated strains of *Salmonella* spp. from samples of diseased humans are *Salmonella* Enteritidis (84% of all isolates), *Salmonella* Senftenberg (2% of all isolates), *Salmonella* Typhimurium (1% of all isolates), *Salmonella* Infantis (1% of all isolates), *Salmonella* Virchow (1% of all isolates), *Salmonella* Thompson (1% of all isolates), *Salmonella* Derby (1% of all isolates), *Salmonella* Coeln (1% of all isolates). Data on human salmonellosis are provided by Croatian national institute of public health.

3. Description of the submitted programme

A concise description of the programme is given with the main objective(s) (monitoring, control, eradication, qualification of herds and/or regions, reducing prevalence and incidence), the main measures (testing, testing and slaughter, testing and killing, qualification of herds and animals, vaccination), the target animal population and the area(s) of implementation and the definition of a positive case.

1. Introduction

The National Programme was elaborated in compliance with the requirements laid down in the Veterinary Act (Official Gazette 41/07, 55/11), the Ordinance on the control of salmonella and other specified food-borne zoonotic agents (Official Gazette 58/12), Ordinance concerning the testing scheme for the reduction of the prevalence of certain salmonella serotypes in laying hens of *Gallus gallus* (Official Gazette 47/12), the Ordinance on harmonised monitoring of antimicrobial resistance in salmonella in poultry and pigs (Official Gazette 75/09), and the Ordinance on specific control methods in the framework of the national programmes for the control of salmonella in poultry (Official Gazette 72/08).

2. Aim of the Programme

The aim of the national control programme is to reduce the prevalence of *S. Enteritidis* and *S. Typhimurium* (including monophasic *Salmonella* Typhimurium with the antigenic formula 1,4,[5],12:i:-) in flocks of laying hens of *Gallus gallus* in accordance with Article 5 of the Ordinance on the control of salmonella and other specified food-borne zoonotic agents (Official Gazette 58/12) for at least 10 % annually in all agricultural holdings in the country which produce table eggs.

3. Duration of the Programme and the geographical area in which the Programme will be implemented

The 2013 National Programme for the Control of *Salmonella* in laying hens will be implemented from 1 January to 31 December of the calendar year.

4. Animal population covered by the Programme

All flocks, regardless of the category and registration, the products of which are intended for public consumption are included in the implementation of the Programme.

"Flock" means all poultry of the same health status kept on the same premises or in the same enclosure and constituting a single epidemiological unit; in the case of housed poultry; this includes all birds sharing the same airspace.

5. Laboratories

5.1. Laboratory testing of samples taken from poultry

5.1.1. National reference laboratories

- a) The national reference laboratory for *Salmonella* in poultry is the Croatian Veterinary Institute – Poultry Centre, Heinzelova 55, Zagreb.
- b) The national reference laboratory for antimicrobial resistance in animals is the Croatian Veterinary Institute Zagreb, Department for Bacteriology and Parasitology, Laboratory for General Bacteriology and Microbiology, Savska cesta 143, Zagreb

5.1.2. Official laboratories

Other official laboratories involved in the implementation of this Programme are these:

- Croatian Veterinary Institute Zagreb, Savska cesta 143, Zagreb;
- Croatian Veterinary Institute, Regional Branch Split, Poljička cesta 33, Split;
- Croatian Veterinary Institute, Regional Branch Križevci, Zakmardijeva 10, Križevci;
- Croatian Veterinary Institute, Regional Branch Vinkovci, J. Kozarca 24, Vinkovci;
- Croatian Veterinary Institute, Regional Branch Rijeka, Podmurvice 29, Rijeka;
- Bioinstitut d.o.o., R. Steinerja 7, Čakovec.

5.1.3. Laboratory testing of samples

Samples are prepared and tested in a laboratory in accordance with the requirements set forth in the Ordinance concerning the testing scheme for the reduction of the prevalence of certain salmonella serotypes in laying hens of *Gallus gallus* (Official Gazette 47/12) and the Ordinance on harmonised monitoring of antimicrobial resistance in Salmonella in poultry and pigs (Official Gazette 75/09).

The detection of the relevant Salmonella serotypes shall be carried out according to Amendment 1 of HRN EN/ISO 6579: 2003/Amd1:2007. 'Microbiology of food and animal feeding stuffs – Horizontal method for the detection of Salmonella spp. — Amendment 1: annex D: Detection of Salmonella spp. in animal faeces and in environmental samples from the primary production stage. At least one isolate is serotyped according to the Kaufmann-White scheme.

5.1.4. Testing results

A laying hen flock is considered positive:

- when presence of relevant salmonella (other than vaccine strains) is detected in one or more samples (faeces, blood, organs, dust), or
- when, within official control, presence of regulated Salmonella serotypes is not detected, but antimicrobials or bacterial growth inhibitors are detected, and at the same time there is no relevant evidence on treatment of other diseases.

5.2. Laboratory testing of samples of animal feedingstuffs for the presence *Salmonella* spp bacteria.

The official laboratories for the testing of samples of animal feedingstuffs are approved according to the provisions of the Ordinance on accreditation of the official and reference laboratory for food and feed (Official Gazette 86/10).

6. Sampling and official controls

6.1. Sampling at the primary production stage

All flocks, regardless of the category and registration, the products of which are intended for public consumption are included in the implementation of the Programme.

Eggs for human consumption ("A" class eggs) may be placed on the market only if they come from salmonella-free flocks (*S. Enteritidis* or *S. Typhimurium* other than vaccine strains), or if flock holders possess health certificates for the flock issued by an official laboratory. The certificate is issued on the basis of officially submitted samples.

All flocks, regardless of their category and registration, the products of which are intended for public consumption, must be examined by submitting official samples to an official laboratory.

From poultry for table egg production of *Gallus gallus*, samples are taken:

- From day-old chicks;
 - Samples are taken in sites in the building in which the birds are kept at each delivery of chicks.
- From 12-week old chicks;
 - Boot swabs samples are taken in sites in the building in which the birds are kept once when they are 12 weeks old.
- Two weeks before moving to laying phase or laying unit;
 - Boot swabs samples or faeces samples are taken in sites in the building in which the birds are kept once in that period.
- During the laying phase;
 - Samples are taken in the laying unit. If poultry is not vaccinated against salmonellosis, in poultry flocks with 350 and more birds samples are taken every four weeks, and in poultry flocks with less than 350 birds samples are taken four times/year in three-month periods. If poultry is vaccinated against salmonellosis, in poultry flocks with 350 and more birds samples are taken every eight weeks, and in poultry flocks with less than 350 birds samples are taken four times/year in three-month periods. A sample type which is submitted for laboratory testing depends on the type of keeping of birds (cage/free range/floor system).

Within the framework of national control programme (routine active monitoring) all samples are taken by authorized veterinarians. FBO are not allowed to take samples within national monitoring programme (for the purpose of the routine active monitoring).

6. Measures to be taken in the event of a confirmed case of salmonellosis

6.1. Measures to be taken in a flock of laying hens of *Gallus gallus* in rearing phase, positive to *S. Enteritidis* or *S. Typhimurium*

- A flock suspicious of being infected with *S. Enteritidis* or *S. Typhimurium* is any flock in which, by laboratory examination of submitted samples, the presence of the aforementioned salmonella serotypes is confirmed or if, on the basis of the conducted epidemiological examination, a relation with the cases of infection in humans is confirmed.
- After obtaining the first positive finding, and for the purpose of excluding/confirming the suspicion, a competent veterinary inspector must order the approved veterinary organisation to take additional samples from the suspicious flock and to deliver them promptly to an official laboratory.
- The additional sample must be examined in a manner described in item 3 of Annex to the Ordinance concerning the testing scheme for the reduction of the prevalence of certain salmonella serotypes in laying hens of *Gallus gallus* (Official Gazette 47/12), it must not derive from birds treated with antimicrobials which may affect the results of laboratory examination, and it consists of:
 - a) In case of cage flocks:
 - five pooled samples of naturally mixed faeces collected from dropping belts, scrapers or deep pits, depending on type of cage houses (samples are collected in the house after running the manure removal system). Each of five pooled samples collected at the farm must be approximately 200 to 300 g,

- two pooled samples of dusty material (dust) in the quantity of 2x100 g/250ml collected in the facility (best beneath cages),
- Samples of cloacal swabs collected from 300 hens (bacteriological examination). If there are less than 300 hens in a facility, it is necessary to take a sample of cloacal swabs from all hens, and
- Five hens (sacrificed or dead)/facility, whereby all organs must be laboratory examined.

b) In case of free range flocks (barn, floor or free range)

- five pairs of boot swabs (one pair = one pooled sample),
- one pooled sample of dust from egg belts,
- one pooled sample of dust collected in different places of the house (100g dust /250 ml),
- Samples of cloacal swabs collected from 300 hens (bacteriological examination). If there are less than 300 hens in a facility, it is necessary to take a sample of cloacal swabs from all hens, and
- Five hens (sacrificed or dead)/facility, whereby all organs must be laboratory examined.

In case of a suspicion of *S. Enteritidis* or *S. Typhimurium* in a flock of laying hens, a competent veterinary inspector must order the implementation of the following measures to the bird holder:

- Prohibition of use of antimicrobials for the treatment of flocks of laying hens suspicious of salmonella infection caused by *S. Enteritidis* or *S. Typhimurium*,
- Prohibition of movement of poultry and eggs from the holding except with a special authorisation issued by a competent veterinary inspector,
- Prohibition of movement of feed from the holding,
- Prohibition of removal of manure from the holding,
- Appropriate cleaning, washing and disinfection of premises, devices and equipment in the sites for production and storage of poultry feed,
- Disinfection and cleaning of vehicles by appropriate means;

The measures remain in force until the presence of *S. Enteritidis* or *S. Typhimurium* serotypes is excluded by repeated laboratory testing.

In case that some other disease appears in a flock of laying hens suspicious of salmonella infection, treatment must be conducted in compliance with the provisions of Article 2, paragraph 2), item (c) of the Ordinance on specific control methods in the framework of the national programmes for the control of salmonella in poultry (Official Gazette 72/08).

In such exceptional cases antimicrobials must be used on the basis of results of bacteriological examination and antibiograms. A competent veterinary inspector or official veterinarian must conduct regular supervision of the use of antimicrobials, and he must submit reports on conducted supervision to the Veterinary Directorate on a quarterly basis.

Treatment of such flock, in compliance with the Decision issued by a competent veterinary inspector, is done by authorized veterinary organisations and approved veterinary services. After conducted treatment, it is necessary to carry out a control of efficacy of the implemented therapy in a manner that control samples are taken from poultry twice, on the 7th and 14th day from the beginning of the therapy, and delivered to a laboratory for analysis.

Each treatment of a flock must be recorded in the *Records on Animal Treatment and Waiting Period*.

A competent veterinary inspector must conduct epidemiological investigation to determine a source of infection.

6.2. Measures to be taken in a flock of laying hens in which the presence of *S. Enteritidis* or *S. Typhimurium* is confirmed by additional laboratory tests.

A flock of laying hens is considered infected:

- when presence of relevant salmonella (other than vaccine strains) is detected in one or more samples (faeces, blood, organs, dust), or
- when, within official control, presence of regulated Salmonella serotypes is not detected, but antimicrobials or bacterial growth inhibitors are detected, and at the same time there is no relevant evidence on treatment of other diseases.

A competent veterinary inspector must order the implementation of the following measures to the bird holder in a positive flock of laying hens:

- Prohibition of use of antimicrobials for the treatment of flocks of laying hens infected by *S. Enteritidis* or *S. Typhimurium*;
- Prohibition of placing on the market of eggs classified as "A" class eggs in compliance with the Ordinance on the quality of eggs (Official Gazette 115/06, 69/07 and 76/08);
- Eggs deriving from an infected flock:
 - e) are considered as "B" class eggs in compliance with the Ordinance on the quality of eggs (Official Gazette 115/06, 69/07 and 78/08);
 - f) may be used for human consumption only if they are treated in a manner which guarantees destruction of all salmonella serotypes with public health significance in compliance with food hygiene rules;
 - g) must be labelled in compliance with the provisions of Article 16 of the Ordinance on the quality of eggs (Official Gazette 115/06, 69/07 and 78/08);
 - h) it is not permitted to dispatch them to packing centres if a competent veterinary inspector is not satisfied with the implementation of measures for the prevention of possible cross contamination of eggs deriving from other flocks.
- Appropriate cleaning, washing and disinfection of premises, devices and equipment in the sites for production and storage of poultry feed;
- Cleaning, washing and disinfection of vehicles by appropriate disinfection means;
- Disinfection, disinfestation and deratisation of infected facilities for breeding and keeping of poultry; when disinfection is completed, its efficiency should be bacteriologically controlled;
- Removal and sanitary treatment of manure in a prescribed manner;
- It is prohibited to introduce new poultry into the facility until a negative control result of disinfection efficiency is obtained;
- If the owner of a positive flock decides to send a flock of laying hens infected by salmonellosis caused by *S. Enteritidis* or *S. Typhimurium* to slaughter or destruction, all measures must be taken so as to reduce as much as possible the risk of spreading the disease. Slaughtering of birds must be conducted in compliance with special regulations on food hygiene.
 - Products derived from such birds may be placed on the market for human consumption if they are in compliance with Part E of Annex II of the Ordinance (Official Gazette 85/12) and the provisions of special regulations on food hygiene and microbiological criteria;
 - If not destined for human consumption, such products must be used or disposed of in accordance with the Ordinance on animal by-products not intended for human consumption (Official Gazette 87/09).

When taking the decision on whether the flock will be sent on slaughter or will stay in production (only for B class eggs) the owner is advised by competent veterinary inspector. The inspector always takes into account the age of the flock, the possible costs of the compensation from the state budget and losses of the producer. In 2011/2012 all flocks and eggs originating from positive flocks were destroyed immediately upon SE/ST confirmation due to no interest for such flocks and eggs on Croatian market.

6.3. Measures to be taken in a flock of unknown health status

In case of eggs originating from a flock of unknown health status:

- suspicious of being infected; or
- infected by *S. Enteritidis* or *S. Typhimurium*; or
- identified as a source of infection in a specific case of human infection;

a competent veterinary inspector must order the following measures to the bird holder:

- Prohibition of placing on the market of eggs classified as "A" class eggs in compliance with the Ordinance on the quality of eggs (Official Gazette 115/06, 69/07 and 78/08);
- Eggs originating from a flock of unknown health status:
 - a) are considered as "B" class eggs in compliance with the Ordinance on the quality of eggs (Official Gazette 115/06, 69/07 and 78/08);
 - b) may be used for human consumption only if they are treated in a manner which guarantees destruction of all salmonella serotypes with public health significance in compliance with food hygiene rules;
 - c) must be labelled in compliance with the provisions of Article 16 of the Ordinance on the quality of eggs (Official Gazette 115/06, 69/07 and 78/08);
 - d) It is not permitted to dispatch them to packing centres if a competent veterinary inspector is not satisfied with the implementation of measures for the prevention of possible cross contamination of eggs deriving from other flocks.
- Appropriate cleaning, washing and disinfection of premises, devices and equipment in the sites for production and storage of poultry feed;
- Cleaning, washing and disinfection of vehicles by appropriate means;
- Disinfection, disinfestation and deratisation of infected facilities for breeding and keeping of poultry; when disinfection is completed, its efficiency should be bacteriologically controlled;
- Removal and sanitary treatment of manure in a prescribed manner;

6.4. Vaccination

The use of salmonella vaccines is not obligatory. Vaccination of poultry as a prophylactic measure for the control of salmonellosis must be conducted in compliance with the provisions of the Ordinance on specific control methods in the framework of the national programmes for the control of salmonella in poultry (Official Gazette 72/08);

When live salmonella vaccines are used, the vaccine manufacturer must provide an appropriate method to distinguish bacteriologically wild-type strains of salmonella from vaccine strains.

The vaccine registration and authorisation procedure is conducted in compliance with the Veterinary Act (Official Gazette 41/07, 55/11) and the Act on Veterinary Medicinal Products and Veterinary Medical Devices (Official Gazette 84/08).

6.6. Measures to be taken in a flock of laying hens of *Gallus gallus* isuspicious of/positive to other salmonella serotypes with public health significance

It is prohibited to use antimicrobials for the control and treatment of breeding flocks infected by salmonellosis caused by *Salmonella* spp.

In case of a suspicion/confirmed presence of any other salmonella serotype with public health significance, except *S. Enteritidis* or *S. Typhimurium*:

- It is prohibited to use antimicrobials for the treatment of breeding flocks;
- A competent veterinary inspector must conduct epidemiological investigation in order to determine a source of infection focusing on determining the implementation of bio-safety measures;
- The owner/holder of the flock is bound to conduct relevant bio-safety measures on the holding so as to reduce the possibility of introducing the infection as much as possible.

Each treatment of a flock must be recorded in the *Records on Animal Treatment and Waiting Period*.

Within the framework of national control programme (routine active monitoring) all samples are taken by authorized veterinarians. FBO are not allowed to take samples within national monitoring programme (for the purpose of the routine active monitoring).

7. Monitoring of antimicrobial resistance in Salmonella

Salmonella isolates collected through the Programme must be subjected to antimicrobial resistance monitoring in accordance with item 2 of Annex to the Ordinance on harmonised monitoring of antimicrobial resistance in *Salmonella* in poultry and pigs (Official Gazette 75/09).

It is sufficient to include one isolate per *Salmonella* serovar from the same epidemiological unit per year in the monitoring. The epidemiological unit for laying hens is the flock.

All official laboratories are bound to conduct testing of *Salmonella* isolates to antimicrobial resistance. If an official laboratory is not able to conduct the aforementioned testing, isolates must be delivered to the national reference laboratory for antimicrobial resistance of animals referred to in Article 2 of the Ordinance on harmonised monitoring of antimicrobial resistance in *Salmonella* in poultry and pigs (Official Gazette 75/09).

The use of antimicrobials is done according to Ordinance on specific control methods in the framework of the national programmes for the control of salmonella in poultry (Official Gazette 72/08) which is fully aligned with the Regulation 1177/2006. Antimicrobials are not used routinely; the application of the same is under strict control of authorised veterinarians and competent veterinary inspectors. Only authorized antimicrobials are allowed to be used in the and only veterinarian may use antimicrobials.

Each treatment of a flock must be recorded in the official document called *Records on Animal Treatment and Waiting Period*. A competent veterinary inspector or official veterinarian is caring out controls on the use of antimicrobials on farms regularly.

Antimicrobials may be used only after authorization by and under supervision of the veterinary inspector and they may be applied only in poultry showing clinical signs of the disease suggesting that an excessive suffering of birds could occur. Results of bacteriological examination and antimicrobial susceptibility test must be available prior to the treatment. In the exceptional cases, antimicrobials may be applied prior to the results of bacteriological examination and anti-microbial susceptibility test are available, provided that samples are taken by the authorised veterinarian and under the supervision of veterinary inspector prior the application. If sampling has not been performed prior the application of antimicrobials, flocks shall be considered infected by *Salmonella*.

Salmonella isolates collected through the program must be subject to monitoring on antimicrobial resistance in accordance with the Annex to the Ordinance on harmonised monitoring of antimicrobial resistance in *Salmonella* in poultry and pigs (Official Gazette 75/09) which is aligned with Decision 2007/407.

During 2012 and 2013 at least 170 isolates of *Salmonella* should be included in the monitoring of antimicrobial resistance. If a smaller number of isolates of the target sample size will be available, all isolates will be tested for the monitoring purpose.

Official laboratories are required to conduct testing of isolates on *Salmonella* resistance to antimicrobials. If an official laboratory is unable to carry out specified testing, isolates must be submitted to the National Reference Laboratory for antimicrobial resistance of animals specified in Article 2 of the Ordinance on harmonised monitoring of antimicrobial resistance in *Salmonella* in poultry and pigs (Official Gazette 75/09).

The antimicrobials specified in Table 2. of Decision 2007/407 must be tested using the cut-off values given and the appropriate concentration range to determine the susceptibility of *Salmonella*. Dilution method is used as described by EUCAST and CLSI. The results on MR monitoring are collected according to Directive 2003/99.

The following antimicrobials and the cut-off values are used to determine susceptibility and included for *Salmonella* testing:

	Antimicrobial	Cut-off value (mg/L) R >
Salmonella	Cefotaxime	0,5
	Nalidixic acid	16
	Ciprofloxacin	0,06
	Ampicillin	4
	Tetracycline	8
	Chloramphenicol	16
	Gentamicin	2
	Streptomycin	32
	Trimethoprim	2
	Sulphonamidws	256

Dilution methods is performed according to the methods described by the European Committee on Antimicrobial Susceptibility Testing (EUCAST) and the Clinical and Laboratory Standards Institute (CLSI), accepted as international reference method (ISO standard 20776-1:2006). It is also recommended that the selected isolates of S. Enteritidis and S. Typhimurium are phage typed.

4. Measures of the submitted programme

4.1 Summary of measures under the programme

Year of implementation of the Programme: 2012

4.1. Summary of measures under the programme

Duration of the programme:

First year: 2009 Last year: 2011

Control	Control/Eradication
x Testing	Testing
x Slaughter of animals tested positive	Slaughter of animals tested positive
x Killing of animals tested positive	Killing of animals tested positive
x Vaccination	Extended slaughter or killing
Treatment of animal products	Disposal of products
x Disposal of products	
Monitoring or surveillance	
Other measures (specify):	

4.2 Designation of the central authority in charge of supervising and coordinating the departments responsible for implementing the programme

Describe the authorities in charge of supervising and coordinating the departments responsible for implementing the programme and the different operators involved. Describe the responsibilities of all involved

Competent authorities and organisations included in the Programme implementation

The competent body for the implementation of this Programme, in compliance with Article 3, paragraphs 1 and 2, items (a) and (b) of the Ordinance on the control of salmonella and other specified food-borne zoonotic agents (Official Gazette 85/12) is the Ministry of Agriculture– the Veterinary Directorate.

The competent body for supervision and control of the Programme implementation in the field is the Ministry of Agriculture– Veterinary Directorate - Veterinary Inspection Sector.

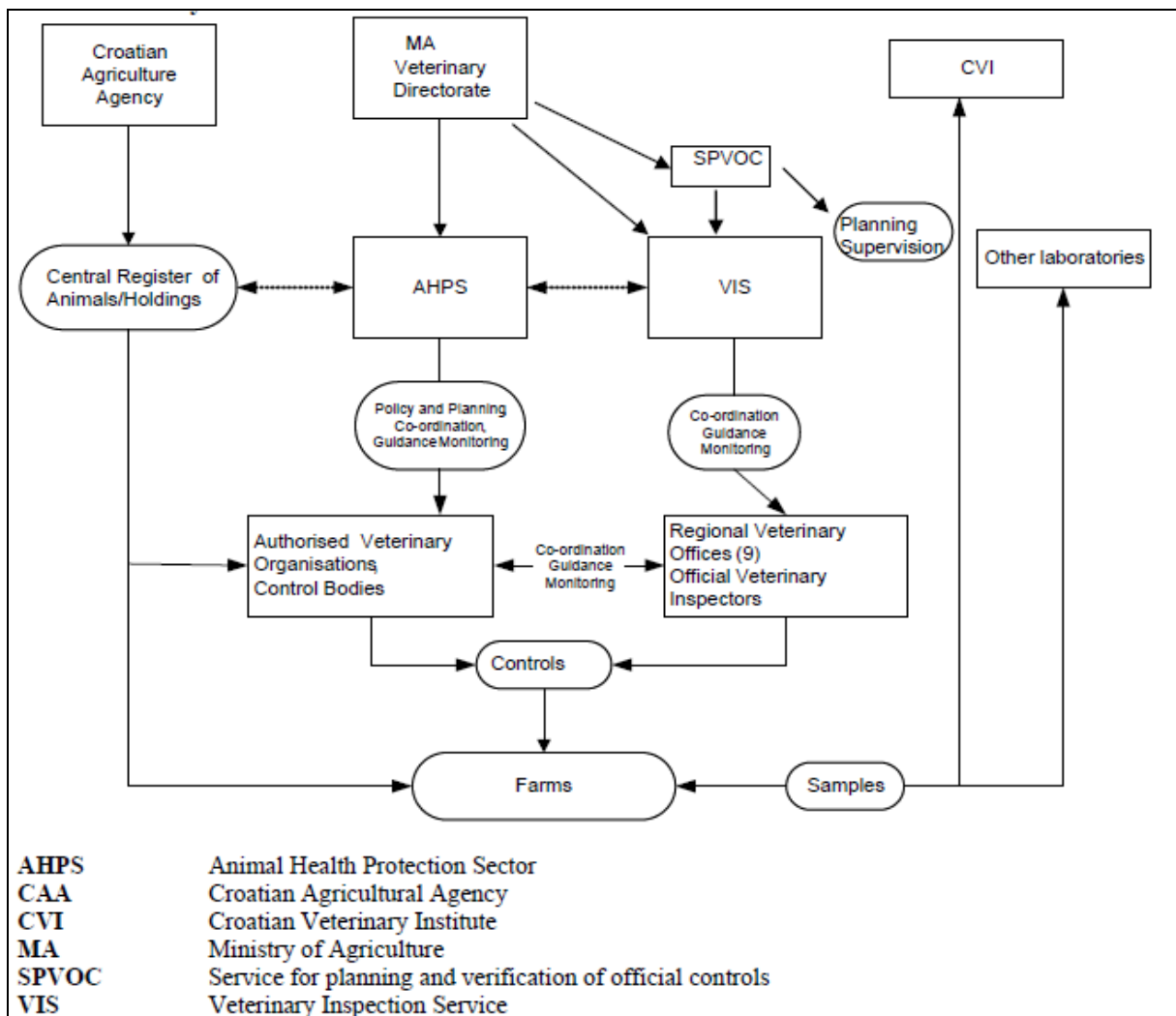
Taking and submitting of samples to the laboratory is conducted by approved veterinarians.

Treatment of flocks may be conducted by approved veterinary organisations or an approved veterinary service in compliance with the provisions of Article 2, paragraph 2, subitem (c) of the Ordinance on specific control methods in the framework of the national programmes for the control of salmonella in poultry (Official Gazette 72/08).

Laboratory diagnostic is done in NRL for salmonella and NRL for AMR as well as in the official laboratories. In August 2010, Croatia issued the "Ordinance on designation of official and reference laboratories in the implementation of veterinary activities" (OG No 102/10), which provides that all laboratories which perform official control in the field of veterinary medicine including feed and some parts of food of animal origin should be accredited by the Croatian Accreditation Agency to EN ISO 17025:2007.

Information on flow between bodies involved in the implementation of the programme is described in the Scheme 2: Control system for animal health in Croatia:

Scheme 2: Control system for animal health in Croatia

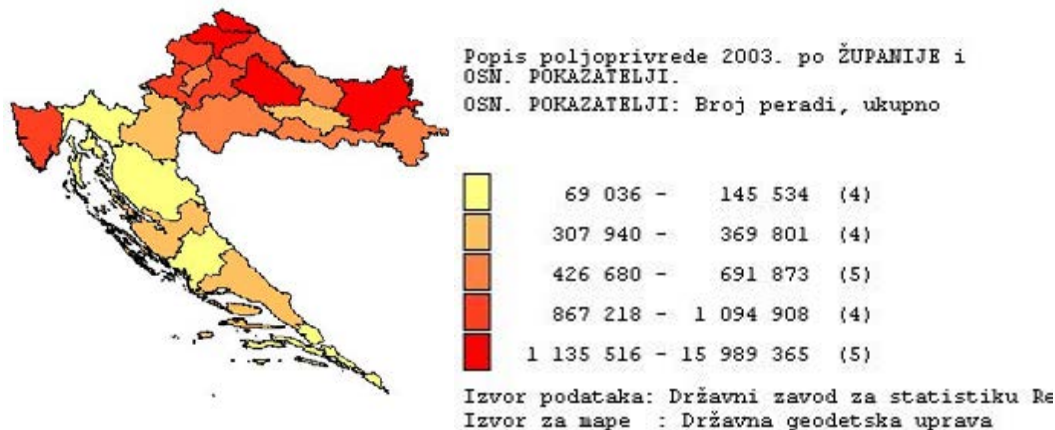


4.3 Description and delimitation of the geographical and administrative areas in which the programme is to be implemented

Describe the name and denomination, the administrative boundaries, and the surface of the administrative and geographical areas in which the programme is to be applied. Illustrate with maps.

The Programme in breeding flocks is implemented throughout the Republic of Croatia from 1 January to 31 December.

Scheme 3. Area of programme implementation and Distribution of poultry farms density per counties



4.4 Measures implemented under the programme

4.4.1 Measures and applicable legislation as regards the registration of holdings

Pursuant to the provisions of Article 38, paragraph 1 of Veterinary Act, farms of ungulates and equidae exceeding 20 conditional animal units, poultry and rabbit farms exceeding 10 conditional animal units, hatcheries, wild game breeding farms, establishments for farming of fish and molluscs and other facilities of aquaculture must comply with the stipulated veterinary-health and zoohygiene conditions.

Pursuant to the provisions of Article 38, paragraph 3 of the Veterinary Act, all farms are to be registered in the Farms Register, which is an integral part of the Central Register of Domestic Animals, the responsibility for which lies with the MA's Veterinary Directorate. The Directorate has entered into contract with the Croatian Agricultural Agency, delegating to it the maintenance of the Central Register of Domestic Animals.

In Croatia all broiler farms of *Gallus gallus* are registered. Updates on this are kept in the Croatian Agricultural Agency.

Ordinance on animal health conditions governing trade with EU and imports from third countries of poultry and hatching eggs (OG 83/09, 107/11) is alligened with Directive 90/539 and Directive 2009/158.

4.4.2. Measures and applicable legislation as regards the identification of animals

Not applicable to the poultry

4.4.3 Measures and applicable legislation as regards the notification of the disease

A detail disease notification procedure is prescribed by Veterinary Act and Ordinance on the notification of animal diseases (OG 62/11,114/11). For the purpose of timely reactions and undertaking of measures for the prevention and eradication of the disease, disease notification is organised as urgent exchange of information between the Veterinary Directorate, Official

Laboratories and veterinary services in the field. Any suspicion and confirmed case of all zoonotic diseases must be reported immediately.

Pursuant to reports on disease occurrence issued by veterinary organisations and laboratory reports, the Veterinary Directorate drafts a monthly report about the occurrence and spread of animal diseases in the Republic of Croatia. All monthly reports are regularly published on the web site of the MA (www.mps.hr).

Regarding the international obligations on disease notification, in accordance to the aforementioned Croatian legislation, Veterinary Directorate regularly notifies European Commission (ADNS), World Organisation for Animal Health (WAHIS-OIE) and competent veterinary authorities of neighbouring countries on primary and secondary disease outbreaks as well as prepare six-monthly and annual reports for OIE.

In order to raise awareness of animal owners on the importance of immediate notification of disease as well as to regain the knowledge of veterinarians and veterinary inspectors on disease notification procedure, a leaflet "Obligatory animal disease notification" has been prepared by Veterinary Directorate and distributed throughout veterinary organisations on all holdings in the country.

4.4.4. Measures and applicable legislation as regards the measures in case of a positive result

Legislation:

- Veterinary Act (Official Gazette 41/07,55/11);
- Ordinance on the control of salmonella and other specified food-borne zoonotic agents (Official Gazette 85/12) aligned with regulation 2160/2003;
- Ordinance concerning the testing scheme for the reduction of the prevalence of certain salmonella serotypes in laying hens of *Gallus gallus* (Official Gazette 47/12) and Regulation 517/2011 ;
- Ordinance on specific control methods in the framework of the national programmes for the control of salmonella in poultry (Official Gazette 72/08) aligned with Regulation 1177/2006;
- Ordinance on harmonised monitoring of antimicrobial resistance in salmonella in poultry and pigs (Official Gazette 75/09) aligned with Decision Decision 2007/407;
- Ordinance on the notification of animal diseases (Official Gazette 64/11,114/11);
- Order on measures to protect animals from infectious and parasitic diseases and the financing thereof in callender year;
- Food Act (Official Gazette 46/07,55/11) aligned with regulation 178/2002;
- Ordinance on animal by-products not intended for human consumption (Official Gazette 87/09) aligned with Regulation 1774/2002;
- Ordinance on the authorisation of official and reference laboratories in the area of conducting veterinary activity (Official Gazette 102/10).

If the positive finding to *S. Enteritidis* or *S. Typhimurium* is confirmed in samples taken on the holding, the flock is considered infected and a competent veterinary inspector must order the implementation of the measures prescribed in the Ordinance concerning the testing scheme for the reduction of the prevalence of certain salmonella serotypes in laying hens of *Gallus gallus* (Official Gazette 47/12), Annex II, part D nad part E of the Ordinance on the control of salmonella and other specified food-borne zoonotic agents (Official Gazette 85/12) aligned with regulation 2160/2003 and point 9 of the National monitoring programme for the control of Salmonellosis in laying hens of *Gallus gallus* in the Republic of Croatia.

A flock suspicious of being infected with *S. Enteritidis* or *S. Typhimurium* is any flock in which, by laboratory examination of submitted samples, the presence of the aforementioned salmonella serotypes is confirmed or if, on the basis of the conducted epidemiological examination, a relation with the cases of infection in humans is confirmed.

After obtaining the first positive test result, and for the purpose of excluding/confirming the suspicion, a competent veterinary inspector must order the approved veterinary organisation

to take additional samples from the suspicious flock and to deliver them promptly to the national reference laboratory.

The additional sample must be examined in a manner described in item 3 of Annex to the Ordinance concerning the testing scheme for the reduction of the prevalence of certain salmonella serotypes in laying hens of *Gallus gallus* (Official Gazette 47/12), it must not derive from birds treated with antimicrobials which may affect the results of laboratory examination.

The following measures are ordered to the holder of suspicious flock:

- Prohibition of use of antimicrobials for the treatment of flocks of laying hens suspicious of salmonella infection caused by *S. Enteritidis* or *S. Typhimurium*,
- Prohibition of movement of poultry and eggs from the holding except with a special authorisation issued by a competent veterinary inspector,
- Prohibition of movement of feed from the holding,
- Prohibition of removal of manure from the holding,
- Appropriate cleaning, washing and disinfection of premises, devices and equipment in the sites for production and storage of poultry feed,
- Disinfection and cleaning of vehicles by appropriate means;

In case when flock of laying hens is positive the following measures must be implemented:

- Prohibition of use of antimicrobials for the treatment of flocks of laying hens infected by *S. Enteritidis* or *S. Typhimurium*;
- Prohibition of placing on the market of eggs classified as "A" class eggs in compliance with the Ordinance on the quality of eggs (Official Gazette 115/06, 69/07 and 78/08);
- Eggs deriving from an infected flock:
 - a) are considered as "B" class eggs in compliance with the Ordinance on the quality of eggs (Official Gazette 115/06, 69/07 and 78/08);
 - b) may be used for human consumption only if they are treated in a manner which guarantees destruction of all salmonella serotypes with public health significance in compliance with food hygiene rules;
 - c) must be labelled in compliance with the provisions of Article 16 of the Ordinance on the quality of eggs (Official Gazette 115/06, 69/07 and 78/08);
 - d) it is not permitted to dispatch them to packing centres if a competent veterinary inspector is not satisfied with the implementation of measures for the prevention of possible cross contamination of eggs deriving from other flocks.
- Appropriate cleaning, washing and disinfection of premises, devices and equipment in the sites for production and storage of poultry feed;
- Cleaning, washing and disinfection of vehicles by appropriate disinfection means;
- Disinfection, disinfestation and deratisation of infected facilities for breeding and keeping of poultry; when disinfection is completed, its efficiency should be bacteriologically controlled;
- Removal and sanitary treatment of manure in a prescribed manner;
- It is prohibited to introduce new poultry into the facility until a negative control result of disinfection efficiency is obtained;
- Epidemiological investigation;
- If the owner of a positive flock decides to send a flock of laying hens infected by salmonellosis caused by *S. Enteritidis* or *S. Typhimurium* to slaughter or destruction, all measures must be taken so as to reduce as much as possible the risk of spreading the disease. Slaughtering of birds must be conducted in compliance with special regulations on food hygiene.
 - Products derived from such birds may be placed on the market for human consumption if they are in compliance with Part E of Annex II of the Ordinance (Official Gazette 85/12) and the provisions of special regulations on food hygiene and microbiological criteria:
 - If not destined for human consumption, such products must be used or disposed of in accordance with the Ordinance on animal by-products not intended for human consumption (Official Gazette 87/09).

In case of eggs originating from a flock of unknown health status:

- suspicious of being infected; or
- infected by *S. Enteritidis* or *S. Typhimurium*; or
- identified as a source of infection in a specific case of human infection;

a competent veterinary inspector must order the following measures to the bird holder:

- Prohibition of placing on the market of eggs classified as "A" class eggs in compliance with the Ordinance on the quality of eggs (Official Gazette 115/06, 69/07 and 78/08);
- Eggs originating from a flock of unknown health status:
 - a) are considered as "B" class eggs in compliance with the Ordinance on the quality of eggs (Official Gazette 115/06, 69/07 and 78/08);
 - b) may be used for human consumption only if they are treated in a manner which guarantees destruction of all salmonella serotypes with public health significance in compliance with food hygiene rules;
 - c) must be labelled in compliance with the provisions of Article 16 of the Ordinance on the quality of eggs (Official Gazette 115/06, 69/07 and 78/08);
 - d) It is not permitted to dispatch them to packing centres if a competent veterinary inspector is not satisfied with the implementation of measures for the prevention of possible cross contamination of eggs deriving from other flocks.
- Appropriate cleaning, washing and disinfection of premises, devices and equipment in the sites for production and storage of poultry feed;
- Cleaning, washing and disinfection of vehicles by appropriate means;
- Disinfection, disinfestation and deratisation of infected facilities for breeding and keeping of poultry; when disinfection is completed, its efficiency should be bacteriologically controlled;
- Removal and sanitary treatment of manure in a prescribed manner;

When taking the decision on whether the flock will be sent on slaughter or will stay in production (only for B class eggs) the owner is advised by competent veterinary inspector. The inspector always takes into account the age of the flock, the possible costs of the compensation from the state budget and losses of the producer. In 2011/2012 all flocks and eggs originating from positive flocks were destroyed immediately upon SE/ST confirmation due to no interest for such flocks and eggs on Croatian market.

4.4.5. Measures and applicable legislation as regards the different qualifications of animals and herds

The National Programme is implemented on the entire territory of the Republic of Croatia. All flocks, regardless of the category and registration, the products of which are intended for public consumption are included in the implementation of the Programme.

"Flock" means all poultry of the same health status kept on the same premises or in the same enclosure and constituting a single epidemiological unit; in the case of housed poultry; this includes all birds sharing the same airspace.

4.4.6. Control procedures and in particular rules on the movement of animals liable to be affected or contaminated by a given disease and the regular inspection of the holdings or areas concerned

Within the framework of national control programme (routine active monitoring) all samples are taken by authorized veterinarians. FBO are not allowed to take samples within national monitoring programme (for the purpose of the routine active monitoring).

Official controls of holdings are done according to annual plan of the official controls holdings. Particular attention is given to holdings where one of the relevant Salmonellas was detected in the previous rearing or production cycle. Sampling must also be done on a risk basis each time the responsible veterinary inspector or the body responsible for the implementation of this Programme considers it necessary.

Samples for the purposes of official control at the primary production stage shall be taken by official veterinarians in accordance with Ordinance concerning the testing scheme for the

reduction of the prevalence of certain salmonella serotypes in laying hens of *Gallus gallus* (Official Gazette 47/12) and Regulation 517/2011. All samples taken for the purpose of the official control must be tested in NRL for Salmonella in poultry.

In case of suspicion on Salmonella infection, veterinary inspector will order additional sampling in order to confirm or exclude the suspicion and additional measures have to be done on the holding (movement restrictions for live animals, products, eggs, disinfection of the vehicles and equipment etc.). A detailed epidemiological investigation is done in order to determine all possible contact holdings and possible source of the infection. In case diseases is confirmed a detail measures are prescribed for SE/ST positive holding.

4.4.7. Measures and applicable legislation as regards the control (testing, vaccination, ...) of the disease

Testing of laying hen flocks is done according to Ordinance concerning the testing scheme for the reduction of the prevalence of certain salmonella serotypes in laying hens of *Gallus gallus* (Official Gazette 47/12) and Regulation 517/2011 and Annex II, part B of the Ordinance on the control of Salmonella and other specified food-borne zoonotic agents (OG 85/12) which is aligned with Regulation 2160/2003.

The use of vaccines against Salmonella is not mandatory. Vaccination of poultry as a prophylactic measure to control salmonellosis must be carried out in accordance with the provisions of the Ordinance on specific control methods in the framework of the national programmes for the control of Salmonella in poultry (Official Gazette 72/2008). If live vaccines against Salmonella are used, the vaccine manufacturer must provide an appropriate method for bacteriological differentiation between field and vaccine strains. The vaccine manufacturer must send the necessary laboratory diagnostic material to all laboratories approved for the testing of Salmonella in poultry. The procedure for the registration and approval of vaccines is conducted in accordance with the Veterinary Act (Official Gazette 41/07, 55/11) and the Act on Veterinary Medicinal Products and Veterinary Medical Devices (Official Gazette 84/08). Vaccination can be done only by authorized veterinary organizations or approved veterinary services. Currently only one vaccine is approved and registered according to the above mentioned legislation – Nobilis Salenvac T (inactivated vaccine), Intervet.

Samples shall be sent by express mail or courier to the official laboratories within 24 hours after collection. If not sent within 24 hours, they must be stored refrigerated. Transportation can be at ambient temperature as long as excessive heat (over 25 °C) and exposure to sunlight are avoided. At the laboratory samples shall be kept refrigerated until examination, which shall be carried out within 48 hours following receipt.

Salmonella isolates collected through this program must be subject to monitoring on antimicrobial resistance in accordance with item 2 of Annex to the Ordinance on harmonised monitoring of antimicrobial resistance in Salmonella in poultry and pigs (Official Gazette 75/09).

A laying hen flock is considered positive:

- when presence of relevant salmonella (other than vaccine strains) is detected in one or more samples (faeces, blood, organs, dust), or
- when, within official control, presence of regulated Salmonella serotypes is not detected, but antimicrobials or bacterial growth inhibitors are detected, and at the same time there is no relevant evidence on treatment of other diseases.

It is prohibited to use antimicrobials for the control and treatment of laying hen flocks infected by Salmonella spp.

Treatment of the flock must be conducted in compliance with the provisions of the Ordinance on specific control methods in the framework of the national programmes for the control of salmonella in poultry (Official Gazette 72/08) which is alligened with Regulation 1177/2006 and the provisions of the Ordinance on harmonised monitoring of antimicrobial resistance in salmonella in poultry and pigs (Official Gazette 75/09).

Antimicrobials must be used on the basis of results of bacteriological examination and antibiograms. A competent veterinary inspector must conduct regular supervision of the use of

antimicrobials and he must submit reports on conducted supervision to the Veterinary Directorate once a month (until the 15th of a month for the previous month).

Treatment of an infected flock, in compliance with the Decision issued by a competent veterinary inspector, is conducted by approved veterinary organisations and approved veterinary services. After conducted treatment, it is necessary to conduct a control of efficacy of the conducted therapy in a manner that control samples are taken from poultry twice, on the 7th and 14th day from the beginning of the therapy, and delivered to a laboratory for analysis. Each treatment of a flock must be recorded in the *Records on Animal Treatment and Waiting Period*.

4.4.8 Measures and applicable legislation as regards the compensation for owners of slaughtered and killed animals

Any financial assistance provided to food and feed businesses in the context of the programme.

Compensation for owners of slaughtered or killed flocks is prescribed by Articles 26, 27 and 28 of the Veterinary Act (OG 41/07, 55/11).

Measures of killing or in certain cases emergency slaughter of infected animals or of those suspected of infection, and in the cases of animal welfare protection, disposal of the contaminated objects shall be ordered when the infectious disease can not be successfully and without the risk of spread thereof, be suppressed with the implementation of other measures stipulated by the Act or when there is no economic justification for the implementation of other measures for the suppression of the disease.

For animals killed, slaughtered or for animals which have died due to the implementation of the ordered measures, as well as for the objects that were damaged or destroyed in the course of the implementation of the ordered measures referred to in Article 26, the animal holder or the owner of the object are entitled to the compensation in the amount of the market value on the day of the implementation of the measure.

The assessment of the value of the animals and objects is carried out by the commission appointed by the CVO, the composition of which must include the competent veterinary inspector. The decision on the entitlement to the damage compensation and on the amount of damage compensation is passed by the CVO upon the proposal of the commission within 60 days, while payment must ensue not later than 90 days from the day of implementation of the measures.

The animal holder or owner of the object is not entitled to damage compensation referred:

- if he failed to immediately report the appearance of the infectious disease and did not treat the animal in the manner stipulated by the of the implementing legislation.
- if he failed to undertake the stipulated or ordered measures for the prevention and control of infectious or parasitic diseases,
- if he transfers the animal from an uninfected to an infected or endangered area or from the infected or endangered area to the uninfected area,
- if he conducts trade of animal contrary to the provisions of Veterinary Act,
- if the animal disease appeared during import or within the duration of quarantine of the imported animal.

Due to the above mentioned:

- Costs of regular sampling and submission of samples to the laboratory are entirely borne by the bird holder. Costs of laboratory examination of samples (salmonellosis and antimicrobial resistance) prescribed by programme are entirely settled from the State Budget.
- Costs of sampling, submission of samples to the laboratory and laboratory examination for the purpose of the official controls are entirely settled from the State Budget.
- Costs incurred by the implementation of measures in case of suspicion/positive results are settled from the State Budget in accordance with the Veterinary Act (Official Gazette 41/07, 55/11).

- Costs of vaccine procurement and preventive vaccination of poultry are entirely borne by the bird holder.
- Costs incurred by the implementation of measures in regard to monitoring of antimicrobial resistance in *Salmonella* are entirely settled from the State Budget.

4.4.9. Information and assessment on bio-security measures management and infrastructure in place

The guidelines of good manufacturing practice are stipulated by the Veterinary Act, the Food Act and the implementing secondary regulations. Continuous education of veterinarians, producers and animal holders is conducted through the Croatian Veterinary Chamber, the Croatian Chamber of Economy and the Advisory Services of the Ministry of Agriculture. The guidelines are elaborated in accordance with the recommendations of the European Commission, the World Organisation for Animal Health (OIE) and the latest scientific developments.

Primary production establishments and food and feed business operators must ensure the following:

- implementation of hygienic measures on holdings, in establishments and during transport in a regulated manner,
- implementation of measures for the prevention of disease introduction,
- disposal of biological waste,
- respect of animal welfare.

5. General description of the costs and benefits of the programme

A description is provided of all costs for the authorities and society and the benefits for farmers and society in general

In order to decrease the possibility of food contamination by zoonotic salmonella serotypes throughout meat, eggs and their products and to assure public health, all laying hen flocks from which products are intended for human consumption must be officially sampled and laboratory tested.

A preliminary calculation was made on the approximate number of tests to be performed in the flocks. The number of calculated tests is based on the total No of samples taken from all laying hen flocks included in programme during 2011 and the testing scheme as provided for in Commission Regulation No 517/2011.

Laboratory testing -total laying hen flocks Gallus gallus 2011						
Type of test	No of tests	Type of test	price/per sample	total price (without VAT)	VAT	Total + VAT
Bacteriology testing-isolation Salmonella spp.	10.592	Bacteriology testing-isolation Salmonella spp.	13,35 €	141.403,20 €	32.522,74 €	173.925,94 €
Biokemical characterisation API line	58	Biokemical characterisation API	18,41 €	1.067,78 €	245,59 €	1.313,37 €
Serotyping Salmonella spp.	58	Serotyping Salmonella spp.	32,01 €	1.856,58 €	427,01 €	2.283,59 €
Total				144.327,56 €	33.195,34 €	177.522,90 €

The production period begins when the flock is 18-22 weeks of age and lasts the age of the flock is 72-84 weeks. In the year 2011, a total number of 10.592 samples were tested in the framework of official sampling. This number includes routine sampling and additional confirmatory sampling carried out when a flock is tested positive.

Within the framework of national control programme (routine active monitoring) all samples are taken by authorized veterinarians and are therefore considered as official samples. FBO are not allowed to take samples within national monitoring programme (for the purpose of the routine active monitoring). Sampling performed by FBO is used only for their self-control purpose.

The number of bacteriological tests planned for the year 2013 represents the estimates of the data of previous years.

In the year 2011, 10.592 samples from 317 broiler flocks were sampled and tested in the framework of programme. Out of that number and based on data from the official laboratories, 58 samples were serotyped and Salmonella spp was confirmed.

According to data on number of tested laying hen flocks in 2010 and 2011 it is assumed that in 2013, 10% increase of production could be expected and increase of the costs accordingly. If we make allowance for this trend, we can establish that in 2013 approximately 8000 bacteriological tests and 70 serotyping tests will be performed in the framework of official sampling

Costs of compensation for laying hen flocks in 2010/2011 were 144.552,66€. Approximately around 150.000€ is expected to be paid in 2013.

6. Data on the epidemiological evolution during the last five years: data available only for 2009-2011

Data already submitted via the online system for the years 2007 - 2010: NO

6.1 Evolution of the zoonotic salmonellosis

6.1.1 Data on evolution of zoonotic salmonellosis for:

Year 2011

Type off flock	Total Number of flocks	Total number of animals	Total number of flocks under the programme	Total number of animals under the programme	Number of flocks checked	Number of positive flocks		Number of flocks depopulated		Total number of animals slaughtered or destroyed		Quantity of eggs destroyed (number or kg)		Quantity of eggs channeled to egg products (number or kg)	
						Serotypes targeted in control programme	Other serotypes	Serotypes targeted in control programme	Other serotypes	Serotypes targeted in control programme	Other serotypes	Serotypes targeted in control programme	Other serotypes	Serotypes targeted in control programme	Other serotypes
Laying hens	317	2.331.279	317	2.331.279	317	8	6	6	0	76.563	0	1.362.450	0	0	0

Year 2010

Type off flock	Total Number of flocks	Total number of animals	Total number of flocks under the programme	Total number of animals under the programme	Number of flocks checked	Number of positive flocks		Number of flocks depopulated		Total number of animals slaughtered or destroyed		Quantity of eggs destroyed (number or kg)		Quantity of eggs channeled to egg products (number or kg)	
						Serotypes targeted in control programme	Other serotypes	Serotypes targeted in control programme	Other serotypes	Serotypes targeted in control programme	Other serotypes	Serotypes targeted in control programme	Other serotypes	Serotypes targeted in control programme	Other serotypes
Laying hens	308	2.268.058	308	2.268.058	308	12	7	12	0	2.854	0	21.600	0	0	0

Year 2009

Type of flock	Total Number of flocks	Total number of animals	Total number of flocks under the programme	Total number of animals under the programme	Number of flocks checked	Number of positive flocks		Number of flocks depopulated		Total number of animals slaughtered or destroyed		Quantity of eggs destroyed (number or kg)		Quantity of eggs channeled to egg products (number or kg)	
						Serotypes targeted in control programme	Other serotypes	Serotypes targeted in control programme	Other serotypes	Serotypes targeted in control programme	Other serotypes	Serotypes targeted in control programme	Other serotypes	Serotypes targeted in control programme	Other serotypes
Laying hens	318	1.879.944	318	1.879.944	318	49*	6	1	0	680	0	13.680	0	0	0

* On 137 farms in total 318 laying hen flocks were tested according to the scheme prescribed in the National monitoring programme for 2009 (NP). In 49 flocks serotypes regulated by NP were confirmed (47 flocks were tested S. Enteritidis positive and 2 flocks were tested S. Typhimurium positive). At the request of table egg producers a derogation regarding treatment of salmonella positive flocks was given to those producers whose flocks had come into production during 2008. This derogation had been applied in 48 positive laying hen flocks. Due to the above mentioned no export of table eggs on the EU market has been approved by the Competent Authority during 2009.

6.2 Stratified data on surveillance and laboratory tests

6.2.1 Stratified data on surveillance and laboratory tests for year: 2011

Animal species (a): Gallus gallus Category (b): Laying hen flock

Description of the used serological tests: Not applicable

Description of the used microbiological or virological tests: Current version of Annex D of HRN EN/ISO 6579: 2003: „Detection of Salmonella spp. in animal faeces and in samples of the primary production stage“.

Description of the other used tests:

Region(c)	Serological tests		Microbiological or virological tests		Other tests	
	Number of samples tested(d)	Number of positive samples(e)	Number of samples tested(d)	Number of positive samples(e)	Number of samples tested(d)	Number of positive samples(e)
CROATIA	0	0	10.592	58	Biokemical characterisation API line - 58	58
					Serotyping Salmonella spp - 58	58
Total						

- (a) Animal species if necessary.
 (b) Category/further specifications such as breeders, laying hens, broilers, breeding turkeys, broiler turkeys, breeding pigs, slaughter pigs, etc, when appropriate.
 (c) Region as defined in the programme of the Member State.
 (d) Number of samples tested.
 (e) Number of positive samples.

6.3 Data on infection for year: 2009-2011

Animal species: laying hen flocks of Gallus gallus

Region(c)	Number of infected herds	Number of infected animals
CROATIA 2009	49	-
CROATIA 2010	19 (12x S. Enteritidis)	2.854
CROATIA 2011	58(14x S. Enteritidis)	76.563
Total	126 (26x SE)	79.417

6.4 Data on vaccination or treatment programmes for year 2011

422.920 birds in laying hen flocks of Gallus gallus were vaccinated using inactivated vaccine (Intervet-Nobilis Salenvac T) in 2011.

7. Targets

7.1. Targets related to testing (one table for each year of implementation)

7.1.1. *Targets on diagnostic tests: Sampling 2013*

Animal species: (a): *Gallus gallus*

Region ^(b)	Type of the test ^(c)	Target population ^(d)	Type of sample ^(e)	Objective ^(f)	Number of planned tests
Croatia	Bacteriology testing-isolation <i>Salmonella</i> spp.	Laying hen flocks	Faeces	Surveillance, monitoring	10.000
	Biokemical characterisation API	Laying hen flocks	Faeces	Surveillance, monitoring	70
	Serotyping <i>Salmonella</i> spp.	Laying hen flocks	Faeces, Dust	Surveillance, monitoring	70
					10.140

- (a) Animal species if necessary.
- (b) Region as defined in the approved control and eradication programme of the Member State.
- (c) Description of the test.
- (d) Specification of the targeted species and the categories of targeted animals if necessary.
- (e) Description of the sample (for instance faeces).
- (f) Description of the objective (for instance surveillance, monitoring, , control of vaccination).

7.1.2. Targets on testing of flocks¹

Year: 2013

Situation on date: 2011

Animal species: Gallus gallus-laying hen flocks infection^(a): SE/ST

Region (a1)	Type of flock ^(b)	Total number of flocks ^(c)	Total number of animals	Total number of flocks under the programme	Total number of animals under the programme	Expected number of flocks to be checked ^(d)	Number of flocks expected to be positive ^(e)			Number of flocks expected to be depopulated ^(a)		Total number of animals expected to be slaughtered or destroyed ^(a)		Expected quantity of eggs to be destroyed (number or kg) ^(a)		Expected quantity of eggs channelled to egg products (number or kg) ^(a)	
							(a1)	(a2)	(a3)	(a4)	(a3)	(a4)	(a3)	(a4)	(a3)	(a4)	(a3)
Croatia	Laying hen flocks	317	2.331.279	317	2.331.279	320	15	0	0	15	0	30.000	0	60.000	0	0	0
Total																	

- (a) For zoonotic salmonellosis indicate the serotypes covered by the control programmes: (a1) for *Salmonella* Enteritidis, (a2) for *Salmonella* Typhimurium, (a3) for other serotypes-specify as appropriate, (a4) for *Salmonella* Enteritidis or *Salmonella* Typhimurium.
- (a1) Region as defined in the approved control and eradication programme of the Member State.
- (b) For example, breeding flocks (rearing, adult flocks), production flocks, laying hen flocks, breeding turkeys, broiler turkeys, breeding pigs, slaughter pigs, etc. Flocks or herds or as appropriate.
- (c) Total number of flocks existing in the region including eligible flocks and non-eligible flocks for the programme.
- (d) Check means to perform a flock level test under the programme for the presence of salmonella. In this column a flock must not be counted twice even if it has been checked more than once.
- (e) If a flock has been checked, in accordance with footnote (d), more than once, a positive sample must be taken into account only once

¹ Specify types of flocks if appropriate (breeders, layers, broilers).

7.2. Targets on vaccination (one table for each year of implementation)

7.2.1. *Targets on vaccination*²

Animal species: ^(a) Breeding flocks Gallus gallus

Region ^(b)	Total number of herds ^(c) in vaccination programme	Total number of animals in vaccination programme	Targets on vaccination programme			
			Number of herds ^(c) in vaccination programme	Number of herds ^(c) expected to be vaccinated	Number of animals expected to be vaccinated	Number of doses of vaccine expected to be administered
CROATIA		422.920		250	1.000.000	1.000.000
Total		422.920		1.000.000	1.000.000	422.920

- (a) Animal species if necessary.
- (b) Region as defined in the approved control and eradication programme of the Member State.
- (c) Herds or flocks or holdings as appropriate.

² Data to provide only if appropriate.

8. Detailed analysis of the cost of the programme (one table per year of implementation)

<i>Costs related to</i>	<i>Specification</i>	<i>Number of units</i>	<i>Unitary cost in EUR</i>	<i>Total amount in EUR</i>	<i>Union funding requested (yes/no)</i>
1. Testing					
1.1. Cost of the sampling		<i>0</i>			<i>No</i>
	Domestic animals	<i>0</i>			<i>No</i>
1.2. Cost of the analysis	Bacteriological tests (cultivation) in the framework of official sampling	<i>10.000</i>	<i>13,35</i>	<i>133.500,00</i>	<i>Yes</i>
	Serotyping of relevant isolates	<i>70</i>	<i>35,00</i>	<i>2.450,00</i>	<i>Yes</i>
	Bacteriological test to verify the efficiency of disinfection of poultry houses after depopulation of a salmonella-positive flock	<i>40</i>	<i>13,35</i>	<i>534,00</i>	<i>Yes</i>
	Test for the detection of antimicrobials or bacterial growth inhibitory effect in tissues from birds from flocks tested for salmonella	<i>70</i>	<i>100,00</i>	<i>700,00</i>	<i>Yes</i>
	Other (please specify)	<i>-</i>			

2. Vaccination	(If you ask for co-financing for the purchase of vaccines, you should also fill in points 6.4 and 7.2 as vaccination policy should be part of your programme)	0			No
2.1. Purchase of vaccine doses	Number of vaccine doses	0			No
3. Slaughter and destruction					
3.1. Compensation of animals	Compensation of animals slaughtered or killed positive on SE/ST/SI/ST/SH	30.000	5,00	150.000,00	Yes
	Compensation of eggs destroyed from flocks positive on SE/ST/SI/ST/SH	60.000	0,20	12.000,00	Yes
3.2. Transport costs					No

3.3. Destruction costs					No
3.4. Loss in case of slaughtering					No
3.5 Costs from treatment of animal products (milk, eggs, hatching eggs, etc)					No
4. Cleaning and disinfection					No
5. Salaries (staff contracted for the programme only)					No
6. Consumables and specific equipment					No
7. Other costs					No
TOTAL				299.184,00	

NATIONAL PROGRAMME FOR THE CONTROL OF SALMONELLOSIS IN ADULT BREEDING FLOCKS (BREEDING FLOCKS IN PRODUCTION) OF GALLUS GALLUS IN THE REPUBLIC OF CROATIA

ANNEX II - PART A

General requirements for the national salmonella control programmes

(a) State the aim of the programme

The aim of the national control programme is to maintain the prevalence of *S. Enteritidis*, *S. Typhimurium*, including monophasic *Salmonella Typhimurium* with the antigenic formula 1,4,[5],12:i:-, *S. Hadar*, *S. Infantis* and *S. Virchow* in adult breeding flocks of *Gallus gallus* at the level of 1 % or less in agricultural holdings in the country.

The national control programme in breeding flocks of *Gallus gallus* is implemented throughout the Republic of Croatia from 1 January to 31 December of the calendar year and is fully aligned with the provisions of Regulation 200/2010 which is transposed into Croatian national legislation within the Ordinance laying down the scheme of testing for the reduction of the prevalence of certain *Salmonella* serotypes in adult breeding flocks of *Gallus gallus* (OG 65/11).

(b) Animal population and phases

Demonstrate the evidence that it complies with the minimum sampling requirements laid down in part B of Annex II to Regulation (EC) of production which sampling must cover

Breeding flocks of *Gallus gallus*:

- rearing flocks — day-old chicks
 - four-week-old birds
 - two weeks before moving to laying phase or laying unit
- adult breeding flocks — every second week during the laying period
 - at the hatchery every three weeks from breeding flocks the eggs of which are used for production of day-old chicks

All breeding flocks of *Gallus gallus* comprising at least 250 birds in the country are included in the implementation of the Programme. If there are less than 100 breeding flocks in the country, not more than one adult breeding flock may remain positive.

“Flock” means all poultry of the same health status kept on the same premises or in the same enclosure and constituting a single epidemiological unit; in the case of housed poultry; this includes all birds sharing the same airspace.

The sampling is carried out in accordance with the requirements set out in Annex II, Part B of the Ordinance on the control of *Salmonella* and other specified food-borne zoonotic agents (Official Gazette 85/12) which is fully aligned with Part B of Annex II of Regulation 2160/2003.

(c) Specific requirements

Demonstrate the evidence that it complies with the specific requirements laid down in Parts C, D and E of of Regulation 2160/2003.

Positive finding to *S. Enteritidis* or *S. Typhimurium*

If the positive finding to *S. Enteritidis* or *S. Typhimurium* is confirmed the flock is considered infected and a competent veterinary inspector must order the implementation of the following measures to the bird holder:

- Prohibition of use of antimicrobials for the treatment of breeding flocks (day-old chicks, poultry in rearing and production) infected by salmonellosis caused by *S. Enteritidis* or *S. Typhimurium*;

- All birds in a positive flock (day-old chicks, poultry in rearing and production) must be slaughtered or destroyed so as to reduce as much as possible the risk of spreading salmonella, as follows:
 - Day-old chicks must be destroyed,
 - Poultry in rearing and production, depending on the age, must be destroyed or slaughtered; Slaughtering of birds must be carried out in compliance with special regulations on food hygiene.
 - Meat and products derived from such poultry may only be placed on the market for human consumption if they meet the requirements set out in Annex II, Part E of the Ordinance (Official Gazette 85/12) and comply with the provisions of the Ordinance on microbiological criteria for foodstuffs (Official Gazette 74/08,156/08, 89/10 i 153/11). If not intended for human consumption, such products must be used or disposed of in accordance with the Ordinance on animal by-products not intended for human consumption (Official Gazette 87/09).
 - Non-incubated eggs from a positive flock must be destroyed in accordance with the Ordinance on animal by-products not intended for human consumption (Official Gazette 87/09). However, such non-incubated eggs may be used for human consumption if they are treated in a manner that guarantees the elimination of *S. Enteritidis* and/or *S. Typhimurium* in accordance with the regulations on food hygiene;
 - Where eggs for hatching from flocks in which *S. Enteritidis* or *S. Typhimurium* is present are still present in a hatchery, they must be destroyed in accordance with the Ordinance on animal by-products not intended for human consumption (Official Gazette 87/09);
 - Appropriate cleaning, washing and disinfection of premises, devices and equipment in the sites for production and storage of poultry feed.
 - Cleaning, washing and disinfection of vehicles by appropriate disinfection means;
 - Disinfection, disinfestation and deratisation of infected facilities for breeding and keeping of poultry; when disinfection is completed, its efficiency should be bacteriologically controlled. It is prohibited to introduce new poultry into the facility until a negative control result of disinfection efficiency is obtained;
 - Removal and sanitary treatment of manure in a prescribed manner.
 - A competent veterinary inspector must conduct epidemiological investigation to determine a source of infection;

Positive finding to *S. Hadar*, *S. Virchow* or *S. Infantis*.

If the positive finding to *S. Hadar*, *S. Virchow* or *S. Infantis* is confirmed by additional examination, the flock is considered infected and a competent veterinary inspector must order the implementation of the following measures to the bird holder:

A) for day-old chicks, poultry in rearing up to eight weeks old and poultry in production older than 47 weeks:

- Prohibition of use of antimicrobials for the treatment of breeding flocks infected by salmonellosis caused by *S. Hadar*, *S. Virchow* or *S. Infantis*.
- All birds in a positive flock must be destroyed or slaughtered so as to reduce as much as possible the risk of spreading salmonella;
- Day-old chicks must be destroyed;
- Poultry in rearing up to eight weeks old, depending on the age, must be destroyed or slaughtered. If poultry is sent for slaughter or destruction, all measures must be taken so as to reduce as much as possible the risk of spreading the disease. Slaughtering of birds must be carried out in compliance with special regulations on food hygiene;
- Meat and products derived from such poultry may only be placed on the market for human consumption if they meet the requirements set out in Annex II, Part E of the Ordinance (Official Gazette 85/12) and comply with the provisions of the Ordinance on microbiological criteria for foodstuffs (Official Gazette 74/08,156/08, 89/10 i 153/11):

- If not designated for human consumption, such products must be used or disposed of in accordance with the Ordinance on animal by-products not intended for human consumption (Official Gazette 87/09).
- Non-incubated eggs must be destroyed in accordance with the Ordinance on animal by-products not intended for human consumption (Official Gazette 87/09). However, such non-incubated eggs may be used for human consumption if they are treated in a manner that guarantees the elimination of *S. Hadar*, *S. Virchow* or *S. Infantis* in accordance with the regulations on food hygiene;
- Where eggs for hatching from flocks in which *S. Hadar*, *S. Virchow* or *S. Infantis* is present are still present in a hatchery, they must be destroyed in accordance with the Ordinance on animal by-products not intended for human consumption (Official Gazette 87/09);
- Appropriate cleaning, washing and disinfection of premises, devices and equipment in the sites for production and storage of poultry feed.
- Cleaning, washing and disinfection of vehicles by appropriate disinfection means;
- Disinfection, disinfestation and deratisation of infected facilities for breeding and keeping of poultry; when disinfection is completed, its efficiency should be bacteriologically controlled. It is prohibited to introduce new poultry into the facility until a negative control result of disinfection efficiency is obtained;
- Removal and sanitary treatment of manure in a prescribed manner.

A competent veterinary inspector must conduct epidemiological investigation to determine a source of infection;

B) for poultry in rearing and production aged from eight to 47 weeks:

- Rearing poultry aged from eight to 47 weeks is considered valuable genetic material, and in order to establish new salmonella-free flocks, treatment with antimicrobials is permitted in a manner prescribed by the Ordinance on specific control methods in the framework of the national programmes for the control of salmonella in poultry (Official Gazette 72/08).
- Antimicrobials must be used on the basis of results of bacteriological examination and antibiograms. A competent veterinary inspector must conduct regular supervision of the use of antimicrobials, and he must submit reports on conducted supervision to the Veterinary Directorate once a month (until the 15th of a month for the previous month).
- Treatment of an infected flock, in compliance with the Decision issued by a competent veterinary inspector, is conducted by approved veterinary organisations and approved veterinary services. After conducted treatment, it is necessary to conduct a control of efficacy of the conducted therapy in a manner that control samples are taken from poultry twice, on the 7th and 14th day from the beginning of the therapy, and delivered to a laboratory for analysis.

A control sample must consist of:

- 5 pairs of boot swabs (1 pair = 1 pooled sample), and
- Samples of cloacal swabs collected from 50 hens (bacteriological examination). If there are less than 50 hens in a facility, it is necessary to take a sample of cloacal swabs from all hens, and
- Five hens (sacrificed or dead)/facility, whereby all organs must be laboratory examined.

During the treatment and until the termination of treatment efficacy control:

- It is prohibited to move poultry and eggs from the holding except with a special authorisation issued by a competent veterinary inspector;
- It is prohibited to hatch eggs originating from infected flocks. Eggs hatched during the treatment must be collected and destroyed in accordance with the Ordinance on animal by-products not intended for human consumption (Official Gazette 87/09). Where eggs for hatching from flocks in which *S. Hadar*, *S. Virchow* or *S. Infantis* is present are still present in a hatchery, they must be destroyed in accordance with the Ordinance on animal by-products not intended for human consumption (Official Gazette 87/09);
- It is prohibited to move feed from the holding;

- Cleaning and disinfection, disinfestation and deratisation of infected facilities for breeding and keeping of poultry; when disinfection is completed, its efficiency should be bacteriologically controlled;
- Cleaning, washing and disinfection of vehicles by appropriate disinfection means;
- Removal and sanitary treatment of manure in a prescribed manner.

A competent veterinary inspector must conduct epidemiological investigation to determine a source of infection;

Measures to be taken in a breeding flock suspicious of/positive to other salmonella serotypes with public health significance

In case of a suspicion/confirmed presence of any other salmonella serotype with public health significance, except *S. Enteritidis*, *S. Typhimurium*, *S. Hadar*, *S. Virchow* or *S. Infantis*:

- It is prohibited to use antimicrobials for the treatment of breeding flocks;
- A competent veterinary inspector must conduct epidemiological investigation in order to determine a source of infection focusing on determining the implementation of bio-safety measures;
- The owner/holder of the flock is bound to conduct relevant bio-safety measures on the holding so as to reduce the possibility of introducing the infection as much as possible.

It is prohibited to use antimicrobials for the control and treatment of breeding flocks infected by salmonellosis caused by *Salmonella* spp.

Treatment of the flock must be conducted in compliance with the provisions of the Ordinance on specific control methods in the framework of the national programmes for the control of salmonella in poultry (Official Gazette 72/08), and the provisions of the Ordinance on harmonised monitoring of antimicrobial resistance in salmonella in poultry and pigs (Official Gazette 75/09).

Treatment of the flock may be conducted by approved veterinary organisations and approved veterinary services.

During the treatment and until the termination of treatment efficacy control:

- It is prohibited to move poultry and eggs from the holding except with a special authorisation issued by a competent veterinary inspector;
- It is prohibited to hatch eggs originating from infected flocks. Eggs hatched during the treatment must be collected and destroyed in accordance with the Ordinance on animal by-products not intended for human consumption (Official Gazette 87/09). Where eggs for hatching from flocks in which *S. Hadar*, *S. Virchow* or *S. Infantis* is present are still present in a hatchery, they must be destroyed in accordance with the Ordinance on animal by-products not intended for human consumption (Official Gazette 87/09);
- It is prohibited to move feed from the holding;
- Cleaning and disinfection, disinfestation and deratisation of infected facilities for breeding and keeping of poultry must be conducted; when disinfection is completed, its efficiency should be bacteriologically controlled;
- Cleaning, washing and disinfection of vehicles must be conducted by appropriate disinfection means;
- Removal and sanitary treatment of manure must be conducted in a prescribed manner.

Each treatment of a flock must be recorded in the Records on Animal Treatment and Waiting Period.

Within the framework of national control programme (routine active monitoring) all samples are taken by authorized veterinarians. FBO are not allowed to take samples within national monitoring programme (for the purpose of the routine active monitoring).

(d) Specification of the following points:

1. General

1.1 A short summary referring to the occurrence of Salmonellosis (Zoonotic Salmonella)

A short summary referring to the occurrence of the salmonellosis [zoonotic salmonella] in the Member State with specific reference to the results obtained in the framework of monitoring in accordance with Article 4 of Directive 2003/99/EC of the European Parliament and of the Council, particularly highlighting the prevalence values of the salmonella serovars targeted in the salmonella control programmes.

Salmonellosis and Salmonella infections in poultry

Salmonellosis and Salmonella infections in poultry have been systematically monitored in the Republic of Croatia in the diagnostic laboratory of the Croatian Veterinary Institute since the seventies of the last century. Due to the implementation of strict measures under the National Programme for the Control and Eradication of Fowl Typhoid, Salmonella-specific serotypes *S. gallinarum* and *S. pullorum* have become economically insignificant and limited to individual rare cases in extensive production systems (the last case was recorded in 1993).

The development of intensive poultry farming and ever-increasing production and consumption of meat, eggs and related products have facilitated the spread of Salmonella infections caused by non-host-specific invasive serotypes – paratyphoid Salmonellas, which can not only cause severe infections in poultry, but can also spread through food and cause disease in humans.

Thanks to the systematic and years-long implementation of disease monitoring and control measures prescribed by the annual Order on measures to protect animals from infectious and parasitic diseases and the financing thereof, the total number of isolated Salmonellas has significantly decreased.

According to monitoring programme for 2009, 2010, 2011 and 2012 all breeding flocks of *Gallus gallus* comprising at least 250 birds in the country had to be tested on Salmonella spp. presence.

Only poultry and eggs originating from a flock that has been tested for the presence of Salmonella and that were free from *S. Enteritidis*, *S. Typhimurium*, *S. Hadar*, *S. Infantis* and *S. Virchow* and for which the owner had a health certificate not more than 15 days old issued by an official laboratory, may be placed on the market.

Breeding flocks of *Gallus gallus* were sampled according to the following:

- rearing flocks - day-old chicks
 - four-week-old birds
 - two weeks before moving to laying phase or laying unit
- adult breeding flocks — every second week during the laying period
- at the hatchery every three weeks from breeding flocks the eggs of which are used for production of day-old chicks

The baseline study has not been carried out but the prevalence is calculated based on data collected throughout regular monitoring programme. The prevalence of Salmonella spp. and relevant Salmonella serotypes in breeding flocks of *Gallus gallus* poultry for 2009, 2010 and 2011 was as mentioned in Table 1.

Table 1. Results of salmonella monitoring programme for broiler flocks o Gallus gallus in 2009-2011

Year	Type of Gallus gallus poultry	Total No of tested flocks	Total No of Salmonella spp. positive flocks	Total No S. Enteritidis positive flocks	Total No S. Typhimurium positive flocks	Total No S. Infantis, S. Virchow, S Hadar positive flocks
2009	Breeding flocks	192	0	0	0	0
2010	Breeding flocks	123	2	2	0	0
2011	Breeding flocks	147	1	1	0	0

In 2009, 192 breeding flocks were tested on Salmonella spp. and out of them no flock was positive on S. Enteritidis, S. Typhimurium, S. Hadar, S. Infantis and S. Virchow.

In 2010, 123 breeding flocks were tested on Salmonella spp. and out of them 2 flocks were positive on Salmonella Enteritidis. The prevalence of Salmonella Enteritidis in breeding flocks was 1,63%.

In 2011, 147 breeding flocks were tested on Salmonella spp. and out of them 1 flock was positive on Salmonella Enteritidis. The prevalence of Salmonella Enteritidis in breeding flocks was 0,68%.

Salmonellosis and Salmonella infections in humans

Salmonellosis are the most significant zoonoses in Croatia. On average, about 3500 positive cases of human salmonellosis are reported annually. These are most often the outbreaks caused by S. Enteritidis.

In Croatia, most outbreaks are so-called family outbreaks, whereas only a small number of outbreaks are associated with public catering premises and, as a rule, are not linked to industrially produced food and products.

Table 2. DISTRIBUTION OF HUMAN SALMONELLOSIS IN THE PERIOD 1998-2010

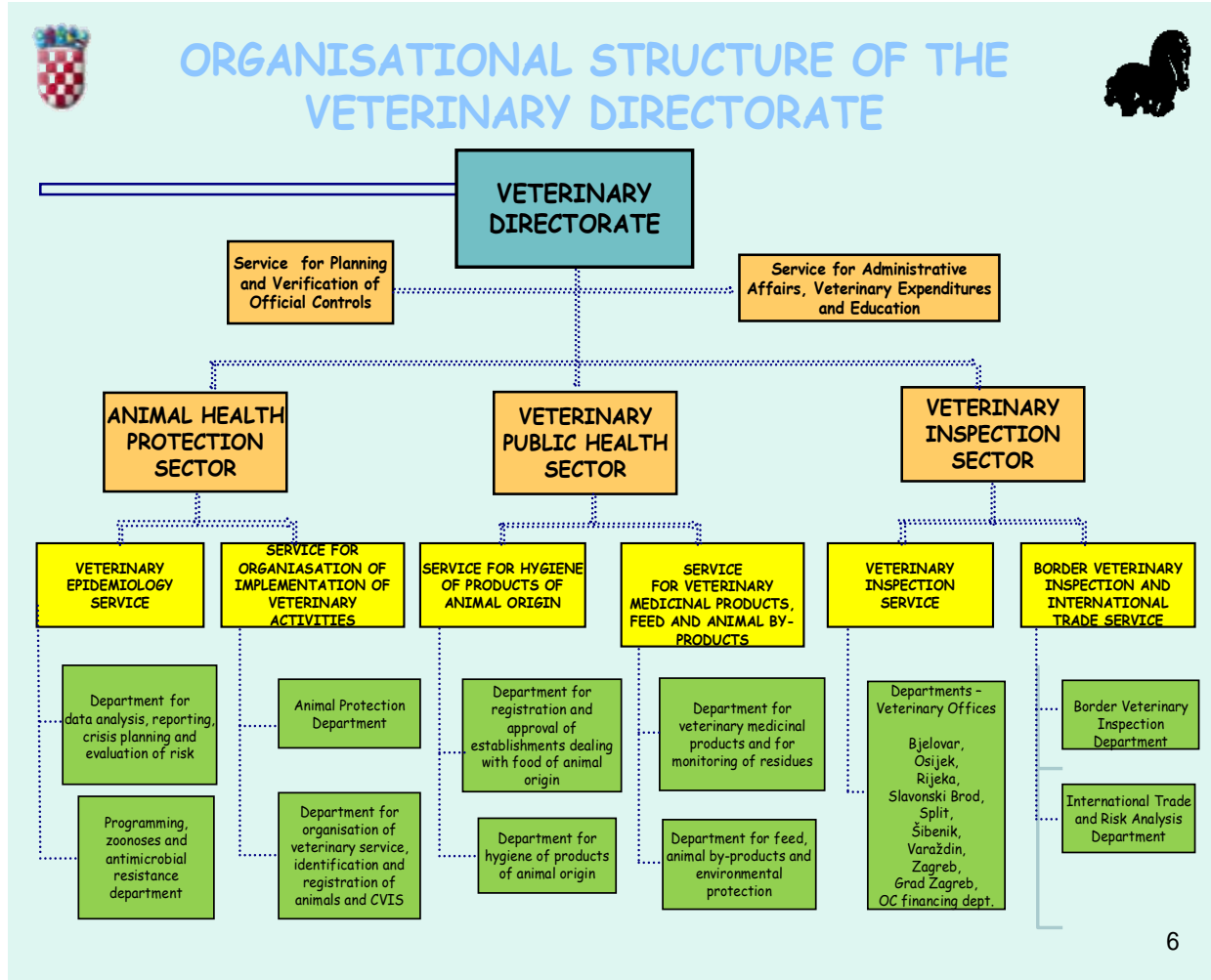
Year	Number of diseased	Number of deaths
1998	4288	-
1999	4121	3
2000	5134	3
2001	5620	-
2002	6570	1
2003	5755	4
2004	4940	3
2005	5619	1
2006	4734	1
2007	3331	-
2008	3664	-
2009	3158	1
2010	2098	1

The level of salmonellosis in humans has the lowest figure in 2010 (2098) owing to complex preventive measures aimed to control all possible sources in humans and animals (zoonosis). The most common isolated strains of Salmonella spp. from samples of diseased humans are Salmonella Enteritidis (84% of all isolates), Salmonella senftenberg (2% of all isolates), Salmonella typhimurium (1% of all isolates), Salmonella infantis (1% of all isolates),

Salmonella virchow(1% of all isolates), Salmonella thompson (1% of all isolates), Salmonella derby (1% of all isolates), Salmonella coeln (1% of all isolates). Data on human salmonellosis are provided by Croatian national institute of public health.

1.2 The structure and organization of the relevant competent authorities

Please refer to the information flow between bodies involved in the implementation of the programme.



In accordance with the current internal organisation of Ministry of Agriculture (MA), the competent authority (CA) in the veterinary field is the Veterinary Directorate.

The Veterinary Directorate has five organisational units:

1. Service for Planning and Verification of Official Controls (SPVOC),
2. Service for Administrative Affairs, Veterinary Expenditures and Education,
3. Animal Health Protection Sector,
4. Animal Public Health Sector,
5. Veterinary Inspection Sector.

The Service for Planning and Verification of Official Controls (SPVOC):

- participates in the preparation of annual plan for official controls of the Veterinary inspection service;
- participates in the implementation of risk assessment in establishments dealing with food, feed and products of animal origin, in order to determine the appropriate frequency of official controls in mentioned establishments;
- monitors the implementation of acts and regulations in the veterinary inspection

- jurisdiction, and the legality of the actions of all veterinary offices in their respective areas of jurisdiction;
- verifies the performance of official controls on the basis of the supervision of the veterinary inspectors and official veterinarians and their reports on conducted official controls;
- performs official controls in registered establishments, approved establishments and establishments approved under special conditions dealing with food and products of animal origin, which are under the veterinary inspection competence and in registered and approved establishments dealing with feed;
- conduct official controls in registered and approved establishments dealing with animal by-products and supervises the implementation of official controls in these establishments carried out by the state veterinary inspectors and official veterinarians;
- performs official controls regarding production and distribution of veterinary medicinal products and the laboratories which conducts testing and control of veterinary medicinal products;
- supervises the implementation of monitoring in regard to veterinary inspection;
- performs official controls and supervision on the enforcement of measures for preventing and eradication of infectious and parasitic diseases and zoonoses;
- supervises activities of control bodies and authorised veterinary organisations;
- performs official controls on animal welfare, transportation and identification of animals;
- performs official controls on production and storage of semen and embryos, as well as on breeding and reproduction of farm animals;
- performs official controls on laboratories which conduct analysis in the field of veterinary medicine;
- participates in the organisation and delivery of training for State veterinary inspectors, official veterinarians and authorised veterinarians;
- participates in the drafting of legislation drawn up by the competent authority and performs other duties in accordance with national regulations.

The Service for Administrative Affairs, Veterinary Expenditures and Education is competent for monitoring and co-ordination of work on the alignment of legislation in the veterinary field and international agreements in the veterinary field; prepares, monitors and co-ordinates the preparation of regulations governing in the expenditures in field of veterinary medicine, participates in preparation of program funding in the veterinary field (measures for animal health protection and all other measures in the veterinary field of veterinary medicine); prepares proposal for the budget plan for expenditures in field of veterinary medicine; participates in drafting the costs of laboratory diagnostics and analytics monitoring implementation of financing of measures that are paid from the state budget; monitors and aligns Croatian legislation in field of veterinary medicine with the *acquis communautaire* and co-ordinates the work in field of harmonization and application of veterinary legislation, prepares reports of compliance of veterinary legislation with EU legislation, plans legislative actions to transpose and implement the *acquis* relating to the veterinary legislation and follows up and reports on its implementation, participates in the drafting of international treaties and other legal forms of international co-operation in the veterinary field and coordinates process of their execution and implementation; co-operates with the competent authorities of other countries in the field of veterinary medicine and international organizations (Codex); is a contact point for co-ordination with the World organization for animal Health (OIE) develops a draft Pre-Accession Economic program (PEP) in the part relating to the Veterinary Directorate; participates in the process of authorizing official and reference laboratories in the field of veterinary medicine; is a contact point in co-operation with TAIEX (Technical Assistance and Information Exchange); participates in the preparation of training programs and maintains records of trainings of VD employees and authorized veterinarians and participates in the organization of training conducted by the VD, provides technical assistance in the processing of legal issues related to the implementation of laws and within the scope of VD, provides technical assistance in the conduct of officials in the administrative proceedings, gives opinions and explanations concerning the implementation of regulations in field of veterinary medicine; drafts contracts and other civil rights legislation from in the field of veterinary medicine.

The Animal Health Protection Sector develops policies and manages activities related to: animal health surveillance and monitoring; control and eradication of animal diseases including zoonoses; contingency planning and crisis management; animal welfare; financing of measures on early detection and eradication of animal diseases, as well as activities related to identification of animals and registration of their movements. It also performs tasks regarding the organisation and functioning of the veterinary service and development and maintenance of the Central Veterinary Information System designed to provide a unified system of all registers and software in the veterinary field. The Sector comprises two Services (Veterinary Epidemiology and Organisation of implementation of veterinary activities) and four departments: Data analysis and contingency planning; Programming and zoonosis; Organisation of veterinary service, identification and registration of animals and CVIS (Central Veterinary Information System) and Animal Protection Department. CVIS will support access or data exchange with information systems from other state organizations, institutes and agencies.

The Veterinary Public Health Sector (VPHS) is competent for the safety of: food of animal origin and feed; veterinary medicinal products and veterinary medical devices; monitoring of residues; animal by-products; drafting of legislation and other relevant programmes; organizing educations on implementation of the legislation as well as drafting written instructions for authorised veterinarians, official veterinarians and veterinary inspectors; legal, administrative and related activities. VPHS manages activities related to NCRP, the residue programme for feed and the monitoring programme for bivalves. The Sector comprises two services: Service for Hygiene of Products of Animal Origin and Service for Veterinary Medicinal Products and Feedstuffs.

The Veterinary Inspection Sector (VIS) has two services and is organised as it follows:

- Border Veterinary Inspection and International Trade Service;
- Veterinary Inspection Service.

The Veterinary Inspection Service has ten departments; the Department for Financing Official Controls which is responsible for legal issues and activities related to financing of official controls in the veterinary field and nine Regional Veterinary Inspection Departments (veterinary offices) located in City of Zagreb, Zagreb, Varaždin, Bjelovar, Osijek, Slavonski Brod, Šibenik, Rijeka and Split. These Inspection Departments have 65 branch offices. The veterinary Inspection Service is responsible for implementation of official controls regarding animal health, animal welfare and production, and also in trade of food and feed in line with the Veterinary Act, the Food Act, the Animal Protection Act, and the Act on the Veterinary Medicinal Products. The Border Veterinary Inspection and International Trade Service is organised into two departments: the Border Veterinary Inspection Department and International Trade and Risk Analysis Department. The Border Veterinary Inspection Department is responsible for veterinary checks and controls at BIPs on consignments of animals, products of animal origin, feed of animal origin and other objects that may transmit infectious or parasitic diseases or jeopardise human and animal health. The International Trade and Risk Analysis Department is competent for legal and administrative activities in the field of international trade. These activities include: determining veterinary conditions for the import and transit of consignments of animals and products of animal origin; drafting models of export and import veterinary certificates; keeping abreast of international legislation; drafting of legislation on the control of trade of animals and products of animal origin; drafting orders on security measures for import control of live animals and products of animal origin related to animal diseases and other agents that may harm human and animal health; drafting of the annual monitoring plan for import consignments; and other related activities.

Under the Veterinary Act (OG 41/07, 55/11) official controls are performed by the Official Veterinarians (OV).

Certain tasks of official controls may be delegated to control bodies (veterinary organisations accredited to ISO 17020:1998). Control bodies must be impartial and free from any conflict of interest. According to Article 116 of the Veterinary Act, the costs of veterinary checks, certification, veterinary supervision and monitoring are paid from the state budget. All fees for official controls are paid to the state budget and control bodies are paid from that budget. Under the Ordinance on official controls to ensure the verification of compliance with feed and food, animal health and animal welfare law (OG 99/07, 74/08), administrative measures in

case of non-compliance are not delegated. When an authorised veterinarian (AV), performing delegated tasks finds non-compliance, he must notify the OV. The relevant competent authority (CA) may delegate specific tasks to a particular control body under the following conditions:

- There is an accurate description of the tasks to be carried out and the conditions for their implementation;
- There is proof that the control body: has the expertise, equipment and infrastructure required to carry out the tasks delegated to it; sufficient suitably qualified and experienced staff. It must also be impartial and free from conflict of interest as regards the exercise of the tasks delegated to it;
- The control body works to, and is accredited in accordance with, ISO 17020, and communicates the results of the controls carried out to the competent authority;
- There is efficient and effective co-ordination between the delegating competent authority and the control body.

The Ordinance on requirements to be met by veterinary organisations performing veterinary activities (OG 45/09, 80/10) requires the authorized veterinary organizations and control bodies to be impartial and free from any conflict of interest regarding the tasks delegated to them.

138 veterinary organisations, which employ 894 AV, are involved in official controls. According to the Veterinary Act (Official Gazette No 41/07, 55/11) veterinary activities shall be conducted by legal persons through veterinary surgeries, veterinary stations, veterinary hospitals, veterinary clinics, centres for reproduction and artificial insemination, and veterinary pharmacies (veterinary organisations). Veterinary organisations are established as companies. Certain veterinary activities, in accordance with the provisions of the Veterinary Act, are conducted by the Croatian Veterinary Institute as well as by the Faculty of Veterinary Medicine. A veterinary organisation, veterinary practice and veterinary service may be founded provided that an opinion of the Croatian Veterinary Chamber and a veterinary consent of the competent veterinary inspection office have been obtained and may start to conduct their activities on the basis of a Decision on the compliance with the stipulated conditions regarding the arrangement of the facilities, premises, veterinary equipment and professional staff, adopted by the Director at the proposal of an expert commission founded by the Director of the Veterinary Directorate. In the Veterinary Act it is laid down that certain activities can be performed only by veterinary stations and veterinary surgeries which, on the basis of the carried out competition, are authorised by the Veterinary Directorate to perform these activities for the period of 5 years.

According to the Veterinary Act (Official Gazette No 41/07, 55/11) authorised veterinarian may conduct the following activities:

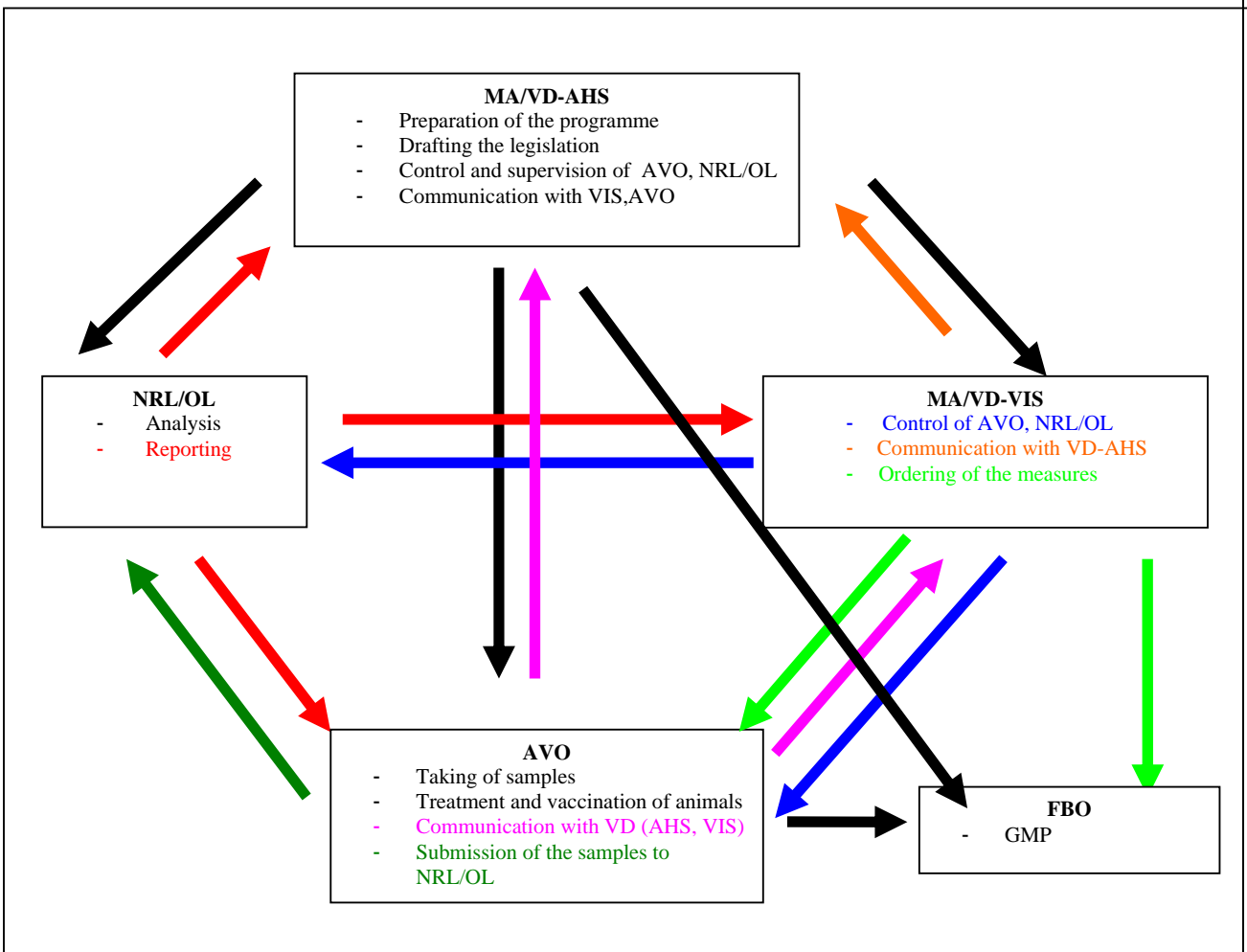
1. veterinary checks and controls on husbandries, farms, livestock markets, animal gatherings, buyout points, facilities for resting of animals, animal exhibitions and other facilities if the veterinary organisation in which he is employed is authorised to do so,
2. issue animal health certificates, certificates for consignments of products of animal origin and feed in internal trade,
3. enforce compulsory identification of animals and keep the stipulated records on the identification and registration of movement animals,
4. implement the stipulated measures for the detection, prevention, combating and control infectious or parasitic diseases,
5. take diagnostic material of animals, samples of products of animal origin and animal waste matter for the purpose of examining the health of animals, i.e. safety of products of animal origin,
6. prohibit the dispatching of animals, products of animal origin and animal waste matter if it is established in the course of a veterinary examination that the consignment has been infected or if contamination is suspected, if it originates from an infected area, if it fails to comply with other stipulated safety conditions, if it is not accompanied by the stipulated and correct documentation, or if the transport vehicle fails to meet the stipulated veterinary conditions.

Epizootiological regions	Authorised veterinary organisations	Authorised veterinarians
Dubrovnik - Neretva County	2	3
Splitsko - Dalmatia County	11	40
Šibensko - Knin County	4	17
Lika - Senj County	7	13
Zadar County	6	20
Primorje - Gorski Kotar County	6	25
Istra County	8	33
Sisak - Moslavina County	8	48
Karlovac County	8	32
City of Zagreb	3	52
Zagreb County	10	104
Varaždin County	5	57
Međimurje County	2	35
Koprivnica - Križevci County	4	96
Virovitica - Podravina County	5	25
SlavonskiBrod - Posavina County	11	34
Požega - Slavonia County	3	24
Osijek - Baranja County	10	67
Vukovar - Srijem County	7	54
Krapina - Zagorje County	7	29
Bjelovar - Bilogora County	11	80
TOTAL	138	894

In August 2010, Croatia issued the "Ordinance on designation of official and reference laboratories in the implementation of veterinary activities" (OG No 102/10), which provides that all laboratories which perform official control in the field of veterinary medicine including feed and some parts of food of animal origin should be accredited by the Croatian Accreditation Agency to EN ISO 17025:2007.

Information on flow between bodies involved in the implementation of the programme is described in the flow diagram below

Flow diagram



Abbreviations:

- MA/VD-AHS – Ministry of Agriculture/Veterinary Directorate-Animal Health Sector
- MA/VD-VIS – Ministry of Agriculture/Veterinary Directorate- Veterinary Inspection Sector
- AVO- authorized veterinary organizations
- NRL-National referent laboratory
- OL – Official laboratory
- FBO-Food business operator

1.3 Approved laboratories where samples collected within the programme are analysed.

NRL IN CROATIA

The national reference laboratory for Salmonella in poultry is the Croatian Veterinary Institute – Poultry Centre, Heinzelova 55, Zagreb.

The national reference laboratory for antimicrobial resistance in animals is the Croatian Veterinary Institute Zagreb, Department for Bacteriology and Parasitology, Laboratory for General Bacteriology and Microbiology, Savska cesta 143, Zagreb

Other official laboratories involved in the implementation of this Programme are:

- Croatian Veterinary Institute Zagreb, Savska cesta 143, Zagreb;
- Croatian Veterinary Institute, Regional Branch Split, Poljička cesta 33, Split;
- Croatian Veterinary Institute, Regional Branch Križevci, Zakmardijeva 10, Križevci;
- Croatian Veterinary Institute, Regional Branch Vinkovci, J. Kozarca 24, Vinkovci;
- Croatian Veterinary Institute, Regional Branch Rijeka, Podmurvice 29, Rijeka;
- Bioinstitut d.o.o., R. Steinerja 7, Čakovec.

Accreditation status of laboratories

The laboratories involved in salmonella national programmes are accredited to the required standards and fully comply with the provisions of the Article 11 and Article 12 of Regulation 2160/2003 and Ordinance on authorization of the official and reference laboratories regarding the implementation of veterinary activities (Official Gazette 102/10).

Due to the above mentioned all official laboratories providing diagnostic testing of the samples taken from poultry within this programme are accredited in accordance with the:

- HRN EN ISO/IEC 17025 standard;
- Current version of Annex D of HRN EN/ISO 6579: 2003: „Detection of Salmonella spp. in animal faeces and in samples of the primary production stage“.

Official laboratories are obliged to regularly participate in collaborative testing organised or coordinated by the national reference (NRL). NRL is obliged to organize interlaboratory testing for official laboratories in Croatia at least once per year. Testing for the presence of salmonella is carried out using the methods and protocols recommended by international standardization bodies.

1.4 Methods used in the examination of the samples in the framework of the programme.

Samples are prepared and tested in a laboratory in accordance with the requirements set forth in the Ordinance laying down the scheme of testing for the reduction of the prevalence of certain Salmonella serotypes in adult breeding flocks of Gallus gallus (OG 65/11) and the Ordinance on harmonised monitoring of antimicrobial resistance in Salmonella in poultry and pigs (Official Gazette 75/09).

The detection of the relevant Salmonella serotypes shall be carried out according to Amendment 1 of HRN EN/ISO 6579: 2003/Amd1:2007. 'Microbiology of food and animal feeding stuffs – Horizontal method for the detection of Salmonella spp. — Amendment 1: annex D: Detection of Salmonella spp. in animal faeces and in environmental samples from the primary production stage. At least one isolate is serotyped according to the Kaufmann-White scheme.

1.5 Official controls (including sampling schemes) at feed, flock and/or herd level

Official controls at the primary production stage

Eggs for hatching may be placed on the market or incubated only if they come from salmonella-free flocks (*S. Enteritidis*, *S. Typhimurium*, *S. Hadar*, *S. Infantis* and *S. Virchow*), or if flock holders possess health certificates for the flock issued by an approved laboratory and not older than 15 days. The certificate is issued on the basis of officially submitted samples. All flocks, the products of which are intended for public consumption, must be examined by submitting official samples to an official laboratory.

Sampling is conducted in compliance with the requirements specified in Part B of Annex II to the Ordinance on the control of salmonella and other specified food-borne zoonotic agents (Official Gazette 85/12) and the Ordinance laying down the scheme of testing for the reduction of the prevalence of certain Salmonella serotypes in adult breeding flocks of Gallus gallus (OG

65/11). Samples for the purposes of official control at the primary production stage shall be taken by official veterinarians.

Samples must be submitted for testing to the National Reference Laboratory for salmonellosis in poultry. Laboratory analysis of samples shall be carried out in accordance with the provisions of Regulation 200/2010.

Official controls on feedingstuffs for the presence of Salmonella spp.

In accordance with Articles 66 and 67 of the Food Act (Official Gazette 46/07, 55/11), the competent authority (the Ministry of Agriculture is the central state administration authority in charge of safety, hygiene and quality of food and feed and the organisation of official controls) must ensure that official controls on feed safety are carried out in all stages of production, warehousing, distribution and use.

Regulation (EC) No 882/2004, which lays down the general rules for the organization and implementation of official controls, has been transposed into national legislation through the Ordinance on official controls performed to ensure the verification of compliance with feed and food law, animal health and animal welfare rules (OG 99/07).

An annual action plan of the Veterinary Inspection Sector is distributed to veterinary offices, defines an annual plan for the implementation of official controls as well as feed monitoring carried out by state veterinary inspectors and official veterinarians. Reports on official controls performed are collected once a month, via a web application, from all state veterinary inspectors and are submitted to the Head of the Veterinary Inspection Sector and CVO.

Checklists for carrying out official controls in the veterinary field are prepared in the central office of the Veterinary Directorate and are intended to assist staff carrying official controls. These checklists are distributed to all veterinary offices and their use is mandatory.

Written procedures for carrying out official controls have also been developed and distributed to veterinary offices, as have been the operational instructions for carrying out inspections and audits in the area of food of animal origin.

The annual plan of activities of state veterinary inspectors and official inspectors includes official controls of the following:

- Inspection of veterinary organisations, private veterinary surgeries and veterinary services in performing their veterinary activity;
- Inspection of establishment where animals are bred, kept, and produced
- Inspection of establishments involved in trade in animals, vehicles used for the transportation of animals, and trade in animals;
- Inspection of establishments involved in temporary storage and processing of animal by-products.

Official controls in establishments handling food of animal origin are carried out at a frequency based on risk assessment for each individual establishment. The risk assessment database is kept in the central office of the Veterinary Directorate and is updated as new information becomes available, and the data are sent electronically to field offices.

Official controls and scheme of sampling at feed

All feed businesses operators must satisfy the conditions stipulated by Annex II to the Ordinance on feed hygiene (Official Gazette 41/08) in each of the registered or approved establishments as well as to establish and implement an internal control system based on the HACCP principles, except in registered establishments engaged in primary production or mixing of complementary feed (formerly "superconcentrates") with feed material, where they must satisfy the conditions stipulated by the abovementioned Ordinance.

To define the frequency of official controls in feed establishments, the following risk factors were taken into account:

- type of establishment or risks posed by registered or approved activities,
- quantities produced (in tonnes),

- risks posed by used raw materials or products, especially by-products of other industries,
- origin of used feed material, feed additives or pre-mixtures (e.g. imports from distant countries),
- product range,
- frequency of batch changes (different types of feed for different animal species),
- use of feed additives (coccidiostats) or risk types of feed materials (fishmeal, fish oil).

Drafting of the sampling plan

When defining a number and types of analytical tests within the monitoring plan, as one of the official control methods, risk levels associated with registered or approved activities in feed establishments, produced quantities, types of raw materials or products (including potential by-products of other industries), use of fishmeal or production of medicated feedingstuffs are taken into account. The notifications obtained through the Rapid Alert System for Food and Feed (RASFF) were also taken into account.

The activities carried out in approved establishments are generally considered to be connected with the use of more dangerous or higher risk substances or products. It has been also established that the annual quantities of finished products produced in approved establishments are higher than those in registered establishments, and that such finished products are distributed to a higher number of customers. Consequently, the frequency of sampling and laboratory analyses (monitoring) of raw materials and finished products from approved establishments should be higher than that for other feed establishments.

Criteria for feed sampling for microbiological analysis

Sampling should focus on poultry feed. The sampling records must state the exact category of poultry for which the compound feed is intended (parent flock, breeding chicken, table egg laying hens, laying hens for hatching eggs, broilers) and its age range. The same applies to pig feed, especially that for piglets.

Sampling basically covers *Salmonella* spp. in order to prove the safety of compound feed. Sampling is carried out in accordance with the feed monitoring plan. Article 71 of the Ordinance on the quality of animal feed (Official Gazette 26/98, 120/98, 55/99, 76/2003, 22/06) sets the zero (0) tolerance requirement for *Salmonella* spp. If *Salmonella* spp. are, however, present in compound feed, such feed is safely disposed of.

In accordance with the aforementioned annual plan of official controls and feed monitoring, sampling should be carried out throughout the year. Sampling is carried out in accordance with the provisions of the Ordinance on methods of sampling of feedingstuffs (Official Gazette 128/06), except for sampling of feed for pesticide residues and that for microbiological testing. Sampling for microbiological testing should be based on a random sample taken in the quantity that may be divided into four samples of a minimum 0.5 kg weight.

All columns of the sampling and analytical method records template, which is given in the Annex to the annual plan, should be completed during the sampling procedure.

The original copy of the records should be kept by the official veterinarian or the state veterinary inspector who conducted sampling, a copy of the records delivered to a client/feed business operator, and another copy delivered to a laboratory.

Sampling for monitoring purposes

Only one sample is taken during feed sampling as stipulated by the annual monitoring plan. If the analytical results show that the submitted sample does not comply with the provisions on feed, the veterinary inspector/official veterinarian must take additional samples and request the analytical testing of samples beyond the scope of this monitoring plan. On family farms and agricultural holdings, samples may be taken at the same time the holding is inspected or the live animals on farms monitored for residues.

Sampling for official controls

Sampling for official controls, other than sampling for monitoring purposes, should be targeted, i.e. the official veterinarian or the state veterinary inspector must provide an explanation for each sample taken and analytical test chosen, except in the case of sampling for monitoring purposes.

If samples should be taken and analysed during inspection (other than sampling for monitoring purposes), the veterinary inspector/official veterinarian must notify the client/feed business

operator about the right to take two identical official samples. One sample is delivered to the official or the reference laboratory and the other sample is intended for potential re-testing, if so required by the client /feed business operator. After the latter is officially packed (in a sealed packaging), it is kept by the feed business operator. The deadline for requesting repeated analysis is eight days following the date of delivery of analytical results for the first sample to the client /feed business operator.

The client /feed business operator must be informed that the sample should be kept under appropriate storage conditions, which should be identical to those for that specific type of the raw material or the product.

This second sample is sent to the reference laboratory or to the accredited official laboratory for re-testing (this may be the same laboratory which carried out the first analysis). The results of this analysis are final and relevant.

Microbiological criteria control

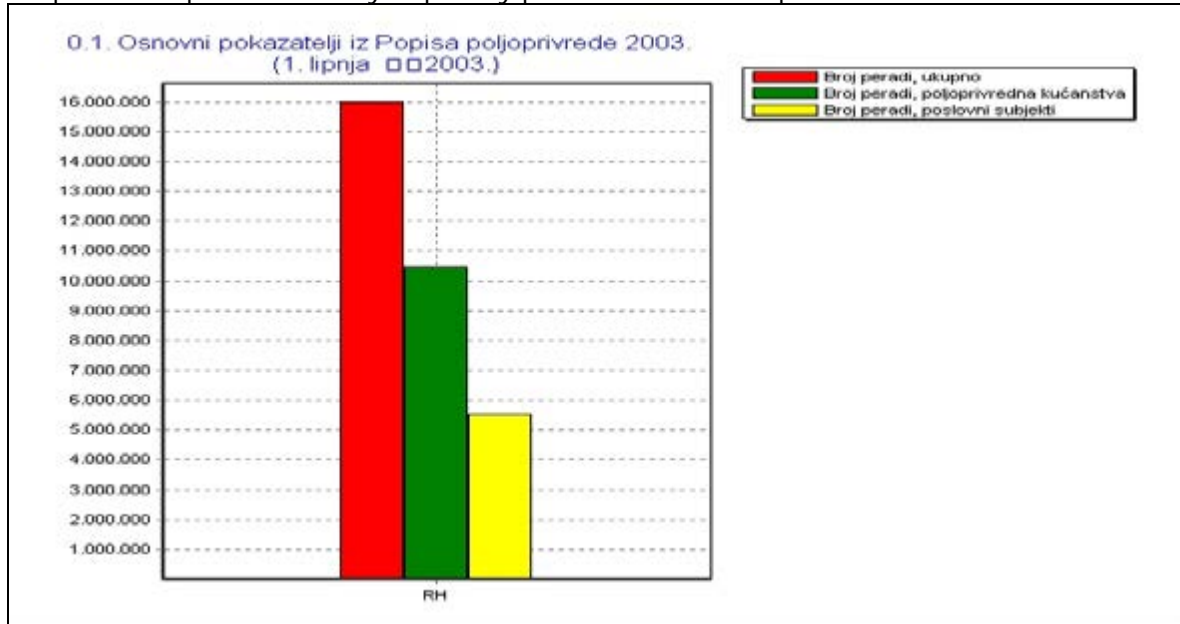
Ordinance on microbiological criteria for foodstuffs (Official Gazette 74/08,156/08, 89/10 i 153/11) requires that samples be taken in slaughterhouses and poultry meat processing plants for bacteriological testing for *Salmonella* spp..

2. Food and business covered by the programme

2.1 The structure of the production of the given species and products thereof

Organisation of and method for poultry production

Graph 1: Comparative survey of poultry production in the Republic of Croatia



0.1 Basic indicators in Agricultural Census 2003 (1 June 2003)

(red) Number of poultry, total

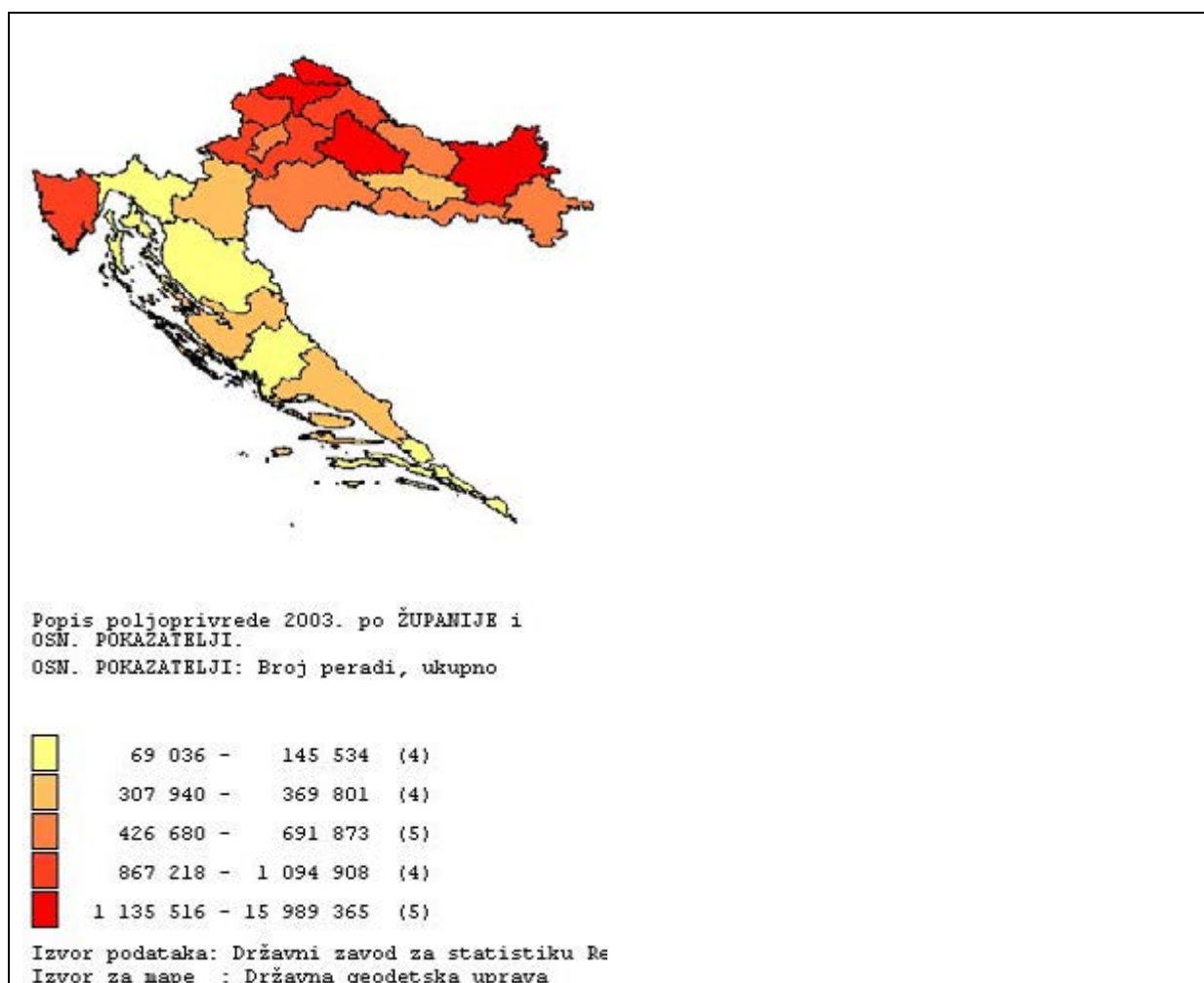
(green) Number of poultry, agricultural holdings

(yellow) Number of poultry, business entities

County	By number of poultry, total	By number of poultry, 1 – 50	By number of poultry, 51 – 100	By number of poultry, 101 – 500	By number of poultry, 501 – 1 000	By number of poultry, 1 001 – 3 000	By number of poultry, 3 001 – 5 000
Total Republic of Croatia	498	204	70	41	15	39	20
Zagreb County	28	14	4	2	0	3	1
Krapina-Zagorje County	17	0	1	1	0	0	1
Sisak-Moslavina County	16	4	3	2	1	1	1
Karlovac County	6	2	0	1	1	1	1
Varaždin County	28	2	3	0	1	1	2
Koprivnica-Križevci County	8	3	1	2	0	1	0
Bjelovar-Bilogora County	45	30	6	2	2	3	0
Primorje-Gorski Kotar County	13	1	2	5	1	3	0
Lika-Senj County	0	0	0	0	0	0	0
Virovitica-Podravina County	26	19	3	3	0	1	0
Požega-Slavonia County	10	5	1	0	0	1	1

Brod-Posavina County	57	25	6	5	0	2	3
Zadar County	5	0	0	0	1	2	0
Osijek-Baranja County	77	37	19	8	2	3	2
Šibenik-Knin County	4	1	0	0	1	2	0
Vukovar-Srijem County	48	25	14	2	2	0	3
Split-Dalmatia County	12	2	0	2	2	4	0
Istra County	24	8	2	1	0	6	1
Dubrovnik-Neretva County	3	0	0	0	1	1	1
Međimurje County	60	25	4	4	0	3	3
The City of Zagreb	11	1	1	1	0	1	0

Scheme 2: Density of poultry per counties *



Agricultural Census 2003 per COUNTIES and BASIC INDICATORS

BASIC INDICATORS: Number of poultry, total

*Source of data: Central Bureau of Statistics of the Republic of Croatia, Croatian Agricultural Agency

Source of maps: State Geodetic Administration

Table 4: Food and Agricultural commodities production*

Commodity	Year										
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Hen Eggs, in shell	46,47	47,21	45,70	52,38	48,05	45,70	50,73	48,20	47,24	40,05	34,27
Indigenous Chicken Meat	24,70	25,60	34,54	41,38	38,50	30,26	29,20	30,86	30,80	43,12	33,09
Indigenous Turkey Meat	6,60	6,64	7,06	7,51	11,36	8,77	8,12	-	8,86	-	-

*Source of data: FAOSTAT

Table 5: Total No of Gallus gallus poultry in Croatia 2010-2011

Year	Type of Gallus gallus poultry	Total No of flocks	Total no poultry
2011	Breeding flocks	147	233772
2011	Laying hens	317	2331279
2011	Broilers	3004	36179783
2010	Broilers	2093	36627830
2010	Laying hens	308	2268058
2010	Breeding flocks	123	546267

2.2 Structure of the production of feed

Organisation of and method for feed production

Feed business operators are authorised and registered pursuant to the Veterinary Act (Official Gazette 46/07, 55/11) and the Food Act (Official Gazette 46/07, 55/11). Veterinary Public Health Sector within Veterinary Directorate is responsible for drafting legislation in the area of feedingstuffs, approval and registration of the establishments dealing with feed, maintaining the registers of all approved and registered establishments dealing with feed and publishing registers on the website of MA.

Current situation regarding approved/registered feed business establishments in Croatia is as follows:

- 130 approved establishments dealing with feed
- 1197 registered establishments dealing with feed
- 148 registered establishments for production dealing with feed
- 291 registered family agricultural holdings dealing with feed

Data available at <http://www.mps.hr/default.aspx?id=5905>.

Table 6: Data on feed production in 2009

Premixes	13.092 t
Pigs	186.637 t
Cattle	99.268 t
Poultry	281.797 t
Other Animals	9.784 t

Source – Croatian Chamber of Economy (CCE)
Croatian Feed Industry Association (CFIA) –associate member FEFAC-a

Table 7: Data on import & export compound feed and premixes in 2009

Import compound feed from EU	23.757 t
Import compound feed from third countries	1.363 t
Export compound feed and premixes in EU	468t
Export compound feed and premixes in third countries	15.936 t

Source – Croatian Chamber of Economy (CCE)

2.3 Relevant guidelines for good animal husbandry practices or other guidelines mandatory or voluntary) on biosecurity measures

Guidelines of good manufacturing practice

The guidelines of good manufacturing practice are stipulated by the Veterinary Act, the Food Act and the implementing secondary regulations. Continuous education of veterinarians, producers and animal holders is conducted through the Croatian Veterinary Chamber, the Croatian Chamber of Economy and the Advisory Services of the Ministry of Agriculture. The guidelines are elaborated in accordance with the recommendations of the European Commission, the World Organisation for Animal Health (OIE) and the latest scientific developments.

Primary production establishments and food and feed business operators must ensure the following:

- implementation of hygienic measures on holdings, in establishments and during transport in a regulated manner,
- implementation of measures for the prevention of disease introduction,
- disposal of biological waste,
- respect of animal welfare.

Croatian Chamber of Economy (CCE)-Croatian Feed Industry Association (CFIA) is associate member FEFAC-a. They developed and published guidelines on GMP in animal feed sector on their website:

<http://www.hgk.hr/wps/portal/!ut/p/ s.7 0 A/7 0 P5?legacyWcmClippingUrl=http%3A%2F%2Fhgk.biznet.hr%2Fhgk%2Ftekst3.php%3Fa%3Db%26page%3Dtekst%26id%3D2152%26kid%3D1605%26skid%3D2339>

2.4 Routine veterinary supervision of farms

The animal holder is responsible for the care of poultry health and welfare on the holding. Approved veterinarians are conducting supervision on holdings and establishments on a daily basis. The Veterinary Act and the Order on measures to protect animals from infectious and parasitic diseases and the financing thereof in 2011 and 2012 regulates the obligations of authorised veterinary organisations relating to regular control of holdings regarding animal diseases and reporting to county veterinary inspectors.

Approved veterinarians and veterinary inspectors also conduct regular supervision regarding control of animal welfare on farms and sampling within the national residue monitoring programme.

Veterinary inspectors conduct their regular controls in accordance with the Annual Plan of Activities through out planned are the controls of:

- establishments for breeding, keeping and production of animals;
- veterinary organisations, private practices and veterinary services;
- establishments for slaughter, treatment, processing and storage;
- markets, livestock markets and trade of animals and products of animal origin;
- quarantine facilities;
- implementation of measures for the control of infectious and parasitic diseases of animals;
- trade, use and storage of veterinary medicinal products and veterinary medical devices;
- facilities for hatching of domestic poultry and wild feathered game.

2.5 Registration of farms

Pursuant to the the provisions of Article 38, paragraph 1 of Veterinary Act, farms of ungulates and equidae exceeding 20 conditional animal units, poultry and rabbit farms exceeding 10 conditional animal units, hatcheries, wild game breeding farms, establishments for farming of fish and molluscs and other facilities of aquaculture must comply with the stipulated veterinary-health and zoohygiene conditions.

Pursuant to the provisions of Article 38, paragraph 3 of the Veterinary Act, all farms are to be registered in the Farms Register, which is an integral part of the Central Register of Domestic Animals, the responsibility for which lies with the MA's Veterinary Directorate. The Directorate has entered into contract with the Croatian Agricultural Agency, delegating to it the maintenance of the Central Register of Domestic Animals.

In Croatia all breeding farms of Gallus gallus are registered. Updates on this are kept in the Croatian Agricultural Agency.

2.6 Record keeping at farm

The animal holder must keep and regularly update stipulated records and registers on on all movements of animals/flocks onto and off the holding, deaths, medical treatments including vaccinations and made them available at the request of an authorised person. Laboratory results of sampling for Salmonella should be kept on the holding. All documents must be kept for 5 years. All documents must be available for inspection.

Hatcheries and keepers of breeding flocks are obliged to keep the records on all movements of poultry or hatching eggs onto and/or out of the premises. The records must contain the information on the number of eggs/chickens, date and origin of the final destination. Hatcheries are obliged to keep the evidences prescribed by the Ordinance on conditions to be met by facilities for hatching domestic poultry and game birds (OG 36/95). The evidence contains data on number of eggs intended for incubation, number and percentage of hatched eggs, dates of hatching, hygienic control, hatchery waste etc.

2.7 Documents to accompany animals when dispatched

Certificates accompanying animals when placed on the market

Conditions for placing on the market of animals, products of animal origin and feed are stipulated by the Veterinary Act. Animals, their products and feed must come from holdings or establishments in which stipulated veterinary checks have been conducted.

Internal trade

For internal trade, the animal holder must obtain the certificate of health and place of origin of the animal (hereinafter: internal certificate). The internal certificate is issued by an approved

veterinarian who keeps official records on the issued internal certificates. The trade in animals and products of animal origin is permitted only if a country, a region or the holding from which the animal originates has no trade restrictions, that is no protective measures due to animal diseases have been introduced. The internal certificate may not be issued if, in the place of origin of the animals, the existence of an infectious or parasitic disease which can be transmitted by this species of animal is confirmed.

The internal certificate is a public document and it contains data on the animal holder, the identity of the animal (obligatory identification), its origin and health condition. The certificate guarantees that the animals are included in the implementation of imposed measures, that the animals for slaughter are included in the residue monitoring programme, that the animals are not medically treated and, if treated, that the stipulated withdrawal period for permitted veterinary medicinal products has expired, and that they are not treated with prohibited veterinary medicinal products and hormone preparations. The certificate confirms that in the place of origin of the animals or of their keeping, the existence of infectious diseases which can be transmitted by this species of animals has not been confirmed.

International trade

Consignments of animals, products of animal origin and feed must be checked and certified before dispatching to other country in the manner laid down in the legislation of the country of destination.

Ordinance on issuing the certificates for live animals and products of animal origin in international trade (OG 137/08, 97/09) which is aligned with Council Directive 96/93/EC lays down the rules to be observed in issuing the certificates required by veterinary legislation. Ministry of agriculture is in charge of issuing the original certificates, with serial number and water stamp, and for the distribution to the veterinary organisations whose veterinarians are authorised as certifying officers. Copies of the issued certificates must be kept for three years. During the check at the place of dispatch it is controlled whether the consignment fulfils the stipulated conditions for dispatch to the country of destination. In the certification procedure it is checked whether the stipulated checks or tests have been carried out and whether the consignments of animals or products fulfil the stipulated conditions.

The international health certificate or public health certificate for the consignment (hereinafter: certificate) confirms that at the consignment's place of origin the stipulated veterinary checks were conducted and that all guarantees listed in the certificate have been fulfilled. The certification procedure is conducted and the certificate is confirmed by the official veterinarian. In individual cases, in regions where an official veterinarian has not been appointed or where a sufficient number of official veterinarians have not been appointed, the certificate may be confirmed by an approved veterinarian. In the certification procedure an authorised/official veterinarian verifies whether the stipulated checks or tests have been carried out and whether the consignments of animals or products fulfil the stipulated conditions.

The certification procedure is same for commodities of products of animal origin as for commodities of live animals.

An approved veterinarian is a veterinarian designated to conduct activities that are to be performed by authorized veterinary organizations, except activities of veterinary examinations and checks for the purposes of the veterinary organization in which he is employed. The person eligible for the position of an approved veterinarian can be a veterinarian with at least two years of work experience in the profession, holding a license and having passed the state occupational examination for an approved veterinarian. An approved veterinarian is designated by the Director of VD at the proposal of an authorized veterinary organization. VD keeps and updates a register of approved veterinarians.

An official veterinarian is appointed by the minister. An official veterinarian must have three years of experience in positions requiring the qualification of a veterinarian and requiring a valid license as well as completed practical training during the probationary period in the duration of at least 200 hours, under the supervision of other official veterinarians. An official veterinarian must complete training, on an annual basis, designed according to the curriculum drawn up by the VD.

The traceability of the confirmed certificate must be ensured in a manner which enables a connection between the certificate and the official veterinarian who confirmed it. From 1st January 2010 the Ordinance on TRACES (Official Gazette 5/10) setting out an obligation for official bodies and economical operators to use TRACES for certification and CVED procedures has been in force.

2.8 Other relevant measures to ensure the traceability of animals

Hatcheries and keepers of breeding flocks are obliged to keep the records on all movements of poultry or hatching eggs onto and/or out of the premises. The records must contain the information on the number of eggs/chickens, date and origin of the final destination. Hatcheries are obliged to keep the evidences prescribed by the Ordinance on conditions to be met by facilities for hatching domestic poultry and game birds (OG 36/95). The evidence contains data on number of eggs intended for incubation, number and percentage of hatched eggs, dates of hatching, hygienic control, hatchery waste etc.

ANNEX II - PART B

1. Identification of the programme

Disease: Zoonotic Salmonella

Animal population: Breeding flocks of Gallus gallus

Request of Community co-financing for year of implementation: 2013

1.1 Contact

Name : IVANA LOHMAN JANKOVIĆ, Ministry of Agriculture-veterinary Directorate

Phone :00385 1 610 9650

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2. Historical data on the epidemiological evolution of the disease

Salmonellosis and Salmonella infections in poultry

Salmonellosis and Salmonella infections in poultry have been systematically monitored in the Republic of Croatia in the diagnostic laboratory of the Croatian Veterinary Institute since the seventies of the last century. Due to the implementation of strict measures under the National Programme for the Control and Eradication of Fowl Typhoid, Salmonella-specific serotypes *S. gallinarum* and *S. pullorum* have become economically insignificant and limited to individual rare cases in extensive production systems (the last case was recorded in 1993).

The development of intensive poultry farming and ever-increasing production and consumption of meat, eggs and related products have facilitated the spread of Salmonella infections caused by non-host-specific invasive serotypes – paratyphoid Salmonellas, which can not only cause severe infections in poultry, but can also spread through food and cause disease in humans.

Thanks to the systematic and years-long implementation of disease monitoring and control measures prescribed by the annual Order on measures to protect animals from infectious and parasitic diseases and the financing thereof, the total number of isolated Salmonellas has significantly decreased.

According to monitoring programme for 2009, 2010, 2011 and 2012 all breeding flocks of *Gallus gallus* comprising at least 250 birds in the country had to be tested on *Salmonella* spp. presence.

Only poultry and eggs originating from a flock that has been tested for the presence of salmonella and that were free from *S. Enteritidis*, *S. Typhimurium*, *S. Hadar*, *S. Infantis* and *S. Virchow* and for which the owner had a health certificate not more than 15 days old issued by an official laboratory, may be placed on the market.

Breeding flocks of *Gallus gallus* were sampled according to the following:

- rearing flocks— day-old chicks

- four-week-old birds
- two weeks before moving to laying phase or laying unit
- adult breeding flocks — every second week during the laying period
- at the hatchery every three weeks from breeding flocks the eggs of which are used for production of day-old chicks

The baseline study has not been carried out but the prevalence is calculated based on data collected throughout regular monitoring programme. The prevalence of Salmonella spp. and relevant Salmonella serotypes in flocks of Gallus gallus poultry for 2009, 2010 and 2011 was as mentioned in Table 1.:

Table 1. Results of salmonella monitoring programme for Gallus gallus in 2009-2011

Year	Type of Gallus gallus poultry	Total No of tested flocks	Total No of Salmonella spp. positive flocks	Total No S. Enteritidis positive flocks	Total No S. Typhimurium positive flocks	Total No other Salmonella spp. positive flocks
2009	Breeding flocks	192	0	0	0	0
2009	Laying hens	318	49	47	2	0
2009	Broilers	777	169	36	4	129
2010	Breeding flocks	123	2	2	0	0
2010	Laying hens	308	19	12	0	7
2010	Broilers	2093	58	14	0	44
2011	Breeding flocks	147	1	1	0	0
2011	Laying hens	317	58	14	0	44
2011	Broilers	3004	76	38	3	35

In 2009, 192 breeding flocks were tested on Salmonella spp. and out of them no flock was positive on S. Enteritidis, S. Typhimurium, S. Hadar, S. Infantis and S. Virchow.

In 2010, 123 breeding flocks were tested on Salmonella spp. and out of them 2 flocks were positive on Salmonella Enteritidis. The prevalence of Salmonella Enteritidis in breeding flocks was 1,63%.

In 2011, 147 breeding flocks were tested on Salmonella spp. and out of them 1 flock was positive on Salmonella Enteritidis. The prevalence of Salmonella Enteritidis in breeding flocks was 0,68%.

Salmonellosis and Salmonella infections in humans

Salmonellosis are the most significant zoonoses in Croatia. On average, about 3500 positive cases of human salmonellosis are reported annually. These are most often the outbreaks caused by S. Enteritidis.

In Croatia, most outbreaks are so-called family outbreaks, whereas only a small number of outbreaks are associated with public catering premises and, as a rule, are not linked to industrially produced food and products.

Year	Number of diseased	Number of deaths
1998	4288	-
1999	4121	3
2000	5134	3
2001	5620	-

2002	6570	1
2003	5755	4
2004	4940	3
2005	5619	1
2006	4734	1
2007	3331	-
2008	3664	-
2009	3158	1
2010	2098	1

The level of salmonellosis in humans has the lowest figure in 2010 (2098) owing to complex preventive measures aimed to control all possible sources in humans and animals (zoonosis). The most common isolated strains of *Salmonella* spp. from samples of diseased humans are *Salmonella* Enteritidis (84% of all isolates), *Salmonella* senftenberg (2% of all isolates), *Salmonella* typhimurium (1% of all isolates), *Salmonella* infantis (1% of all isolates), *Salmonella* virchow (1% of all isolates), *Salmonella* thompson (1% of all isolates), *Salmonella* derby (1% of all isolates), *Salmonella* coeln (1% of all isolates). Data on human salmonellosis are provided by Croatian national institute of public health.

3. Description of the submitted programme

A concise description of the programme is given with the main objective(s) (monitoring, control, eradication, qualification of herds and/or regions, reducing prevalence and incidence), the main measures (testing, testing and slaughter, testing and killing, qualification of herds and animals, vaccination), the target animal population and the area(s) of implementation and the definition of a positive case.

1. Introduction

The National Programme was elaborated in compliance with the requirements laid down in the Veterinary Act (Official Gazette 41/07, 55/11), the Ordinance on the control of salmonella and other specified food-borne zoonotic agents (Official Gazette 85/12), Ordinance laying down the scheme of testing for the reduction of the prevalence of certain *Salmonella* serotypes in adult breeding flocks of *Gallus gallus* (OG 65/11), the Ordinance on harmonised monitoring of antimicrobial resistance in salmonella in poultry and pigs (Official Gazette 75/09), and the Ordinance on specific control methods in the framework of the national programmes for the control of salmonella in poultry (Official Gazette 72/08).

2. Aim of the Programme

The aim of the national control programme is to maintain the prevalence of *S. Enteritidis*, *S. Typhimurium*, including monophasic *Salmonella* Typhimurium with the antigenic formula 1,4,[5],12:i:-, *S. Hadar*, *S. Infantis* and *S. Virchow* in adult breeding flocks of *Gallus gallus* at the level of 1 % or less in agricultural holdings in the country.

3. Duration of the Programme and geographical area in which the Programme will be implemented

The 2013 National Programme for the Control of *Salmonella* in Breeding Flocks shall be implemented throughout the Republic of Croatia from 1 January to 31 December of the calendar year.

4. Animal population covered by the Programme

The National Programme is implemented on the entire territory of the Republic of Croatia. All breeding flocks with 250 hens or more must be examined by submitting official samples to an official laboratory.

"Flock" means all poultry of the same health status kept on the same premises or in the same enclosure and constituting a single epidemiological unit; in the case of housed poultry; this includes all birds sharing the same airspace.

5. Laboratories

5.1. Laboratory testing of samples taken from poultry

7.1.1. National reference laboratories

- a) The national reference laboratory for Salmonella in poultry is the Croatian Veterinary Institute – Poultry Centre, Heinzelova 55, Zagreb.
- b) The national reference laboratory for antimicrobial resistance in animals is the Croatian Veterinary Institute Zagreb, Department for Bacteriology and Parasitology, Laboratory for General Bacteriology and Microbiology, Savska cesta 143, Zagreb

5.1.2. Official laboratories

Other official laboratories involved in the implementation of this Programme are these:

- Croatian Veterinary Institute Zagreb, Savska cesta 143, Zagreb;
- Croatian Veterinary Institute, Regional Branch Split, Poljička cesta 33, Split;
- Croatian Veterinary Institute, Regional Branch Križevci, Zakmardijeva 10, Križevci;
- Croatian Veterinary Institute, Regional Branch Vinkovci, J. Kozarca 24, Vinkovci;
- Croatian Veterinary Institute, Regional Branch Rijeka, Podmurvice 29, Rijeka;
- Bioinstitut d.o.o., R. Steinera 7, Čakovec.

5.1.3. Laboratory testing of samples

Samples are prepared and tested in a laboratory in accordance with the requirements set forth in the Ordinance laying down the scheme of testing for the reduction of the prevalence of certain Salmonella serotypes in adult breeding flocks of Gallus gallus (OG 65/11) and the Ordinance on harmonised monitoring of antimicrobial resistance in Salmonella in poultry and pigs (Official Gazette 75/09).

The detection of the relevant Salmonella serotypes shall be carried out according to Amendment 1 of HRN EN/ISO 6579: 2003/Amd1:2007. 'Microbiology of food and animal feeding stuffs – Horizontal method for the detection of Salmonella spp. — Amendment 1: annex D: Detection of Salmonella spp. in animal faeces and in environmental samples from the primary production stage. At least one isolate is serotyped according to the Kaufmann-White scheme.

5.1.4. Testing results

A breeding flock is considered positive:

- when presence of relevant salmonella (other than vaccine strains) is detected in one or more samples (faeces, blood, organs, dust), or
- when, within official control, presence of regulated Salmonella serotypes is not detected, but antimicrobials or bacterial growth inhibitors are detected, and at the same time there is no relevant evidence on treatment of other diseases.

5.2. Laboratory testing of samples of animal feedingstuffs for the presence Salmonella spp bacteria.

The official laboratories for the testing of samples of animal feedingstuffs are approved according to the provisions of the Ordinance on accreditation of the official and reference laboratory for food and feed (Official Gazette 86/10).

6. Sampling and official controls

6.1. Sampling at the primary production stage

Eggs for hatching may be placed on the market or incubated only if they come from salmonella-free flocks (*S. Enteritidis*, *S. Typhimurium*, *S. Hadar*, *S. Infantis* and *S. Virchow*), or if flock holders possess health certificates for the flock issued by an approved laboratory and not older than 15 days. The certificate is issued on the basis of officially submitted samples.

All flocks, the products of which are intended for public consumption, must be examined by submitting official samples to an official laboratory.

From breeding flocks and flocks for production of hatching eggs of *Gallus gallus*, samples are taken:

- from day-old chicks;

Samples are taken in sites in the building in which the birds are kept at each delivery of chicks. Transport liners and chicks should be taken for testing and submitted to an approved laboratory.

- from four-weeks old chicks;

Boot swabs samples or faeces samples are taken in sites in the building in which the birds are kept once when they are four weeks old. The number of single and pooled samples taken depends on the size of the flock.

- Two weeks before moving to laying phase or laying unit;

Boot swabs samples or faeces samples are taken in sites in the building in which the birds are kept once in that period. The number of single and pooled samples taken depends on the size of the flock.

- During the laying phase;

Samples are taken in the laying unit every two weeks. The sample type which is submitted for laboratory testing depends on the type of keeping of birds (cage or free range/floor system).

- At the hatchery;

- Samples are taken every three weeks from breeding flocks the eggs of which are used for production of day-old chicks,
- At least one sample must be taken per breeding flock. Sampling in the hatchery must be carried out on the day of hatching when samples from all breeding flocks are available. If this is not possible, it is necessary to obtain a valid guarantee by the bird holder that samples have been taken from each flock.
- If there are more than 50 000 eggs in the incubator deriving from the same breeding flock, two samples shall be taken.

Sampling of breeding flocks from which hatching eggs will be put on the EU market must be done on the holding.

From rearing flocks samples are taken on the holding. From flocks during laying samples are taken from the holding (in the laying unit every two weeks) and at the hatchery (every three weeks from breeding flocks the eggs of which are used for production of day-old chicks).

Currently 50 hatcheries are registered in Croatia. Most hatcheries in the country are small-scale business and their management is based on service of hatching eggs originating from different producers. In order to avoid the risk of contamination of the hatchery and reduce the possibility of disease spread among different farms, the control is implemented on the holding and at the hatchery.

Sampling is conducted in compliance with the requirements specified in Part B of Annex II to the Ordinance on the control of salmonella and other specified food-borne zoonotic agents (Official Gazette 85/12) and the Ordinance laying down the scheme of testing for the reduction of the prevalence of certain *Salmonella* serotypes in adult breeding flocks of *Gallus gallus* (OG 65/11).

7. Measures to be taken in the event of a confirmed case of salmonellosis

7.1. Measures to be taken in a breeding flock suspicious of *S. Enteritidis*, *S. Typhimurium*, *S. Hadar*, *S. Virchow* or *S. Infantis*.

A flock suspicious of being infected with *S. Enteritidis*, *S. Typhimurium*, *S. Hadar*, *S. Virchow* or *S. Infantis* is any flock in which, by laboratory examination of submitted samples, the presence of the aforementioned salmonella serotypes is confirmed or if, on the basis of the conducted epidemiological examination, a relation with the cases of infection in humans is confirmed.

After obtaining the first positive test result, and for the purpose of excluding/confirming the suspicion, a competent veterinary inspector must order the approved veterinary organisation to take additional samples from the suspicious flock and to deliver them promptly to the national reference laboratory.

The additional sample must be examined bacteriologically and serologically, and it consists of:

- Blood: 60 samples (for the confirmation of salmonella D group),
- Cloacal swabs: 300 swabs,
- Dead birds: 5 birds per facility, and
- Dust from a building in which poultry is kept: 100 grams per facility (dust should be collected on the surface area not less than 900cm² i.e. 90x10 cm)

In case of a suspicion of *S. Enteritidis*, *S. Typhimurium*, *S. Hadar*, *S. Virchow* or *S. Infantis* in a breeding flock, a competent veterinary inspector must order the implementation of the following measures to the bird holder:

- Prohibition of movement of poultry and eggs from the holding except with a special authorisation issued by a competent veterinary inspector;
- Prohibition of hatching of eggs originating from flocks suspicious of salmonellosis;
- Prohibition of movement of feed from the holding;
- Prohibition of removal of manure from the holding;
- Appropriate cleaning, washing and disinfection of premises, devices and equipment in the sites for production and storage of poultry feed by appropriate disinfection means;
- Appropriate cleaning, washing and disinfection of vehicles by appropriate means;
- The measures remain in force until the presence of *S. Enteritidis*, *S. Typhimurium*, *S. Hadar*, *S. Virchow* or *S. Infantis* serotypes is excluded by repeated laboratory testing.
- In case that some other disease appears in a breeding flock suspicious of salmonella infection, treatment must be conducted in compliance with the provisions of Article 2, paragraph 2), item (c) of the Ordinance on specific control methods in the framework of the national programmes for the control of salmonella in poultry (Official Gazette 72/08).

7.2. Measures to be taken in a breeding flock in which the presence of *S. Enteritidis*, *S. Typhimurium*, *S. Hadar*, *S. Virchow* or *S. Infantis* is confirmed by additional laboratory examination.

7.2.1. Positive finding to *S. Enteritidis* or *S. Typhimurium*

If the positive finding to *S. Enteritidis* or *S. Typhimurium* is confirmed the flock is considered infected and a competent veterinary inspector must order the implementation of the following measures to the bird holder:

- Prohibition of use of antimicrobials for the treatment of breeding flocks (day-old chicks, poultry in rearing and production) infected by salmonellosis caused by *S. Enteritidis* or *S. Typhimurium*;
- All birds in a positive flock (day-old chicks, poultry in rearing and production) must be slaughtered or destroyed so as to reduce as much as possible the risk of spreading salmonella, as follows:
 - Day-old chicks must be destroyed,

- Poultry in rearing and production, depending on the age, must be destroyed or slaughtered; Slaughtering of birds must be carried out in compliance with special regulations on food hygiene.
- Meat and products derived from such poultry may only be placed on the market for human consumption if they meet the requirements set out in Annex II, Part E of the Ordinance (Official Gazette 85/12) and comply with the provisions of the Ordinance on microbiological criteria for foodstuffs (Official Gazette 74/08,156/08, 89/10 i 153/11). If not intended for human consumption, such products must be used or disposed of in accordance with the Ordinance on animal by-products not intended for human consumption (Official Gazette 87/09).
- Non-incubated eggs from a positive flock must be destroyed in accordance with the Ordinance on animal by-products not intended for human consumption (Official Gazette 87/09). However, such non-incubated eggs may be used for human consumption if they are treated in a manner that guarantees the elimination of *S. Enteritidis* and/or *S. Typhimurium* in accordance with the regulations on food hygiene;
- Where eggs for hatching from flocks in which *S. Enteritidis* or *S. Typhimurium* is present are still present in a hatchery, they must be destroyed in accordance with the Ordinance on animal by-products not intended for human consumption (Official Gazette 87/09);
- Appropriate cleaning, washing and disinfection of premises, devices and equipment in the sites for production and storage of poultry feed.
- Cleaning, washing and disinfection of vehicles by appropriate disinfection means;
- Disinfection, disinfestation and deratisation of infected facilities for breeding and keeping of poultry; when disinfection is completed, its efficiency should be bacteriologically controlled. It is prohibited to introduce new poultry into the facility until a negative control result of disinfection efficiency is obtained;
- Removal and sanitary treatment of manure in a prescribed manner.

A competent veterinary inspector must conduct epidemiological investigation to determine a source of infection;

7.2.2. Positive finding to *S. Hadar*, *S. Virchow* or *S. Infantis*.

If the positive finding to *S. Hadar*, *S. Virchow* or *S. Infantis* is confirmed by additional examination, the flock is considered infected and a competent veterinary inspector must order the implementation of the following measures to the bird holder:

A) for day-old chicks, poultry in rearing up to eight weeks old and poultry in production older than 47 weeks:

- Prohibition of use of antimicrobials for the treatment of rearing flocks infected by salmonellosis caused by *S. Hadar*, *S. Virchow* or *S. Infantis*.
- All birds in a positive flock must be destroyed or slaughtered so as to reduce as much as possible the risk of spreading salmonella;
- Day-old chicks must be destroyed;
- Poultry in rearing up to eight weeks old, depending on the age, must be destroyed or slaughtered. If poultry is sent for slaughter or destruction, all measures possible must be taken so as to reduce as much as possible the risk of spreading the disease. Slaughtering of birds must be carried out in compliance with special regulations on food hygiene;
- Meat and products derived from such poultry may only be placed on the market for human consumption if they meet the requirements set out in Annex II, Part E of the Ordinance (Official Gazette 85/12) and comply with the provisions of the Ordinance on microbiological criteria for foodstuffs (Official Gazette 74/08,156/08, 89/10 i 153/11): if not destined for human consumption, such products must be used or disposed of in accordance with the Ordinance on animal by-products not intended for human consumption (Official Gazette 87/09).

- Non-incubated eggs must be destroyed in accordance with the Ordinance on animal by-products not intended for human consumption (Official Gazette 87/09). However, such non-incubated eggs may be used for human consumption if they are treated in a manner that guarantees the elimination of *S. Hadar*, *S. Virchow* or *S. Infantis* in accordance with the regulations on food hygiene;
- Where eggs for hatching from flocks in which *S. Hadar*, *S. Virchow* or *S. Infantis* is present are still present in a hatchery, they must be destroyed in accordance with the Ordinance on animal by-products not intended for human consumption (Official Gazette 87/09);
- Appropriate cleaning, washing and disinfection of premises, devices and equipment in the sites for production and storage of poultry feed.
- Cleaning, washing and disinfection of vehicles by appropriate disinfection means;
- Disinfection, disinfestation and deratisation of infected facilities for breeding and keeping of poultry; when disinfection is completed, its efficiency should be bacteriologically controlled. It is prohibited to introduce new poultry into the facility until a negative control result of disinfection efficiency is obtained;
- Removal and sanitary treatment of manure in a prescribed manner.

A competent veterinary inspector must conduct epidemiological investigation to determine a source of infection;

B) for poultry in rearing and production aged from eight to 47 weeks:

- Rearing poultry aged from eight to 47 weeks is considered valuable genetic material, and in order to establish new salmonella-free flocks, treatment with antimicrobials is permitted in a manner prescribed by the Ordinance on specific control methods in the framework of the national programmes for the control of salmonella in poultry (Official Gazette 72/08).
- Antimicrobials must be used on the basis of results of bacteriological examination and antibiograms. A competent veterinary inspector must conduct regular supervision of the use of antimicrobials, and he must submit reports on conducted supervision to the Veterinary Directorate once a month (until the 15th of a month for the previous month).
- Treatment of an infected flock, in compliance with the Decision issued by a competent veterinary inspector, is conducted by approved veterinary organisations and approved veterinary services. After conducted treatment, it is necessary to conduct a control of efficacy of the conducted therapy in a manner that control samples are taken from poultry twice, on the 7th and 14th day from the beginning of the therapy, and delivered to a laboratory for analysis.

A control sample must consist of:

- 5 pairs of boot swabs (1 pair = 1 pooled sample), and
- Samples of cloacal swabs collected from 50 hens (bacteriological examination). If there are less than 50 hens in a facility, it is necessary to take a sample of cloacal swabs from all hens, and
- Five hens (sacrificed or dead)/facility, whereby all organs must be laboratory examined.

During the treatment and until the termination of treatment efficacy control:

- It is prohibited to move poultry and eggs from the holding except with a special authorisation issued by a competent veterinary inspector;
- It is prohibited to hatch eggs originating from infected flocks. Eggs hatched during the treatment must be collected and destroyed in accordance with the Ordinance on animal by-products not intended for human consumption (Official Gazette 87/09). Where eggs for hatching from flocks in which *S. Hadar*, *S. Virchow* or *S. Infantis* is present are still present in a hatchery, they must be destroyed in accordance with the Ordinance on animal by-products not intended for human consumption (Official Gazette 87/09);
- It is prohibited to move feed from the holding;
- Cleaning and disinfection, disinfestation and deratisation of infected facilities for breeding and keeping of poultry; when disinfection is completed, its efficiency should be bacteriologically controlled;
- Cleaning, washing and disinfection of vehicles by appropriate disinfection means;

- Removal and sanitary treatment of manure in a prescribed manner.

A competent veterinary inspector must conduct epidemiological investigation to determine a source of infection;

7.3. Measures to be taken in a breeding flock suspicious of/positive to other salmonella serotypes with public health significance

In case of a suspicion/confirmed presence of any other salmonella serotype with public health significance, except *S. Enteritidis*, *S. Typhimurium*, *S. Hadar*, *S. Virchow* or *S. Infantis*:

- it is prohibited to use antimicrobials for the treatment of breeding flocks;
- A competent veterinary inspector must conduct epidemiological investigation in order to determine a source of infection focusing on determining the implementation of bio-safety measures;
- The owner/holder of the flock is bound to conduct relevant bio-safety measures on the holding so as to reduce the possibility of introducing the infection as much as possible.

It is prohibited to use antimicrobials for the control and treatment of breeding flocks infected by salmonellosis caused by *Salmonella* spp.

Treatment of the flock must be conducted in compliance with the provisions of the Ordinance on specific control methods in the framework of the national programmes for the control of salmonella in poultry (Official Gazette 72/08), and the provisions of the Ordinance on harmonised monitoring of antimicrobial resistance in salmonella in poultry and pigs (Official Gazette 75/09).

Treatment of the flock may be conducted by approved veterinary organisations and approved veterinary services.

During the treatment and until the termination of treatment efficacy control:

- It is prohibited to move poultry and eggs from the holding except with a special authorisation issued by a competent veterinary inspector;
- It is prohibited to hatch eggs originating from infected flocks. Eggs hatched during the treatment must be collected and destroyed in accordance with the Ordinance on animal by-products not intended for human consumption (Official Gazette 87/09). Where eggs for hatching from flocks in which *S. Hadar*, *S. Virchow* or *S. Infantis* is present are still present in a hatchery, they must be destroyed in accordance with the Ordinance on animal by-products not intended for human consumption (Official Gazette 87/09);
- It is prohibited to move feed from the holding;
- Cleaning and disinfection, disinfestation and deratisation of infected facilities for breeding and keeping of poultry must be conducted; when disinfection is completed, its efficiency should be bacteriologically controlled;
- Cleaning, washing and disinfection of vehicles must be conducted by appropriate disinfection means;
- Removal and sanitary treatment of manure must be conducted in a prescribed manner.

Each treatment of a flock must be recorded in the Records on Animal Treatment and Waiting Period.

Within the framework of national control programme (routine active monitoring) all samples are taken by authorized veterinarians. FBO are not allowed to take samples within national monitoring programme (for the purpose of the routine active monitoring). The results of sampling carried out by FBO can be used only for the purpose of their self-controls and are not taken into consideration for implementation of national monitoring programme.

7.4. Vaccination

The use of salmonella vaccines is not obligatory. Vaccination of poultry as a prophylactic measure for the control of salmonellosis must be conducted in compliance with the provisions of the Ordinance on specific control methods in the framework of the national programmes for the control of salmonella in poultry (Official Gazette 72/08).

When live salmonella vaccines are used, the vaccine manufacturer must provide an appropriate method to distinguish bacteriologically wild-type strains of salmonella from vaccine strains.

The vaccine registration and authorisation procedure is conducted in compliance with the Veterinary Act (Official Gazette 41/07, 55/11) and the Act on Veterinary Medicinal Products and Veterinary Medical Devices (Official Gazette 84/08).

4. Measures of the submitted programme

4.1 Summary of measures under the programme

Year of implementation of the Programme: 2012

Duration of the programme:

First year: 2009 Last year: 2011

Control	Control/Eradication
x Testing	Testing
x Slaughter of animals tested positive	Slaughter of animals tested positive
x Killing of animals tested positive	Killing of animals tested positive
x Vaccination	Extended slaughter or killing
Treatment of animal products	Disposal of products
x Disposal of products	
Monitoring or surveillance	
Other measures (specify):	

4.2 Designation of the central authority in charge of supervising and coordinating the departments responsible for implementing the programme

Describe the authorities in charge of supervising and coordinating the departments responsible for implementing the programme and the different operators involved. Describe the responsibilities of all involved

Competent authorities and organisations included in the Programme implementation

The competent body for the implementation of this Programme, in compliance with Article 3, paragraphs 1 and 2, items (a) and (b) of the Ordinance on the control of salmonella and other specified food-borne zoonotic agents (Official Gazette 85/12) is the Ministry of Agriculture– the Veterinary Directorate.

The competent body for supervision and control of the Programme implementation in the field is the Ministry of Agriculture– Veterinary Directorate - Veterinary Inspection Sector.

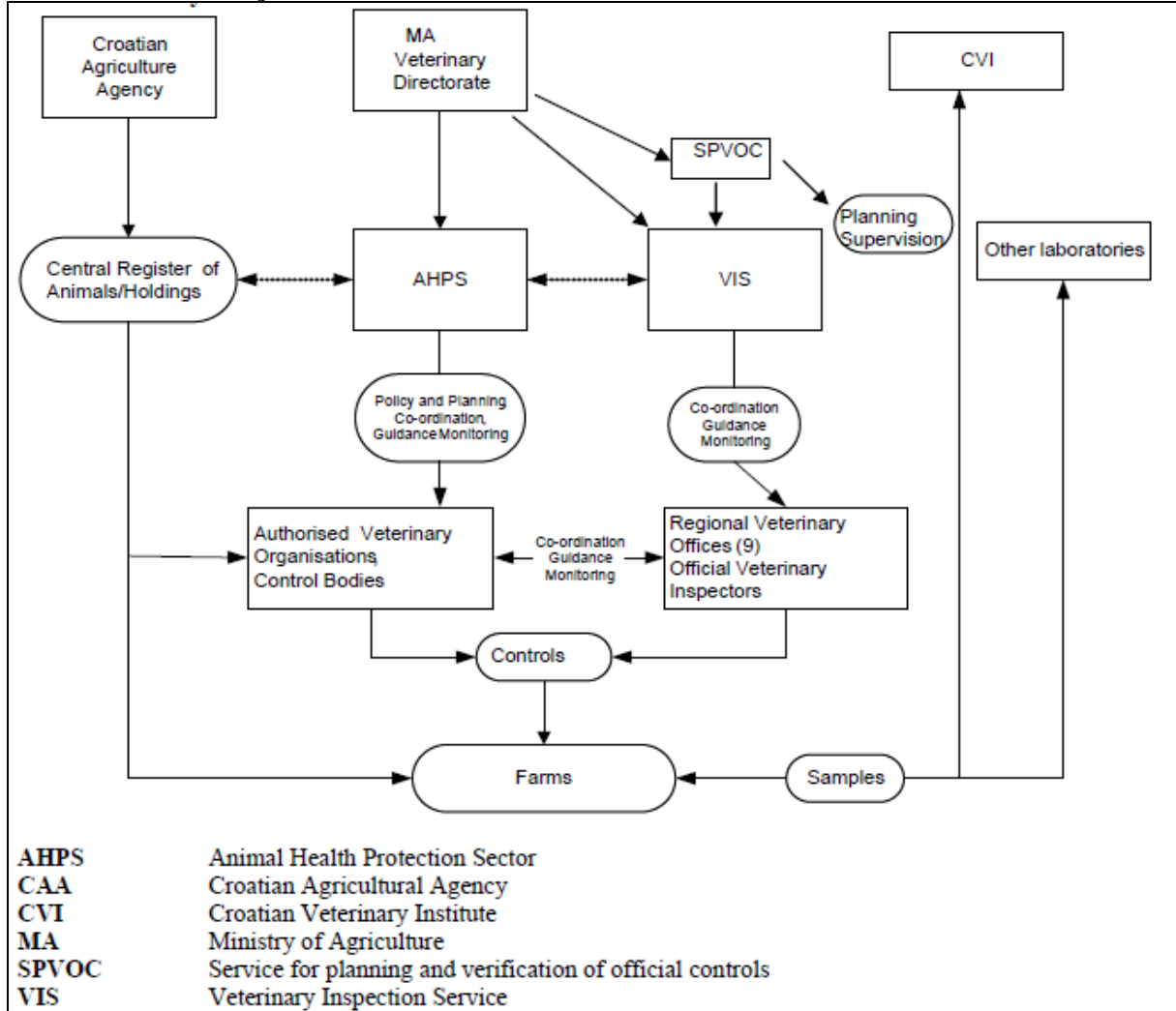
Taking and submitting of samples to the laboratory is conducted by approved veterinarians.

Treatment of flocks may be conducted by approved veterinary organisations or an approved veterinary service in compliance with the provisions of Article 2, paragraph 2, subitem (c) of the Ordinance on specific control methods in the framework of the national programmes for the control of salmonella in poultry (Official Gazette 72/08).

Laboratory diagnostic is done in NRL for salmonella and NRL for AMR as well as in the official laboratories. In August 2010, Croatia issued the “Ordinance on designation of official and reference laboratories in the implementation of veterinary activities” (OG No 102/10), which provides that all laboratories which perform official control in the field of veterinary medicine including feed and some parts of food of animal origin should be accredited by the Croatian Accreditation Agency to EN ISO 17025:2007.

Information on flow between bodies involved in the implementation of the programme is described in the Scheme 1: Control system for animal health in Croatia:

Scheme 1: Control system for animal health in Croatia

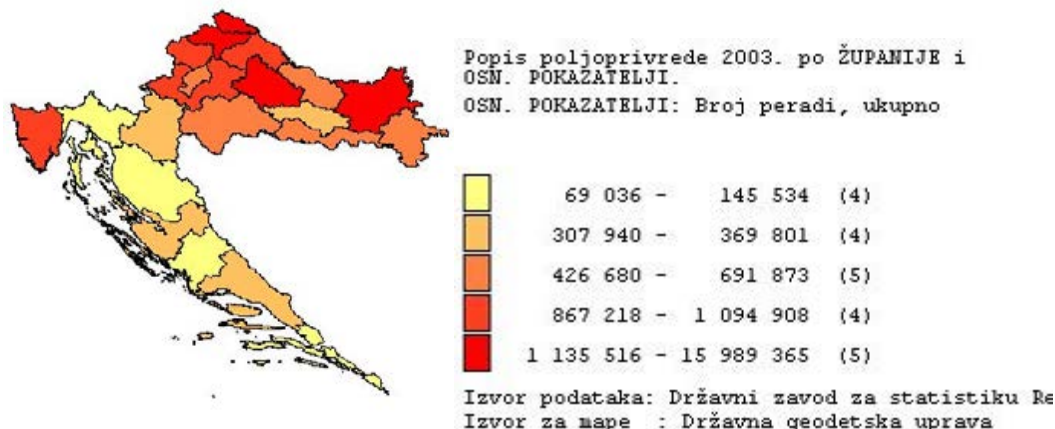


4.3 Description and delimitation of the geographical and administrative areas in which the programme is to be implemented

Describe the name and denomination, the administrative boundaries, and the surface of the administrative and geographical areas in which the programme is to be applied. Illustrate with maps.

The Programme in breeding flocks is implemented throughout the Republic of Croatia from 1 January to 31 December.

Scheme 2. Area of programme implementation and Distribution of poultry farms density per counties



4.4 Measures implemented under the programme

4.4.1 Measures and applicable legislation as regards the registration of holdings

Pursuant to the provisions of Article 38, paragraph 1 of Veterinary Act, farms of ungulates and equidae exceeding 20 conditional animal units, poultry and rabbit farms exceeding 10 conditional animal units, hatcheries, wild game breeding farms, establishments for farming of fish and molluscs and other facilities of aquaculture must comply with the stipulated veterinary-health and zoohygiene conditions.

Pursuant to the provisions of Article 38, paragraph 3 of the Veterinary Act, all farms are to be registered in the Farms Register, which is an integral part of the Central Register of Domestic Animals, the responsibility for which lies with the MA's Veterinary Directorate. The Directorate has entered into contract with the Croatian Agricultural Agency, delegating to it the maintenance of the Central Register of Domestic Animals.

In Croatia all broiler farms of *Gallus gallus* are registered. Updates on this are kept in the Croatian Agricultural Agency.

Ordinance on animal health conditions governing trade with EU and imports from third countries of poultry and hatching eggs (OG 83/09, 107/11) is alligened with Directive 90/539 and Directive 2009/158.

4.4.2. Measures and applicable legislation as regards the identification of animals

Not applicable to the poultry

4.4.3 Measures and applicable legislation as regards the notification of the disease

A detail disease notification procedure is prescribed by Veterinary Act and Ordinance on the notification of animal diseases (OG 62/11,114/11). For the purpose of timely reactions and undertaking of measures for the prevention and eradication of the disease, disease notification is organised as urgent exchange of information between the Veterinary Directorate, Official

Laboratories and veterinary services in the field. Any suspicion and confirmed case of all zoonotic diseases must be reported immediately.

Pursuant to reports on disease occurrence issued by veterinary organisations and laboratory reports, the Veterinary Directorate drafts a monthly report about the occurrence and spread of animal diseases in the Republic of Croatia. All monthly reports are regularly published on the web site of the MA (www.mps.hr).

Regarding the international obligations on disease notification, in accordance to the aforementioned Croatian legislation, Veterinary Directorate regularly notifies European Commission (ADNS), World Organisation for Animal Health (WAHIS-OIE) and competent veterinary authorities of neighbouring countries on primary and secondary disease outbreaks as well as prepare six-monthly and annual reports for OIE.

In order to raise awareness of animal owners on the importance of immediate notification of disease as well as to regain the knowledge of veterinarians and veterinary inspectors on disease notification procedure, a leaflet "Obligatory animal disease notification" has been prepared by Veterinary Directorate and distributed throughout veterinary organisations on all holdings in the country.

4.4.4. Measures and applicable legislation as regards the measures in case of a positive result

Legislation:

- Veterinary Act (Official Gazette 41/07,55/11);
- Ordinance on the control of salmonella and other specified food-borne zoonotic agents (Official Gazette 85/12) aligned with regulation 2160/2003;
- Ordinance laying down the scheme of testing for the reduction of the prevalence of certain Salmonella serotypes in adult breeding flocks of Gallus gallus (OG 65/11) aligned with Regulation 200/2010 ;
- Ordinance on specific control methods in the framework of the national programmes for the control of salmonella in poultry (Official Gazette 72/08) aligned with Regulation 1177/2006;
- Ordinance on harmonised monitoring of antimicrobial resistance in salmonella in poultry and pigs (Official Gazette 75/09) aligned with Decision Decision 2007/407;
- Ordinance on the notification of animal diseases (Official Gazette 64/11,114/11);
- Order on measures to protect animals from infectious and parasitic diseases and the financing thereof in callender year;
- Food Act (Official Gazette 46/07,55/11) aligned with regulation 178/2002;
- Ordinance on animal by-products not intended for human consumption (Official Gazette 87/09) aligned with Regulation 1774/2002;
- Ordinance on the authorisation of official and reference laboratories in the area of conducting veterinary activity (Official Gazette 102/10).

If the positive finding to *S. Enteritidis*, *S. Typhimurium*, *S. Virchow*, *S. Hadar* or *S. Infantis* is confirmed in samples taken on the holding or in the hatchery, the flock is considered infected and a competent veterinary inspector must order the implementation of the measures prescribed in the Ordinance laying down the scheme of testing for the reduction of the prevalence of certain Salmonella serotypes in adult breeding flocks of Gallus gallus (OG 65/11) aligned with Regulation 200/2010, Annex II, part C of the Ordinance on the control of salmonella and other specified food-borne zoonotic agents (Official Gazette 85/12) aligned with regulation 2160/2003 and the National monitoring programme for the control of Salmonellosis in adult breeding flocks (breeding flocks in production) of Gallus gallus in the Republic of Croatia.

A flock suspicious of being infected with *S. Enteritidis*, *S. Typhimurium*, *S. Hadar*, *S. Virchow* or *S. Infantis* is any flock in which, by laboratory examination of submitted samples, the presence of the aforementioned salmonella serotypes is confirmed or if, on the basis of the conducted epidemiological examination, a relation with the cases of infection in humans is confirmed.

After obtaining the first positive test result, and for the purpose of excluding/confirming the suspicion, a competent veterinary inspector must order the approved veterinary organisation to take additional samples from the suspicious flock and to deliver them promptly to the national reference laboratory.

The following measures are ordered to the bird holder:

- Prohibition of movement of poultry and eggs from the holding except with a special authorisation issued by a competent veterinary inspector;
- Prohibition of hatching of eggs originating from flocks suspicious of salmonellosis;
- Prohibition of movement of feed from the holding;
- Prohibition of removal of manure from the holding;
- Appropriate cleaning, washing and disinfection of premises, devices and equipment in the sites for production and storage of poultry feed by appropriate disinfection means;
- Appropriate cleaning, washing and disinfection of vehicles by appropriate means;
- The measures remain in force until the presence of *S. Enteritidis*, *S. Typhimurium*, *S. Hadar*, *S. Virchow* or *S. Infantis* serotypes is excluded by repeated laboratory testing.
- In case that some other disease appears in a breeding flock suspicious of salmonella infection, treatment must be conducted in compliance with the provisions of Article 2, paragraph 2), item (c) of the Ordinance on specific control methods in the framework of the national programmes for the control of salmonella in poultry (Official Gazette 72/08).

If the positive finding to *S. Enteritidis* or *S. Typhimurium* is confirmed the flock is considered infected and the following measures are implemented:

- Prohibition of use of antimicrobials for the treatment of breeding flocks (day-old chicks, poultry in rearing and production) infected by salmonellosis caused by *S. Enteritidis* or *S. Typhimurium*;
- All birds in a positive flock (day-old chicks, poultry in rearing and production) must be slaughtered or destroyed so as to reduce as much as possible the risk of spreading salmonella, as follows:
 - Day-old chicks must be destroyed,
 - Poultry in rearing and production, depending on the age, must be destroyed or slaughtered; Slaughtering of birds must be carried out in compliance with special regulations on food hygiene.
- Meat and products derived from such poultry may only be placed on the market for human consumption if they meet the requirements set out in Annex II, Part E of the Ordinance (Official Gazette 85/12) and comply with the provisions of the Ordinance on microbiological criteria for foodstuffs (Official Gazette 74/08, 156/08, 89/10 i 153/11). If not intended for human consumption, such products must be used or disposed of in accordance with the Ordinance on animal by-products not intended for human consumption (Official Gazette 87/09).
- Non-incubated eggs from a positive flock must be destroyed in accordance with the Ordinance on animal by-products not intended for human consumption (Official Gazette 87/09). However, such non-incubated eggs may be used for human consumption if they are treated in a manner that guarantees the elimination of *S. Enteritidis* and/or *S. Typhimurium* in accordance with the regulations on food hygiene;
- Where eggs for hatching from flocks in which *S. Enteritidis* or *S. Typhimurium* is present are still present in a hatchery, they must be destroyed in accordance with the Ordinance on animal by-products not intended for human consumption (Official Gazette 87/09);
- Appropriate cleaning, washing and disinfection of premises, devices and equipment in the sites for production and storage of poultry feed.
- Cleaning, washing and disinfection of vehicles by appropriate disinfection means;
- Disinfection, disinfestation and deratisation of infected facilities for breeding and keeping of poultry; when disinfection is completed, its efficiency should be bacteriologically controlled. It is prohibited to introduce new poultry into the facility until a negative control result of disinfection efficiency is obtained;
- Removal and sanitary treatment of manure in a prescribed manner,

- A competent veterinary inspector must conduct epidemiological investigation to determine a source of infection.

If the positive finding to *S. Hadar*, *S. Virchow* or *S. Infantis* is confirmed by additional examination, the flock is considered infected and the following measures are implemented::

A) for day-old chicks, poultry in rearing up to eight weeks old and poultry in production older than 47 weeks:

- Prohibition of use of antimicrobials for the treatment of rearing flocks infected by salmonellosis caused by *S. Hadar*, *S. Virchow* or *S. Infantis*.
- All birds in a positive flock must be destroyed or slaughtered so as to reduce as much as possible the risk of spreading salmonella;
- Day-old chicks must be destroyed;
- Poultry in rearing up to eight weeks old, depending on the age, must be destroyed or slaughtered. If poultry is sent for slaughter or destruction, all measures possible must be taken so as to reduce as much as possible the risk of spreading the disease. Slaughtering of birds must be carried out in compliance with special regulations on food hygiene;
- Meat and products derived from such poultry may only be placed on the market for human consumption if they meet the requirements set out in Annex II, Part E of the Ordinance (Official Gazette 85/12) and comply with the provisions of the Ordinance on microbiological criteria for foodstuffs (Official Gazette 74/08, 156/08, 89/10 i 153/11): if not destined for human consumption, such products must be used or disposed of in accordance with the Ordinance on animal by-products not intended for human consumption (Official Gazette 87/09).
- Non-incubated eggs must be destroyed in accordance with the Ordinance on animal by-products not intended for human consumption (Official Gazette 87/09). However, such non-incubated eggs may be used for human consumption if they are treated in a manner that guarantees the elimination of *S. Hadar*, *S. Virchow* or *S. Infantis* in accordance with the regulations on food hygiene;
- Where eggs for hatching from flocks in which *S. Hadar*, *S. Virchow* or *S. Infantis* is present are still present in a hatchery, they must be destroyed in accordance with the Ordinance on animal by-products not intended for human consumption (Official Gazette 87/09);
- Appropriate cleaning, washing and disinfection of premises, devices and equipment in the sites for production and storage of poultry feed.
- Cleaning, washing and disinfection of vehicles by appropriate disinfection means;
- Disinfection, disinfestation and deratisation of infected facilities for breeding and keeping of poultry; when disinfection is completed, its efficiency should be bacteriologically controlled. It is prohibited to introduce new poultry into the facility until a negative control result of disinfection efficiency is obtained;
- Removal and sanitary treatment of manure in a prescribed manner.
- A competent veterinary inspector must conduct epidemiological investigation to determine a source of infection;

B) for poultry in rearing and production aged from eight to 47 weeks:

- Rearing poultry aged from eight to 47 weeks is considered valuable genetic material, and in order to establish new salmonella-free flocks, treatment with antimicrobials is permitted in a manner prescribed by the Ordinance on specific control methods in the framework of the national programmes for the control of salmonella in poultry (Official Gazette 72/08).
- Antimicrobials must be used on the basis of results of bacteriological examination and antibiograms. A competent veterinary inspector must conduct regular supervision of the use of antimicrobials, and he must submit reports on conducted supervision to the Veterinary Directorate once a month (until the 15th of a month for the previous month).
- Treatment of an infected flock, in compliance with the Decision issued by a competent veterinary inspector, is conducted by approved veterinary organisations and approved

veterinary services. After conducted treatment, it is necessary to conduct a control of efficacy of the conducted therapy in a manner that control samples are taken from poultry twice, on the 7th and 14th day from the beginning of the therapy, and delivered to a laboratory for analysis.

During the treatment and until the termination of treatment efficacy control:

- It is prohibited to move poultry and eggs from the holding except with a special authorisation issued by a competent veterinary inspector;
- It is prohibited to hatch eggs originating from infected flocks. Eggs hatched during the treatment must be collected and destroyed in accordance with the Ordinance on animal by-products not intended for human consumption (Official Gazette 87/09). Where eggs for hatching from flocks in which *S. Hadar*, *S. Virchow* or *S. Infantis* is present are still present in a hatchery, they must be destroyed in accordance with the Ordinance on animal by-products not intended for human consumption (Official Gazette 87/09); - It is prohibited to move feed from the holding;
- Cleaning and disinfection, disinfestation and deratisation of infected facilities for breeding and keeping of poultry; when disinfection is completed, its efficiency should be bacteriologically controlled;
- Cleaning, washing and disinfection of vehicles by appropriate disinfection means;
- Removal and sanitary treatment of manure in a prescribed manner.

A competent veterinary inspector must conduct epidemiological investigation to determine a source of infection;

In case of a suspicion/confirmed presence of any other salmonella serotype with public health significance, except *S. Enteritidis*, *S. Typhimurium*, *S. Hadar*, *S. Virchow* or *S. Infantis*:

- it is prohibited to use antimicrobials for the treatment of breeding flocks;
- A competent veterinary inspector must conduct epidemiological investigation in order to determine a source of infection focusing on determining the implementation of bio-safety measures;
- The owner/holder of the flock is bound to conduct relevant bio-safety measures on the holding so as to reduce the possibility of introducing the infection as much as possible.

4.4.5. Measures and applicable legislation as regards the different qualifications of animals and herds

The National Programme is implemented on the entire territory of the Republic of Croatia. All breeding flocks with 250 hens or more must be examined by submitting official samples to an official laboratory.

"Flock" means all poultry of the same health status kept on the same premises or in the same enclosure and constituting a single epidemiological unit; in the case of housed poultry; this includes all birds sharing the same airspace.

4.4.6. Control procedures and in particular rules on the movement of animals liable to be affected or contaminated by a given disease and the regular inspection of the holdings or areas concerned

Within the framework of national control programme (routine active monitoring) all samples are taken by authorized veterinarians. FBO are not allowed to take samples within national monitoring programme (for the purpose of the routine active monitoring).

Official controls of holdings and hatcheries are done according to annual plan of the official controls holdings. Particular attention is given to holdings where one of the relevant Salmonellas was detected in the previous rearing or production cycle. Sampling must also be done on a risk basis each time the responsible veterinary inspector or the body responsible for the implementation of this Programme considers it necessary.

Samples for the purposes of official control at the primary production stage shall be taken by official veterinarians in accordance with Ordinance laying down the scheme of testing for the reduction of the prevalence of certain Salmonella serotypes in adult breeding flocks of *Gallus gallus* (OG 65/11) aligned with Regulation 200/2010. All samples taken for the purpose of the official control must be tested in NRL for Salmonella in poultry.

In case of suspicion on Salmonella infection, veterinary inspector will order additional sampling in order to confirm or exclude the suspicion and additional measures have to be done on the holding (movement restrictions for live animals, products, hatching eggs, disinfection of the vehicles and equipment etc.). A detailed epidemiological investigation is done in order to determine all possible contact holdings and possible source of the infection. In case diseases is confirmed a detail measures are prescribed for SE/ST or SW/SH/SI positive holding.

4.4.7. Measures and applicable legislation as regards the control (testing, vaccination, ...) of the disease

Testing of breeding flocks is done according to Ordinance laying down the scheme of testing for the reduction of the prevalence of certain Salmonella serotypes in adult breeding flocks of Gallus gallus (OG 65/11) aligned with Regulation 200/2010 and Annex II, part B of the Ordinance on the control of Salmonella and other specified food-borne zoonotic agents (OG 85/12) which is aligned with Regulation 2160/2003.

From rearing flocks and flocks for production of hatching eggs of Gallus gallus, samples are taken:

- from day-old chicks;
 - Samples are taken in sites in the building in which the birds are kept at each delivery of chicks. Transport liners and chicks should be taken for testing and submitted to an approved laboratory.
- from four-weeks old chicks;
 - Boot swabs samples or faeces samples are taken in sites in the building in which the birds are kept once when they are four weeks old. The number of single and pooled samples taken depends on the size of the flock.
- Two weeks before moving to laying phase or laying unit;
 - Boot swabs samples or faeces samples are taken in sites in the building in which the birds are kept once in that period. The number of single and pooled samples taken depends on the size of the flock.
- During the laying phase;
 - Samples are taken in the laying unit every two weeks. The sample type which is submitted for laboratory testing depends on the type of keeping of birds (cage or free range/floor system).
- At the hatchery;
 - Samples are taken every three weeks from breeding flocks the eggs of which are used for production of day-old chicks,
 - At least one sample must be taken per breeding flock. Sampling in the hatchery must be carried out on the day of hatching when samples from all breeding flocks are available. If this is not possible, it is necessary to obtain a valid guarantee by the bird holder that samples have been taken from each flock.
 - If there are more than 50 000 eggs in the incubator deriving from the same breeding flock, two samples shall be taken.

In case of suspicion and for the purpose of the official controls the additional sample must be taken, and it consists of:

- Blood: 60 samples (for the confirmation of salmonella D group),
- Cloacal swabs: 300 swabs,
- Dead birds: 5 birds per facility, and
- Dust from a building in which poultry is kept: 100 grams per facility (dust should be collected on the surface area not less than 900cm² i.e. 90x10 cm)

The use of vaccines against Salmonella is not mandatory. Vaccination of poultry as a prophylactic measure to control salmonellosis must be carried out in accordance with the provisions of the Ordinance on specific control methods in the framework of the national

programmes for the control of Salmonella in poultry (Official Gazette 72/2008). If live vaccines against Salmonella are used, the vaccine manufacturer must provide an appropriate method for bacteriological differentiation between field and vaccine strains. The vaccine manufacturer must send the necessary laboratory diagnostic material to all laboratories approved for the testing of Salmonella in poultry. The procedure for the registration and approval of vaccines is conducted in accordance with the Veterinary Act (Official Gazette 41/07, 55/11) and the Act on Veterinary Medicinal Products and Veterinary Medical Devices (Official Gazette 84/08).

Vaccination can be done only by authorized veterinary organizations or approved veterinary services. Currently only one vaccine is approved and registered according to the above mentioned legislation – Nobilis Salenvac T (inactivated vaccine), Intervet.

Samples shall be sent by express mail or courier to the official laboratories within 24 hours after collection. If not sent within 24 hours, they must be stored refrigerated. Transportation can be at ambient temperature as long as excessive heat (over 25 °C) and exposure to sunlight are avoided. At the laboratory samples shall be kept refrigerated until examination, which shall be carried out within 48 hours following receipt.

Salmonella isolates collected through this program must be subject to monitoring on antimicrobial resistance in accordance with item 2 of Annex to the Ordinance on harmonised monitoring of antimicrobial resistance in Salmonella in poultry and pigs (Official Gazette 75/09).

A breeding flock is considered positive for the purpose of ascertaining the achievement of the programme target:

- when the presence of the relevant Salmonella serotypes (other than vaccine strains) has been detected in one or more samples taken in the flock, even if the relevant Salmonella serotypes is only detected in the dust sample, or
- when presence of relevant Salmonella serotypes is not detected, but antimicrobials or bacterial growth inhibitors have been detected in the flock, and at the same time there is no relevant evidence on treatment of other diseases.

It is prohibited to use antimicrobials for the control and treatment of breeding flocks infected by salmonellosis caused by Salmonella spp.

Treatment of the flock must be conducted in compliance with the provisions of the Ordinance on specific control methods in the framework of the national programmes for the control of salmonella in poultry (Official Gazette 72/08) which is alligened with Regulation 1177/2006 and the provisions of the Ordinance on harmonised monitoring of antimicrobial resistance in salmonella in poultry and pigs (Official Gazette 75/09).

Antimicrobials must be used on the basis of results of bacteriological examination and antibiograms. A competent veterinary inspector must conduct regular supervision of the use of antimicrobials and he must submit reports on conducted supervision to the Veterinary Directorate once a month (until the 15th of a month for the previous month).

Treatment of an infected flock, in compliance with the Decision issued by a competent veterinary inspector, is conducted by approved veterinary organisations and approved veterinary services. After conducted treatment, it is necessary to conduct a control of efficacy of the conducted therapy in a manner that control samples are taken from poultry twice, on the 7th and 14th day from the beginning of the therapy, and delivered to a laboratory for analysis. Each treatment of a flock must be recorded in the Records on Animal Treatment and Waiting Period.

4.4.8 Measures and applicable legislation as regards the compensation for owners of slaughtered and killed animals

Any financial assistance provided to food and feed businesses in the context of the programme.

Compensation for owners of slaughtered or killed flocks is prescribed by Articles 26, 27 and 28 of the Veterinary Act (OG 41/07, 55/11).

Measures of killing or in certain cases emergency slaughter of infected animals or of those suspected of infection, and in the cases of animal welfare protection, disposal of the contaminated objects shall be ordered when the infectious disease can not be successfully and

without the risk of spread thereof, be suppressed with the implementation of other measures stipulated by the Act or when there is no economic justification for the implementation of other measures for the suppression of the disease.

For animals killed, slaughtered or for animals which have died due to the implementation of the ordered measures, as well as for the objects that were damaged or destroyed in the course of the implementation of the ordered measures referred to in Article 26, the animal holder or the owner of the object are entitled to the compensation in the amount of the market value on the day of the implementation of the measure.

The assessment of the value of the animals and objects is carried out by the commission appointed by the CVO, the composition of which must include the competent veterinary inspector. The decision on the entitlement to the damage compensation and on the amount of damage compensation is passed by the CVO upon the proposal of the commission within 60 days, while payment must ensue not later than 90 days from the day of implementation of the measures.

The animal holder or owner of the object is not entitled to damage compensation referred:

- if he failed to immediately report the appearance of the infectious disease and did not treat the animal in the manner stipulated by the of the implementing legislation.
- if he failed to undertake the stipulated or ordered measures for the prevention and control of infectious or parasitic diseases,
- if he transfers the animal from an uninfected to an infected or endangered area or from the infected or endangered area to the uninfected area,
- if he conducts trade of animal contrary to the provisions of Veterinary Act,
- if the animal disease appeared during import or within the duration of quarantine of the imported animal.

Due to the above mentioned:

- Costs of regular sampling and submission of samples to the laboratory are entirely borne by the bird holder. Costs of laboratory examination of samples (salmonellosis and antimicrobial resistance) prescribed by programme are entirely settled from the State Budget.
- Costs of sampling, submission of samples to the laboratory and laboratory examination for the purpose of the official controls are entirely settled from the State Budget.
- Costs incurred by the implementation of measures in case of suspicion/positive results are settled from the State Budget in accordance with the Veterinary Act (Official Gazette 41/07, 55/11).
- Costs of vaccine procurement and preventive vaccination of poultry are entirely borne by the bird holder.
- Costs incurred by the implementation of measures in regard to monitoring of antimicrobial resistance in Salmonella are entirely settled from the State Budget.

4.4.9. Information and assessment on bio-security measures management and infrastructure in place

The guidelines of good manufacturing practice are stipulated by the Veterinary Act, the Food Act and the implementing secondary regulations. Continuous education of veterinarians, producers and animal holders is conducted through the Croatian Veterinary Chamber, the Croatian Chamber of Economy and the Advisory Services of the Ministry of Agriculture. The guidelines are elaborated in accordance with the recommendations of the European Commission, the World Organisation for Animal Health (OIE) and the latest scientific developments.

Primary production establishments and food and feed business operators must ensure the following:

- implementation of hygienic measures on holdings, in establishments and during transport in a regulated manner,
- implementation of measures for the prevention of disease introduction,
- disposal of biological waste,

- respect of animal welfare.

5. General description of the costs and benefits of the programme

A description is provided of all costs for the authorities and society and the benefits for farmers and society in general

Breeding flocks are considered as a top of production pyramid. In order to stop the possible spreading of relevant Salmonella serotypes to lower production units (broilers or laying hens), decrease the possibility of food contamination by zoonotic salmonella serotypes throughout meat, eggs and their products and to assure public health, all breeding flocks must be officially sampled and laboratory tested.

A preliminary calculation was made on the approximate number of tests to be performed in the flocks. The number of calculated tests is based on the total No of samples taken from all breeding flocks included in programme during 2011 and the testing scheme as provided for in Commission Regulation 200/2010.

Laboratory testing -total breeding flocks Gallus gallus 2011						
Type of test	No of tests	Type of test	price/per sample	total price (without VAT)	VAT	Total + VAT
Bacteriology testing-isolation Salmonella spp.	7423	Bacteriology testing-isolation Salmonella spp.	13,35 €	99.097,05 €	22.792,32 €	121.889,37 €
Biokemical characterisation API line	11	Biokemical characterisation API	18,41 €	202,51 €	46,58 €	249,09 €
Serotyping Salmonella spp.	11	Serotyping Salmonella spp.	32,01 €	352,11 €	80,99 €	433,10 €
Total				99.651,67 €	22.919,88 €	122.571,55 €

Breeding flocks are kept usually until the age of one year (52 weeks). The production period begins when the flock is 22-24 weeks of age.

Breeding flocks are mostly kept in barns which make the taking of boot swabs the most effective way of sampling.

In the year 2011 a total number of 7423 samples were tested in the framework of official sampling. This number includes routine sampling of flocks and hatcheries as well as additional confirmatory sampling carried out when a flock is tested positive.

Within the framework of national control programme (routine active monitoring) all samples are taken by authorized veterinarians and are therefore considered as official samples. FBO are not allowed to take samples within national monitoring programme (for the purpose of the routine active monitoring). Sampling performed by FBO is used only for their self-control purpose.

The number of bacteriological tests planned for the year 2013 represents the estimates of the data of previous years.

In the year 2011, 7423 samples from 147 breeding flocks of Gallus gallus were sampled and tested in the framework of programme. Out of that number and based on data from the official laboratories, 11 samples were serotyped and Salmonella spp was confirmed.

According to data on number of tested breeding flocks in 2009, 2010 and 2011, it is assumed that in 2013, no increase of production could be expected and no increase of the costs accordingly.

If we make allowance for this trend, we can establish that in 2013 approximately 7000 bacteriological tests and 20 serotyping tests will be performed in the framework of official sampling.

Costs of compensation for breeding flocks in 2010/2011 were 32.288,34,00 €. Approximately the same value is expected to be paid in 2013.

6. Data on the epidemiological evolution during the last five years: data available only for 2009-2011

Data already submitted via the online system for the years 2007 - 2010: NO

6.1 Evolution of the zoonotic salmonellosis

6.1.1 Data on evolution of zoonotic salmonellosis for:

Year 2011

Type off flock	Total Number of flocks	Total number of animals	Total number of flocks under the programme	Total number of animals under the programme	Number of flocks checked	Number of positive flocks		Number of flocks depopulated		Total number of animals slaughtered or destroyed		Quantity of eggs destroyed (number or kg)		Quantity of eggs channeled to egg products (number or kg)	
						Serotypes targeted in control programme	Other serotypes	Serotypes targeted in control programme	Other serotypes	Serotypes targeted in control programme	Other serotypes	Serotypes targeted in control programme	Other serotypes	Serotypes targeted in control programme	Other serotypes
Breeding flocks	147	233.772	147	233.772	147	1	0	1	0	900	0	0	0	0	0

Year 2010

Type off flock	Total Number of flocks	Total number of animals	Total number of flocks under the programme	Total number of animals under the programme	Number of flocks checked	Number of positive flocks		Number of flocks depopulated		Total number of animals slaughtered or destroyed		Quantity of eggs destroyed (number or kg)		Quantity of eggs channeled to egg products (number or kg)	
						Serotypes targeted in control programme	Other serotypes	Serotypes targeted in control programme	Other serotypes	Serotypes targeted in control programme	Other serotypes	Serotypes targeted in control programme	Other serotypes	Serotypes targeted in control programme	Other serotypes
Breeding flocks	123	546.267	123	546.267	123	2	0	2	0	2.854	0	21.600	0	0	0

Year 2009

Type of flock	Total Number of flocks	Total number of animals	Total number of flocks under the programme	Total number of animals under the programme	Number of flocks checked	Number of positive flocks		Number of flocks depopulated		Total number of animals slaughtered or destroyed		Quantity of eggs destroyed (number or kg)		Quantity of eggs channeled to egg products (number or kg)	
						Serotypes targeted in control programme	Other serotypes	Serotypes targeted in control programme	Other serotypes	Serotypes targeted in control programme	Other serotypes	Serotypes targeted in control programme	Other serotypes	Serotypes targeted in control programme	Other serotypes
Breeding flocks	192	496.940	192	496.940	192	0	0	0	0	0	0	0	0	0	0

6.2 Stratified data on surveillance and laboratory tests

6.2.1 Stratified data on surveillance and laboratory tests for year: 2011

Animal species (a): Gallus gallus Category (b): Breeding flock

Description of the used serological tests: Not applicable

Description of the used microbiological or virological tests: Current version of Annex D of HRN EN/ISO 6579: 2003: „Detection of Salmonella spp. in animal faeces and in samples of the primary production stage“.

Description of the other used tests:

Region(c)	Serological tests		Microbiological or virological tests		Other tests	
	Number of samples tested(d)	Number of positive samples(e)	Number of samples tested(d)	Number of positive samples(e)	Number of samples tested(d)	Number of positive samples(e)
CROATIA	0	0	7423	11 (Salmonella spp.)	Biokemical characterisation API line	11
					Serotyping Salmonella spp	11
Total						

(a) Animal species if necessary.

- (b) Category/further specifications such as breeders, laying hens, broilers, breeding turkeys, broiler turkeys, breeding pigs, slaughter pigs, etc, when appropriate.
- (c) Region as defined in the programme of the Member State.
- (d) Number of samples tested.
- (e) Number of positive samples.

6.3 Data on infection for year: 2009-2011

Animal species: Breeding flocks of Gallus gallus

Region(c)	Number of infected herds	Number of infected animals
CROATIA 2009	0	0
CROATIA 2010	2 S. Enteritidis	2.854
CROATIA 2011	1 S. Enteritidis	900
Total	3	3754

6.4 Data on vaccination or treatment programmes for year 2011

27 200 birds in breeding flocks of Gallus gallus were vaccinated using inactivated vaccine (Intervet-Nobilis Salenvac T) in 2011.

7. Targets

7.1. Targets related to testing (one table for each year of implementation)

7.1.1. Targets on diagnostic tests: Sampling 2013

Animal species: (a): Gallus gallus

Region ^(b)	Type of the test ^(c)	Target population ^(d)	Type of sample ^(e)	Objective ^(f)	Number of planned tests
Croatia	Bacteriology testing-isolation Salmonella spp.	Breeding flocks	Faeces	Surveillance, monitoring	7000
	Biokemical characterisation API	Breeding flocks	Faeces	Surveillance, monitoring	20
	Serotyping Salmonella spp.	Breeding flocks	Faeces, Dust	Surveillance, monitoring	20
Total					7040

- (a) Animal species if necessary.
- (b) Region as defined in the approved control and eradication programme of the Member State.
- (c) Description of the test.
- (d) Specification of the targeted species and the categories of targeted animals if necessary.
- (e) Description of the sample (for instance faeces).
- (f) Description of the objective (for instance surveillance, monitoring, , control of vaccination).

7.1.2. Targets on testing of flocks¹

Year: 2013

Situation on date: 2011

Animal species: Gallus gallus-breeding flocks infection^(a): SE/ST/SH/SI/SW

Region (a1)	Type of flock ^(b)	Total number of flocks ^(c)	Total number of animals	Total number of flocks under the programme	Total number of animals under the programme	Expected number of flocks to be checked ^(d)	Number of flocks expected to be positive ^(e)			Number of flocks expected to be depopulated ^(a)		Total number of animals expected to be slaughtered or destroyed ^(a)		Expected quantity of eggs to be destroyed (number or kg) ^(a)		Expected quantity of eggs channelled to egg products (number or kg) ^(a)	
							(a1)	(a2)	(a3)	(a4)	(a3)	(a4)	(a3)	(a4)	(a3)	(a4)	(a3)
Croatia	Breeding flocks	147	36.179.783	147	36.179.783	150	3	0	0	2	0	600	0	30.000	0	0	0
Total																	

- (a) For zoonotic salmonellosis indicate the serotypes covered by the control programmes: (a1) for Salmonella Enteritidis, (a2) for Salmonella Typhimurium, (a3) for other serotypes-specify as appropriate, (a4) for Salmonella Enteritidis or Salmonella Typhimurium.
- (a1) Region as defined in the approved control and eradication programme of the Member State.
- (b) For example, breeding flocks (rearing, adult flocks), production flocks, laying hen flocks, breeding turkeys, broiler turkeys, breeding pigs, slaughter pigs, etc. Flocks or herds or as appropriate.
- (c) Total number of flocks existing in the region including eligible flocks and non-eligible flocks for the programme.
- (d) Check means to perform a flock level test under the programme for the presence of salmonella. In this column a flock must not be counted twice even if it has been checked more than once.
- (e) If a flock has been checked, in accordance with footnote (d), more than once, a positive sample must be taken into account only once

¹ Specify types of flocks if appropriate (breeders, layers, broilers).

7.2. Targets on vaccination (one table for each year of implementation)

Number of vaccinated birds in 2011 is based on data on number of vaccine doses/per bird applied in breeding flocks by authorised veterinary organisations and approved veterinary services that are approved to carry out the vaccination. According to our estimations it is expected that the number of vaccinated birds in breeding flocks will increase in 2013.

7.2.1. Targets on vaccination²

Animal species:^(a) Breeding flocks Gallus gallus

Region ^(b)	Total number of herds ^(c) in vaccination programme	Total number of animals in vaccination programme	Targets on vaccination programme			
			Number of herds ^(c) in vaccination programme	Number of herds ^(c) expected to be vaccinated	Number of animals expected to be vaccinated	Number of doses of vaccine expected to be administered
CROATIA	2	27.200	2	5	50.0000	50.000
Total	2	27.200	2	5	50.0000	50.000

(a) Animal species if necessary.

(b) Region as defined in the approved control and eradication programme of the Member State.

(c) Herds or flocks or holdings as appropriate.

² Data to provide only if appropriate.

8. Detailed analysis of the cost of the programme (one table per year of implementation)

Costs related to	Specification	Number of units	Unitary cost in EUR	Total amount in EUR	Union funding requested (yes/no)
1. Testing					
1.1. Cost of the sampling		0			No
	Domestic animals	0			No
1.2. Cost of the analysis	Bacteriological tests (cultivation) in the framework of official sampling	7000	13,35	93.450,00	Yes
	Serotyping of relevant isolates	20	35,00	700,00	Yes
	Bacteriological test to verify the efficiency of disinfection of poultry houses after depopulation of a salmonella-positive flock	20	13,35	267,00	Yes
	Test for the detection of antimicrobials or bacterial growth inhibitory effect in tissues from birds from flocks tested for salmonella	20	100,00	2000,00	Yes
	Other (please specify)	-			

2. Vaccination	(If you ask for co-financing for the purchase of vaccins, you should also fill in points 6.4 and 7.2 as vaccination policy should be part of your programme)	0			No
2.1. Purchase of vaccine doses	Number of vaccine doses	0			No
3. Slaughter and destruction					
3.1. Compensation of animals	Compensation of animals slaughtered or killed positive on SE/ST/SI/ST/SH	6.000	10,00	60.000,00	Yes
	Compensation of eggs destroyed from flocks positive on SE/ST/SI/ST/SH	30.000	1,00	30.000,00	Yes
3.2. Transport costs					No

3.3. Destruction costs					No
3.4. Loss in case of slaughtering					No
3.5 Costs from treatment of animal products (milk, eggs, hatching eggs, etc)					No
4. Cleaning and disinfection					No
5. Salaries (staff contracted for the programme only)					No
6. Consumables and specific equipment					No
7. Other costs					No
TOTAL				186.417,00	

NATIONAL PROGRAMME FOR THE CONTROL OF SALMONELLOSIS IN BROILER FLOCKS IN THE REPUBLIC OF CROATIA

ANNEX II - PART A

General requirements for the national salmonella control programmes

(a) State the aim of the programme

The aim of the national programme for the control of *Salmonella* in broiler flocks is to reduce or maintain the low prevalence of *Salmonellas* of public health significance in broiler flocks of *Gallus gallus* intended for slaughter for the production of meat and meat products intended for human consumption, in such a way as to reduce the maximum percentage of flocks of broilers remaining positive for *Salmonella enteritidis* and *Salmonella typhimurium* to 1 % or less.

The national programme in broiler flocks is implemented throughout the Republic of Croatia from 1 January to 31 December of the calendar year and is fully aligned with the provisions of Regulation 646/2007 which is transposed into Croatian national legislation within the Ordinance laying down the procedures for the reduction of the prevalence of *Salmonella enteritidis* and *Salmonella typhimurium* in broilers (OG 72/08).

(b) Animal population and phases

Demonstrate the evidence that it complies with the minimum sampling requirements laid down in part B of Annex II to Regulation (EC) of production which sampling must cover

Broiler flocks of *Gallus gallus* - Birds leaving for slaughter

The programme covers all broiler flocks of *Gallus gallus* chickens reared for the purpose of producing meat and/or meat products for human consumption. "Flock" means all poultry of the same health status kept on the same premises or in the same enclosure and constituting a single epidemiological unit; in the case of housed poultry; this includes all birds sharing the same airspace.

A broiler flock intended for slaughter means poultry of the same species and age kept on the same premises and reared for the production of meat and/or meat products intended for human consumption. All flocks the products of which (fresh meat and/or meat products) are intended for public consumption must be tested for the presence of *S. Enteritidis* and *S. typhimurium* on official samples submitted to an approved laboratory. Only poultry originating from a flock that has been tested for the presence of *S. enteritidis* and *S. typhimurium* and for which the owner has a health certificate not more than 21 days old, issued by an official laboratory, may be placed on the market.

Broilers of *Gallus gallus* are sampled within three weeks before they are moved to the slaughterhouse. Samples of boot swabs or faeces will be taken inside the house once during that period. The results of the analysis on the samples must be known before the animals leave for the slaughterhouse.

The sampling is carried out in accordance with the requirements set out in Annex II, Part B of the Ordinance on the control of *Salmonella* and other specified food-borne zoonotic agents (Official Gazette 85/12) which is fully aligned with part B of Annex II of Regulation 2160/2003.

(c) Specific requirements

Demonstrate the evidence that it complies with the specific requirements laid down in Parts C, D and E of of Regulation 2160/2003.

If laboratory analysis confirms the presence of *S. Enteritidis* and/or *S. Typhimurium*, the flock will be considered infected and the responsible veterinary inspector must order the owner to implement the following measures:

- prohibition on the use of antimicrobials for the treatment of broiler flocks infected with *S. Enteritidis* and/or *S. Typhimurium*;

- prohibition on the placing on the market of fresh poultry meat originating from the positive flock;
 - Products originating from this poultry may only be placed on the market for human consumption if they meet the requirements set out in Annex II, Part E of the Ordinance (Official Gazette 85/12) and comply with the provisions of the Ordinance on microbiological criteria for foodstuffs (Official Gazette 74/08,156/08, 89/10 i 153/11).
- appropriate cleaning, washing and disinfection of buildings, instruments and utensils at places where poultry feed is produced and stored;
- cleaning, washing and disinfection of vehicles using appropriate disinfectants;
- disinfection, disinfestation and deratisation of infected poultry premises; upon completion of disinfection, its efficiency must be bacteriologically tested;
- removal and sanitary treatment of manure in a prescribed way;
- Re-stocking may not take place until negative results have been obtained from disinfection efficiency control;
- When sending positive broiler flocks for slaughter all measures must be taken to minimise the risk of possible spread of disease.

In the event of a confirmed case of any other *Salmonella* spp. of public health significance, other than *S. Enteritidis* or *S. Typhimurium*, the responsible veterinary inspector is obliged to carry out an epidemiological investigation in order to identify the source of infection, paying particular attention to the implementation of biosecurity measures. It will be recommended to the owner to draw up a plan of necessary measures to prevent the introduction and spread of and to eradicate the causative agent.

It is not permitted to use antimicrobials as a specific method to control any salmonella in broiler flocks. In case treatment must be carried out, the same must be done in accordance with the provisions of the Ordinance on specific control methods in the framework of the national programmes for the control of *Salmonella* in poultry (Official Gazette 72/08) and the provisions of the Ordinance on harmonised monitoring of antimicrobial resistance in *Salmonella* in poultry and pigs (Official Gazette 75/09).

The treatment of flocks may be conducted by an approved veterinary organisation or an approved veterinary service. Each treatment of a flock must be recorded in the *Records on animal treatments and withdrawal periods*.

Within the framework of national control programme (routine active monitoring) all samples are taken by authorized veterinarians. FBO are not allowed to take samples within national monitoring programme (for the purpose of the routine active monitoring).

(d) Specification of the following points:

1. General

1.1 A short summary referring to the occurrence of Salmonellosis (Zoonotic Salmonella)

A short summary referring to the occurrence of the salmonellosis [zoonotic salmonella] in the Member State with specific reference to the results obtained in the framework of monitoring in accordance with Article 4 of Directive 2003/99/EC particularly highlighting the prevalence values of the salmonella serovars targeted in the salmonella control programmes.

Salmonellosis and *Salmonella* infections in poultry

Salmonellosis and *Salmonella* infections in poultry have been systematically monitored in the Republic of Croatia in the diagnostic laboratory of the Croatian Veterinary Institute since the seventies of the last century. Due to the implementation of strict measures under the National Programme for the Control and Eradication of Fowl Typhoid, *Salmonella*-specific serotypes *S. gallinarum* and *S. pullorum* have become economically insignificant and limited to individual rare cases in extensive production systems (the last case was recorded in 1993).

The development of intensive poultry farming and ever-increasing production and consumption of meat, eggs and related products have facilitated the spread of *Salmonella* infections caused by non-host-specific invasive serotypes – paratyphoid *Salmonellas*, which can not only cause severe infections in poultry, but can also spread through food and cause disease in humans.

Thanks to the systematic and years-long implementation of disease monitoring and control measures prescribed by the annual Order on measures to protect animals from infectious and parasitic diseases and the financing thereof, the total number of isolated *Salmonellas* has significantly decreased.

According to monitoring programme for 2009, 2010 and 2011 all broiler flocks the products of which (fresh meat and/or meat products) were intended for public consumption had to be tested on *Salmonella* spp. presence. Only poultry originating from a flock that has been tested for the presence of salmonella and that were free from *S. Enteritidis* and *S. Typhimurium* and for which the owner had a health certificate not more than 21 days old issued by an official laboratory, may be placed on the market. Broilers of *Gallus gallus* were sampled within three weeks before they were moved to the slaughterhouse.

The baseline study according to Commission Decision 2005/636 has not been carried out but the prevalence is calculated based on data collected throughout regular monitoring programme. The prevalence of *Salmonella* spp. and *S. Enteritidis* and *S. Typhimurium* in flocks of broilers of *Gallus gallus* sampled within three weeks of leaving the selected holding for slaughter for 2009, 2010 and 2011 was as follows:

Table 1. Results of salmonella monitoring programme for broiler flocks o *Gallus gallus* in 2009-2011

Year	Type of <i>Gallus gallus</i> poultry	Total No of tested flocks	Total No of <i>Salmonella</i> spp. positive flocks	Total No <i>S. Enteritidis</i> positive flocks	Total No <i>S. Typhimurium</i> positive flocks	Total No other <i>Salmonella</i> spp. positive flocks
2009	Broilers	777	169	36	4	129
2010	Broilers	2093	58	14	0	44
2011	Broilers	3004	76	38	3	35

In 2009, 777 broiler flocks were tested on *Salmonella* spp. and out of them 169 flocks were positive on *Salmonella* spp.. The prevalence of *Salmonella* spp. in broiler flocks was 21,75%. Out of that the SE/ST prevalence was 5,14% (36 flocks were SE positive and 4 flocks were ST positive).

In 2010, 2093 broiler flocks were tested on *Salmonella* spp. and out of them 58 flocks were positive on *Salmonella* spp.. The prevalence of *Salmonella* spp. in broiler flocks was 2,77%. Out of that the SE/ST prevalence was 0,67% (14 flocks were SE positive and no flocks were ST positive).

In 2011, 3004 broiler flocks were tested on *Salmonella* spp. and out of them 76 flocks were positive on *Salmonella* spp.. The prevalence of *Salmonella* spp. in broiler flocks was 2,53%. Out of that the SE/ST prevalence was 1,37% (38 flocks were SE positive and 3 flocks were ST positive).

Salmonellosis and Salmonella infections in humans

Salmonellosis are the most significant zoonoses in Croatia. On average, about 3500 positive cases of human salmonellosis are reported annually. These are most often the outbreaks caused by *S. Enteritidis*.

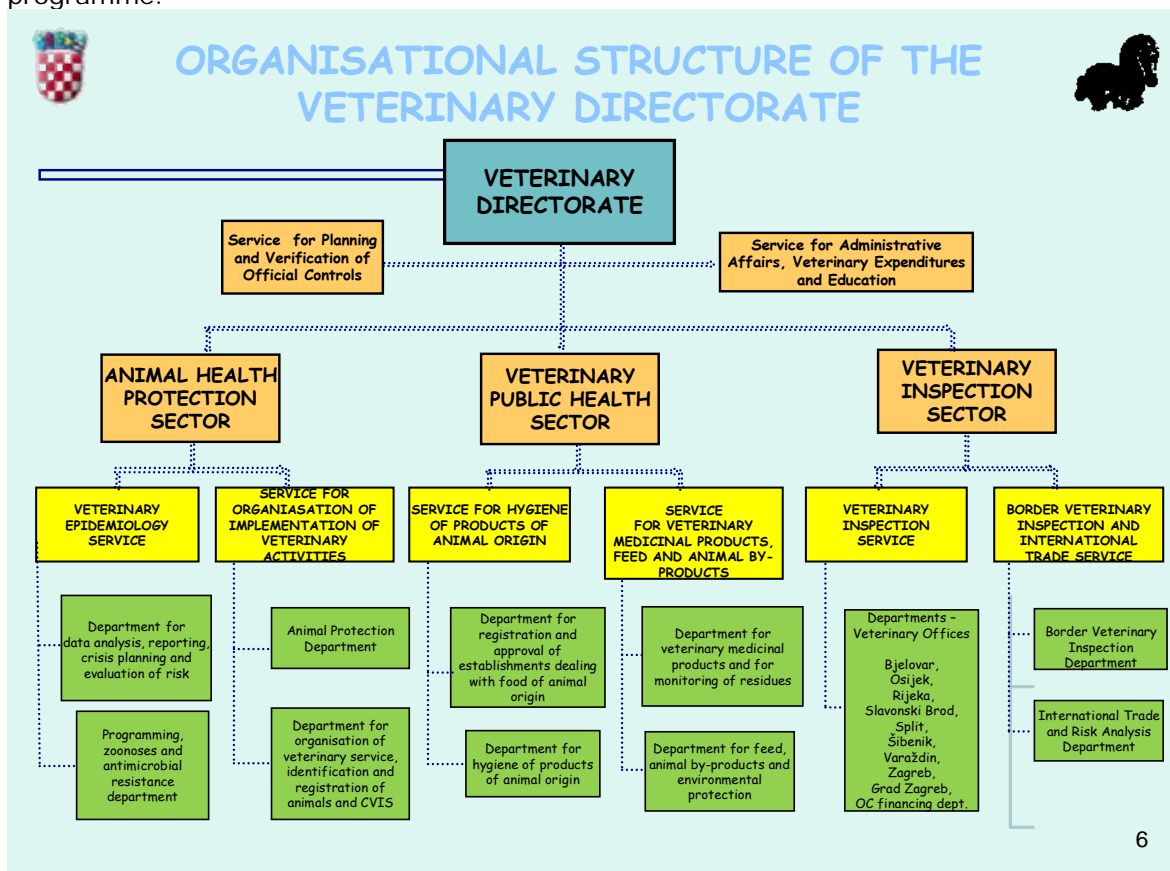
In Croatia, most outbreaks are so-called family outbreaks, whereas only a small number of outbreaks are associated with public catering premises and, as a rule, are not linked to industrially produced food and products.

Year	Number of diseased	Number of deaths
1998	4288	-
1999	4121	3
2000	5134	3
2001	5620	-
2002	6570	1
2003	5755	4
2004	4940	3
2005	5619	1
2006	4734	1
2007	3331	-
2008	3664	-
2009	3158	1
2010	2098	1

The level of salmonellosis in humans has the lowest figure in 2010 (2098) owing to complex preventive measures aimed to control all possible sources in humans and animals (zoonosis). The most common isolated strains of Salmonella spp. from samples of diseased humans are Salmonella Enteritidis (84% of all isolates), Salmonella senftenberg (2% of all isolates), Salmonella typhimurium (1% of all isolates), Salmonella infantis (1% of all isolates), Salmonella virchow (1% of all isolates), Salmonella thompson (1% of all isolates), Salmonella derby (1% of all isolates), Salmonella coeln (1% of all isolates). Data on human salmonellosis are provided by Croatian national institute of public health.

1.2 The structure and organization of the relevant competent authorities.

Please refer to the information flow between bodies involved in the implementation of the programme.



In accordance with the current internal organisation of Ministry of Agriculture (MA), the competent authority (CA) in the veterinary field is the Veterinary Directorate.

The Veterinary Directorate has five organisational units:

1. Service for Planning and Verification of Official Controls (SPVOC),
2. Service for Administrative Affairs, Veterinary Expenditures and Education,
3. Animal Health Protection Sector,
4. Animal Public Health Sector,
5. Veterinary Inspection Sector.

The Service for Planning and Verification of Official Controls (SPVOC):

- participates in the preparation of annual plan for official controls of the Veterinary inspection service;
- participates in the implementation of risk assessment in establishments dealing with food, feed and products of animal origin, in order to determine the appropriate frequency of official controls in mentioned establishments;
- monitors the implementation of acts and regulations in the veterinary inspection jurisdiction, and the legality of the actions of all veterinary offices in their respective areas of jurisdiction;
- verifies the performance of official controls on the basis of the supervision of the veterinary inspectors and official veterinarians and their reports on conducted official controls;
- performs official controls in registered establishments, approved establishments and establishments approved under special conditions dealing with food and products of animal origin, which are under the veterinary inspection competence and in registered and approved establishments dealing with feed;
- conduct official controls in registered and approved establishments dealing with animal by-products and supervises the implementation of official controls in these establishments carried out by the state veterinary inspectors and official veterinarians;
- performs official controls regarding production and distribution of veterinary medicinal products and the laboratories which conducts testing and control of veterinary medicinal products;
- supervises the implementation of monitoring in regard to veterinary inspection;
- performs official controls and supervision on the enforcement of measures for preventing and eradication of infectious and parasitic diseases and zoonoses;
- supervises activities of control bodies and authorised veterinary organisations;
- performs official controls on animal welfare, transportation and identification of animals;
- performs official controls on production and storage of semen and embryos, as well as on breeding and reproduction of farm animals;
- performs official controls on laboratories which conduct analysis in the field of veterinary medicine;
- participates in the organisation and delivery of training for State veterinary inspectors, official veterinarians and authorised veterinarians;
- participates in the drafting of legislation drawn up by the competent authority and performs other duties in accordance with national regulations.

The Service for Administrative Affairs, Veterinary Expenditures and Education is competent for monitoring and co-ordination of work on the alignment of legislation in the veterinary field and international agreements in the veterinary field; prepares, monitors and co-ordinates the preparation of regulations governing in the expenditures in field of veterinary medicine, participates in preparation of program funding in the veterinary field (measures for animal health protection and all other measures in the veterinary field of veterinary medicine); prepares proposal for the budget plan for expenditures in field of veterinary medicine; participates in drafting the costs of laboratory diagnostics and analytics monitoring implementation of financing of measures that are paid from the state budget; monitors and aligns Croatian legislation in field of veterinary medicine with the *acquis communautaire* and co-ordinates the work in field of harmonization and application of veterinary legislation,

prepares reports of compliance of veterinary legislation with EU legislation, plans legislative actions to transpose and implement the acquis relating to the veterinary legislation and follows up and reports on its implementation, participates in the drafting of international treaties and other legal forms of international co-operation in the veterinary field and coordinates process of their execution and implementation; co-operates with the competent authorities of other countries in the field of veterinary medicine and international organizations (Codex); is a contact point for co-ordination with the World organization for animal Health (OIE) develops a draft Pre-Accession Economic program (PEP) in the part relating to the Veterinary Directorate; participates in the process of authorizing official and reference laboratories in the field of veterinary medicine; is a contact point in co-operation with TAIEX (Technical Assistance and Information Exchange); participates in the preparation of training programs and maintains records of trainings of VD employees and authorized veterinarians and participates in the organization of training conducted by the VD, provides technical assistance in the processing of legal issues related to the implementation of laws and within the scope of VD, provides technical assistance in the conduct of officials in the administrative proceedings, gives opinions and explanations concerning the implementation of regulations in field of veterinary medicine; drafts contracts and other civil rights legislation from in the field of veterinary medicine.

The Animal Health Protection Sector develops policies and manages activities related to: animal health surveillance and monitoring; control and eradication of animal diseases including zoonoses; contingency planning and crisis management; animal welfare; financing of measures on early detection and eradication of animal diseases, as well as activities related to identification of animals and registration of their movements. It also performs tasks regarding the organisation and functioning of the veterinary service and development and maintenance of the Central Veterinary Information System designed to provide a unified system of all registers and software in the veterinary field. The Sector comprises two Services (Veterinary Epidemiology and Organisation of implementation of veterinary activities) and four departments: Data analysis and contingency planning; Programming and zoonosis; Organisation of veterinary service, identification and registration of animals and CVIS (Central Veterinary Information System) and Animal Protection Department. CVIS will support access or data exchange with information systems from other state organizations, institutes and agencies.

The Veterinary Public Health Sector (VPHS) is competent for the safety of: food of animal origin and feed; veterinary medicinal products and veterinary medical devices; monitoring of residues; animal by-products; drafting of legislation and other relevant programmes; organizing educations on implementation of the legislation as well as drafting written instructions for authorised veterinarians, official veterinarians and veterinary inspectors; legal, administrative and related activities. VPHS manages activities related to NCRP, the residue programme for feed and the monitoring programme for bivalves. The Sector comprises two services: Service for Hygiene of Products of Animal Origin and Service for Veterinary Medicinal Products and Feedstuffs.

The Veterinary Inspection Sector (VIS) has two services and is organised as it follows:

- Border Veterinary Inspection and International Trade Service;
- Veterinary Inspection Service.

The Veterinary Inspection Service has ten departments; the Department for Financing Official Controls which is responsible for legal issues and activities related to financing of official controls in the veterinary field and nine Regional Veterinary Inspection Departments (veterinary offices) located in City of Zagreb, Zagreb, Varaždin, Bjelovar, Osijek, Slavonski Brod, Šibenik, Rijeka and Split. These Inspection Departments have 65 branch offices. The veterinary Inspection Service is responsible for implementation of official controls regarding animal health, animal welfare and production, and also in trade of food and feed in line with the Veterinary Act, the Food Act, the Animal Protection Act, and the Act on the Veterinary Medicinal Products. The Border Veterinary Inspection and International Trade Service is organised into two departments: the Border Veterinary Inspection Department and International Trade and Risk Analysis Department. The Border Veterinary Inspection Department is responsible for veterinary checks and controls at BIPs on consignments of animals, products of animal origin, feed of animal origin and other objects that may transmit infectious or parasitic diseases or jeopardise human and animal health. The International Trade and Risk Analysis Department is competent for legal and administrative activities in the field of

international trade. These activities include: determining veterinary conditions for the import and transit of consignments of animals and products of animal origin; drafting models of export and import veterinary certificates; keeping abreast of international legislation; drafting of legislation on the control of trade of animals and products of animal origin; drafting orders on security measures for import control of live animals and products of animal origin related to animal diseases and other agents that may harm human and animal health; drafting of the annual monitoring plan for import consignments; and other related activities.

Under the Veterinary Act (OG 41/07, 55/11) official controls are performed by the Official Veterinarians (OV).

Certain tasks of official controls may be delegated to control bodies (veterinary organisations accredited to ISO 17020:1998). Control bodies must be impartial and free from any conflict of interest. According to Article 116 of the Veterinary Act, the costs of veterinary checks, certification, veterinary supervision and monitoring are paid from the state budget. All fees for official controls are paid to the state budget and control bodies are paid from that budget. Under the Ordinance on official controls to ensure the verification of compliance with feed and food, animal health and animal welfare law (OG 99/07, 74/08), administrative measures in case of non-compliance are not delegated. When an authorised veterinarian (AV), performing delegated tasks finds non-compliance, he must notify the OV. The relevant competent authority (CA) may delegate specific tasks to a particular control body under the following conditions:

- There is an accurate description of the tasks to be carried out and the conditions for their implementation;
- There is proof that the control body: has the expertise, equipment and infrastructure required to carry out the tasks delegated to it; sufficient suitably qualified and experienced staff. It must also be impartial and free from conflict of interest as regards the exercise of the tasks delegated to it;
- The control body works to, and is accredited in accordance with, ISO 17020, and communicates the results of the controls carried out to the competent authority;
- There is efficient and effective co-ordination between the delegating competent authority and the control body.

The Ordinance on requirements to be met by veterinary organisations performing veterinary activities (OG 45/09, 80/10) requires the authorized veterinary organizations and control bodies to be impartial and free from any conflict of interest regarding the tasks delegated to them.

138 veterinary organisations, which employ 894 AV, are involved in official controls. According to the Veterinary Act (Official Gazette No 41/07, 55/11) veterinary activities shall be conducted by legal persons through veterinary surgeries, veterinary stations, veterinary hospitals, veterinary clinics, centres for reproduction and artificial insemination, and veterinary pharmacies (veterinary organisations). Veterinary organisations are established as companies. Certain veterinary activities, in accordance with the provisions of the Veterinary Act, are conducted by the Croatian Veterinary Institute as well as by the Faculty of Veterinary Medicine. A veterinary organisation, veterinary practice and veterinary service may be founded provided that an opinion of the Croatian Veterinary Chamber and a veterinary consent of the competent veterinary inspection office have been obtained and may start to conduct their activities on the basis of a Decision on the compliance with the stipulated conditions regarding the arrangement of the facilities, premises, veterinary equipment and professional staff, adopted by the Director at the proposal of an expert commission founded by the Director of the Veterinary Directorate. In the Veterinary Act it is laid down that certain activities can be performed only by veterinary stations and veterinary surgeries which, on the basis of the carried out competition, are authorised by the Veterinary Directorate to perform these activities for the period of 5 years.

According to the Veterinary Act (Official Gazette No 41/07, 55/11) authorised veterinarian may conduct the following activities:

1. veterinary checks and controls on husbandries, farms, livestock markets, animal gatherings, buyout points, facilities for resting of animals, animal exhibitions and other facilities if the veterinary organisation in which he is employed is authorised to do so,
2. issue animal health certificates, certificates for consignments of products of animal origin and feed in internal trade,

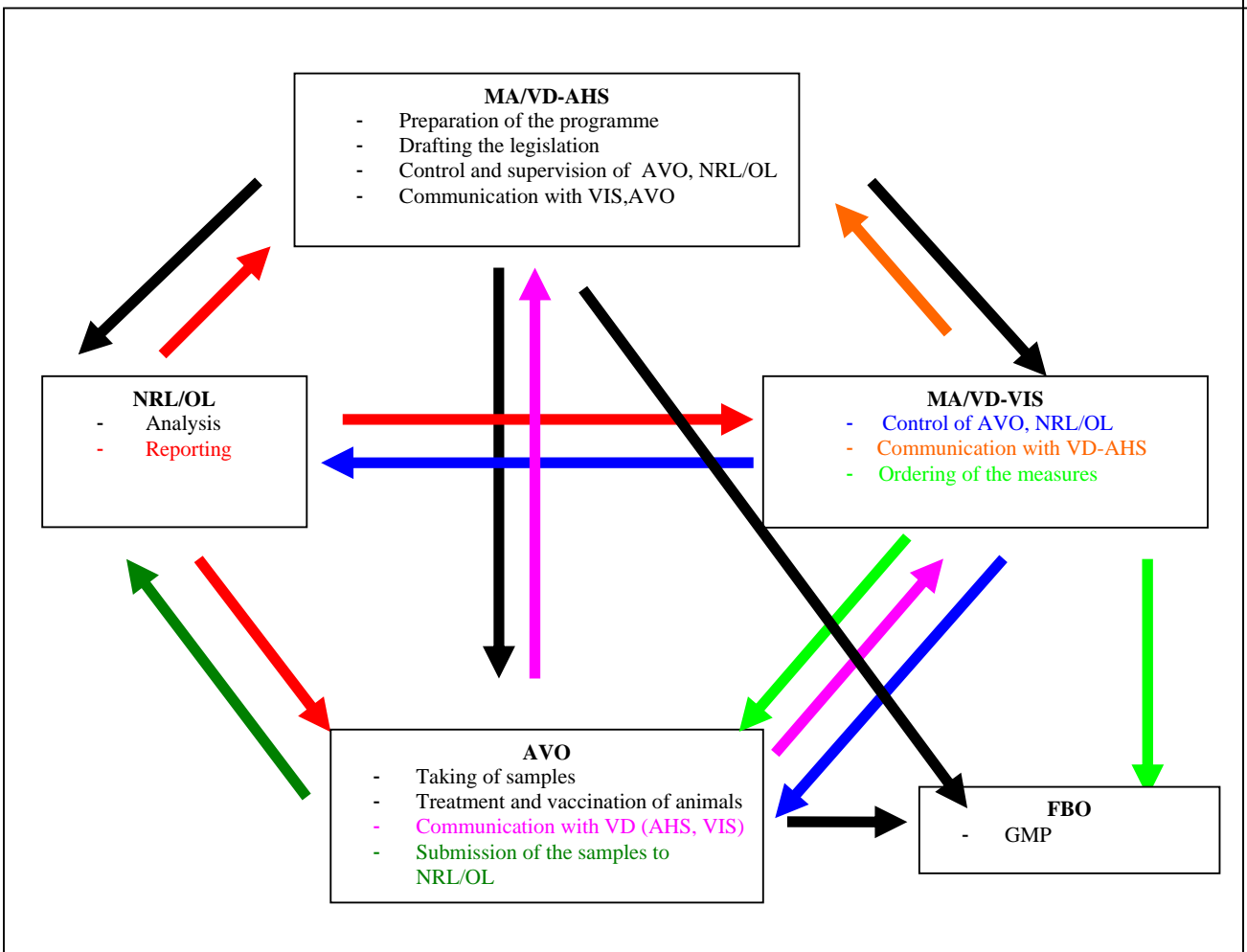
3. enforce compulsory identification of animals and keep the stipulated records on the identification and registration of movement animals,
4. implement the stipulated measures for the detection, prevention, combating and control infectious or parasitic diseases,
5. take diagnostic material of animals, samples of products of animal origin and animal waste matter for the purpose of examining the health of animals, i.e. safety of products of animal origin,
6. prohibit the dispatching of animals, products of animal origin and animal waste matter if it is established in the course of a veterinary examination that the consignment has been infected or if contamination is suspected, if it originates from an infected area, if it fails to comply with other stipulated safety conditions, if it is not accompanied by the stipulated and correct documentation, or if the transport vehicle fails to meet the stipulated veterinary conditions.

Epizootiological regions	Authorised veterinary organisations	Authorised veterinarians
Dubrovnik - Neretva County	2	3
Splitsko - Dalmatia County	11	40
Šibensko - Knin County	4	17
Lika - Senj County	7	13
Zadar County	6	20
Primorje - Gorski Kotar County	6	25
Istra County	8	33
Sisak - Moslavina County	8	48
Karlovac County	8	32
City of Zagreb	3	52
Zagreb County	10	104
Varaždin County	5	57
Međimurje County	2	35
Koprivnica - Križevci County	4	96
Virovitica - Podravina County	5	25
SlavonskiBrod - Posavina County	11	34
Požega - Slavonia County	3	24
Osijek - Baranja County	10	67
Vukovar - Srijem County	7	54
Krapina - Zagorje County	7	29
Bjelovar - Bilogora County	11	80
TOTAL	138	894

In August 2010, Croatia issued the "Ordinance on designation of official and reference laboratories in the implementation of veterinary activities" (OG No 102/10), which provides that all laboratories which perform official control in the field of veterinary medicine including feed and some parts of food of animal origin should be accredited by the Croatian Accreditation Agency to EN ISO 17025:2007.

Information on flow between bodies involved in the implementation of the programme is described in the *flow diagram* below

Flow diagram



Abbreviations:

MA/VD-AHS – Ministry of Agriculture/Veterinary Directorate-Animal Health Sector
 MA/VD-VIS – Ministry of Agriculture/Veterinary Directorate- Veterinary Inspection Sector
 AVO- authorized veterinary organizations
 NRL-National referent laboratory
 OL – Official laboratory
 FBO-Food business operator

1.3 Approved laboratories where samples collected within the programme are analysed.

NRL IN CROATIA

The national reference laboratory for Salmonella in poultry is the Croatian Veterinary Institute – Poultry Centre, Heinzelova 55, Zagreb.

The national reference laboratory for antimicrobial resistance in animals is the Croatian Veterinary Institute Zagreb, Department for Bacteriology and Parasitology, Laboratory for General Bacteriology and Microbiology, Savska cesta 143, Zagreb

Other official laboratories involved in the implementation of this Programme are:

- Croatian Veterinary Institute Zagreb, Savska cesta 143, Zagreb;

- Croatian Veterinary Institute, Regional Branch Split, Poljička cesta 33, Split;
- Croatian Veterinary Institute, Regional Branch Križevci, Zakmardijeva 10, Križevci;
- Croatian Veterinary Institute, Regional Branch Vinkovci, J. Kozarca 24, Vinkovci;
- Croatian Veterinary Institute, Regional Branch Rijeka, Podmurvice 29, Rijeka;
- Bioinstitut d.o.o., R. Steinera 7, Čakovec.

Accreditation status of laboratories

The laboratories involved in salmonella national programmes are accredited to the required standards and fully comply with the provisions of the Article 11 and Article 12 of Regulation 2160/2003 and Ordinance on authorization of the official and reference laboratories regarding the implementation of veterinary activities (Official Gazette 102/10).

Due to the above mentioned all official laboratories providing diagnostic testing of the samples taken from poultry within this programme are accredited in accordance with the:

- HRN EN ISO/IEC 17025 standard;
- Current version of Annex D of HRN EN/ISO 6579: 2003: „Detection of *Salmonella* spp. in animal faeces and in samples of the primary production stage“.

Official laboratories are obliged to regularly participate in collaborative testing organised or coordinated by the national reference (NRL). NRL is obliged to organize interlaboratory testing for official laboratories in Croatia at least once per year. Testing for the presence of salmonella is carried out using the methods and protocols recommended by international standardization bodies.

1.4 Methods used in the examination of the samples in the framework of the programme.

Samples are prepared and tested in a laboratory in accordance with the requirements set forth in the Ordinance laying down the procedures for the reduction of the prevalence of *Salmonella enteritidis* and *Salmonella typhimurium* in broilers (Official Gazette 72/08) and the Ordinance on harmonised monitoring of antimicrobial resistance in *Salmonella* in poultry and pigs (Official Gazette 75/09).

The method recommended by the European Community Reference Laboratory (CRL) for *Salmonella* in Bilthoven, the Netherlands, is used for the isolation of the agent.

This method is described in the current version of Annex D of HRN EN/ISO 6579: 2003: „Detection of *Salmonella* spp. in animal faeces and in samples of the primary production stage“. At least one isolate is serotyped according to the Kaufmann-White scheme.

1.5 Official controls (including sampling schemes) at feed, flock and/or herd level

Official controls at the primary production stage

Each year 10% of holdings with more than 5000 broilers, selected at random, must be tested for *Salmonella*. At least one flock per holding must be tested. The random selection will take into account the size of holding and geographical distribution.

Particular attention will be given to holdings where *S. Enteritidis* and/or *S. Typhimurium* were detected in the previous fattening cycle. Sampling must also be done on a risk basis each time the responsible veterinary inspector or the body responsible for the implementation of this Programme considers it necessary.

Samples for the purposes of official control at the primary production stage shall be taken by official veterinarians in accordance with Table 3:

Table 3.

BROILERS OF <i>GALLUS GALLUS</i>				
Poultry category/age	Sampling site	Sample	Number/quantity of samples	Sampling frequency
			Minimum number of boot swab pairs	
Broilers of <i>Gallus gallus</i>	Poultry house	Boot swabs	2 per flock	Within three weeks before the birds are moved to the slaughterhouse

Samples must be submitted for testing to the National Reference Laboratory for salmonellosis in poultry. Laboratory analysis of samples shall be carried out in accordance with the provisions of Regulation 646/2007.

Official controls on feedingstuffs for the presence of *Salmonella* spp.

In accordance with Articles 66 and 67 of the Food Act (Official Gazette 46/07, 55/11), the competent authority (the Ministry of Agriculture is the central state administration authority in charge of safety, hygiene and quality of food and feed and the organisation of official controls) must ensure that official controls on feed safety are carried out in all stages of production, warehousing, distribution and use.

Regulation (EC) No 882/2004, which lays down the general rules for the organization and implementation of official controls, has been transposed into national legislation through the Ordinance on official controls performed to ensure the verification of compliance with feed and food law, animal health and animal welfare rules (OG 99/07).

An annual action plan of the Veterinary Inspection Sector is distributed to veterinary offices, defines an annual plan for the implementation of official controls as well as feed monitoring carried out by state veterinary inspectors and official veterinarians. Reports on official controls performed are collected once a month, via a web application, from all state veterinary inspectors and are submitted to the Head of the Veterinary Inspection Sector and CVO.

Checklists for carrying out official controls in the veterinary field are prepared in the central office of the Veterinary Directorate and are intended to assist staff carrying official controls. These checklists are distributed to all veterinary offices and their use is mandatory. Written procedures for carrying out official controls have also been developed and distributed to veterinary offices, as have been the operational instructions for carrying out inspections and audits in the area of food of animal origin.

The annual plan of activities of state veterinary inspectors and official inspectors includes official controls of the following:

- Inspection of veterinary organisations, private veterinary surgeries and veterinary services in performing their veterinary activity;
- Inspection of establishment where animals are bred, kept, and produced
- Inspection of establishments involved in trade in animals, vehicles used for the transportation of animals, and trade in animals;
- Inspection of establishments involved in temporary storage and processing of animal by-products.

Official controls in establishments handling food of animal origin are carried out at a frequency based on risk assessment for each individual establishment. The risk assessment database is

kept in the central office of the Veterinary Directorate and is updated as new information becomes available, and the data are sent electronically to field offices.

Official controls and scheme of sampling at feed

All feed businesses operators must satisfy the conditions stipulated by Annex II to the Ordinance on feed hygiene (Official Gazette 41/08) in each of the registered or approved establishments as well as to establish and implement an internal control system based on the HACCP principles, except in registered establishments engaged in primary production or mixing of complementary feed (formerly "superconcentrates") with feed material, where they must satisfy the conditions stipulated by the abovementioned Ordinance.

To define the frequency of official controls in feed establishments, the following risk factors were taken into account:

- type of establishment or risks posed by registered or approved activities,
- quantities produced (in tonnes),
- risks posed by used raw materials or products, especially by-products of other industries,
- origin of used feed material, feed additives or pre-mixtures (e.g. imports from distant countries),
- product range,
- frequency of batch changes (different types of feed for different animal species),
- use of feed additives (coccidiostats) or risk types of feed materials (fishmeal, fish oil).

Drafting of the sampling plan

When defining a number and types of analytical tests within the monitoring plan, as one of the official control methods, risk levels associated with registered or approved activities in feed establishments, produced quantities, types of raw materials or products (including potential by-products of other industries), use of fishmeal or production of medicated feedingstuffs are taken into account. The notifications obtained through the Rapid Alert System for Food and Feed (RASFF) were also taken into account.

The activities carried out in approved establishments are generally considered to be connected with the use of more dangerous or higher risk substances or products. It has been also established that the annual quantities of finished products produced in approved establishments are higher than those in registered establishments, and that such finished products are distributed to a higher number of customers. Consequently, the frequency of sampling and laboratory analyses (monitoring) of raw materials and finished products from approved establishments should be higher than that for other feed establishments.

Criteria for feed sampling for microbiological analysis

Sampling should focus on poultry feed. The sampling records must state the exact category of poultry for which the compound feed is intended (parent flock, breeding chicken, table egg laying hens, laying hens for hatching eggs, broilers) and its age range. The same applies to pig feed, especially that for piglets.

Sampling basically covers *Salmonella* spp. in order to prove the safety of compound feed. Sampling is carried out in accordance with the feed monitoring plan. Article 71 of the Ordinance on the quality of animal feed (Official Gazette 26/98, 120/98, 55/99, 76/2003, 22/06) sets the zero (0) tolerance requirement for *Salmonella* spp. If *Salmonella* spp. are, however, present in compound feed, such feed is safely disposed of.

In accordance with the aforementioned annual plan of official controls and feed monitoring, sampling should be carried out throughout the year. Sampling is carried out in accordance with the provisions of the Ordinance on methods of sampling of feedingstuffs (Official Gazette 128/06), except for sampling of feed for pesticide residues and that for microbiological testing. Sampling for microbiological testing should be based on a random sample taken in the quantity that may be divided into four samples of a minimum 0.5 kg weight.

All columns of the sampling and analytical method records template, which is given in the Annex to the annual plan, should be completed during the sampling procedure.

The original copy of the records should be kept by the official veterinarian or the state veterinary inspector who conducted sampling, a copy of the records delivered to a client/feed business operator, and another copy delivered to a laboratory.

Sampling for monitoring purposes

Only one sample is taken during feed sampling as stipulated by the annual monitoring plan. If the analytical results show that the submitted sample does not comply with the provisions on feed, the veterinary inspector/official veterinarian must take additional samples and request the analytical testing of samples beyond the scope of this monitoring plan. On family farms and agricultural holdings, samples may be taken at the same time the holding is inspected or the live animals on farms monitored for residues.

Sampling for official controls

Sampling for official controls, other than sampling for monitoring purposes, should be targeted, i.e. the official veterinarian or the state veterinary inspector must provide an explanation for each sample taken and analytical test chosen, except in the case of sampling for monitoring purposes.

If samples should be taken and analysed during inspection (other than sampling for monitoring purposes), the veterinary inspector/official veterinarian must notify the client/feed business operator about the right to take two identical official samples. One sample is delivered to the official or the reference laboratory and the other sample is intended for potential re-testing, if so required by the client /feed business operator. After the latter is officially packed (in a sealed packaging), it is kept by the feed business operator. The deadline for requesting repeated analysis is eight days following the date of delivery of analytical results for the first sample to the client /feed business operator.

The client /feed business operator must be informed that the sample should be kept under appropriate storage conditions, which should be identical to those for that specific type of the raw material or the product.

This second sample is sent to the reference laboratory or to the accredited official laboratory for re-testing (this may be the same laboratory which carried out the first analysis). The results of this analysis are final and relevant.

Microbiological criteria control

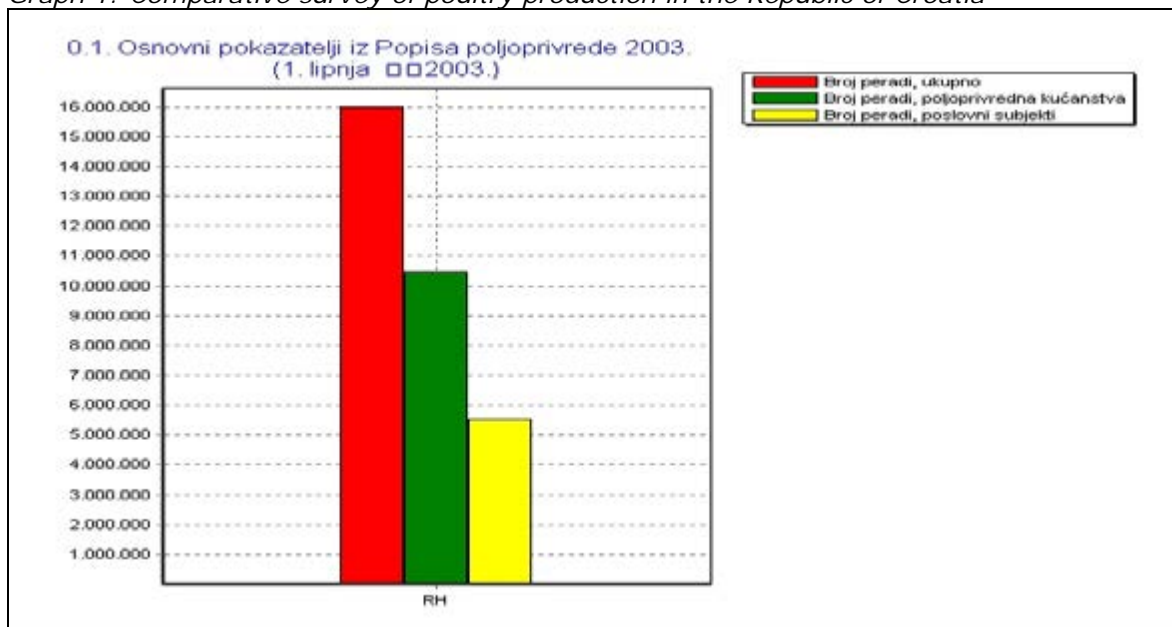
Ordinance on microbiological criteria for foodstuffs (Official Gazette 74/08,156/08, 89/10 i 153/11) requires that samples be taken in slaughterhouses and poultry meat processing plants for bacteriological testing for *Salmonella* spp..

2. Food and business covered by the programme

2.1 The structure of the production of the given species and products thereof

Organisation of and method for poultry production

Graph 1: Comparative survey of poultry production in the Republic of Croatia



O.1 Basic indicators in Agricultural Census 2003 (1 June 2003)

(red) Number of poultry, total

(green) Number of poultry, agricultural holdings

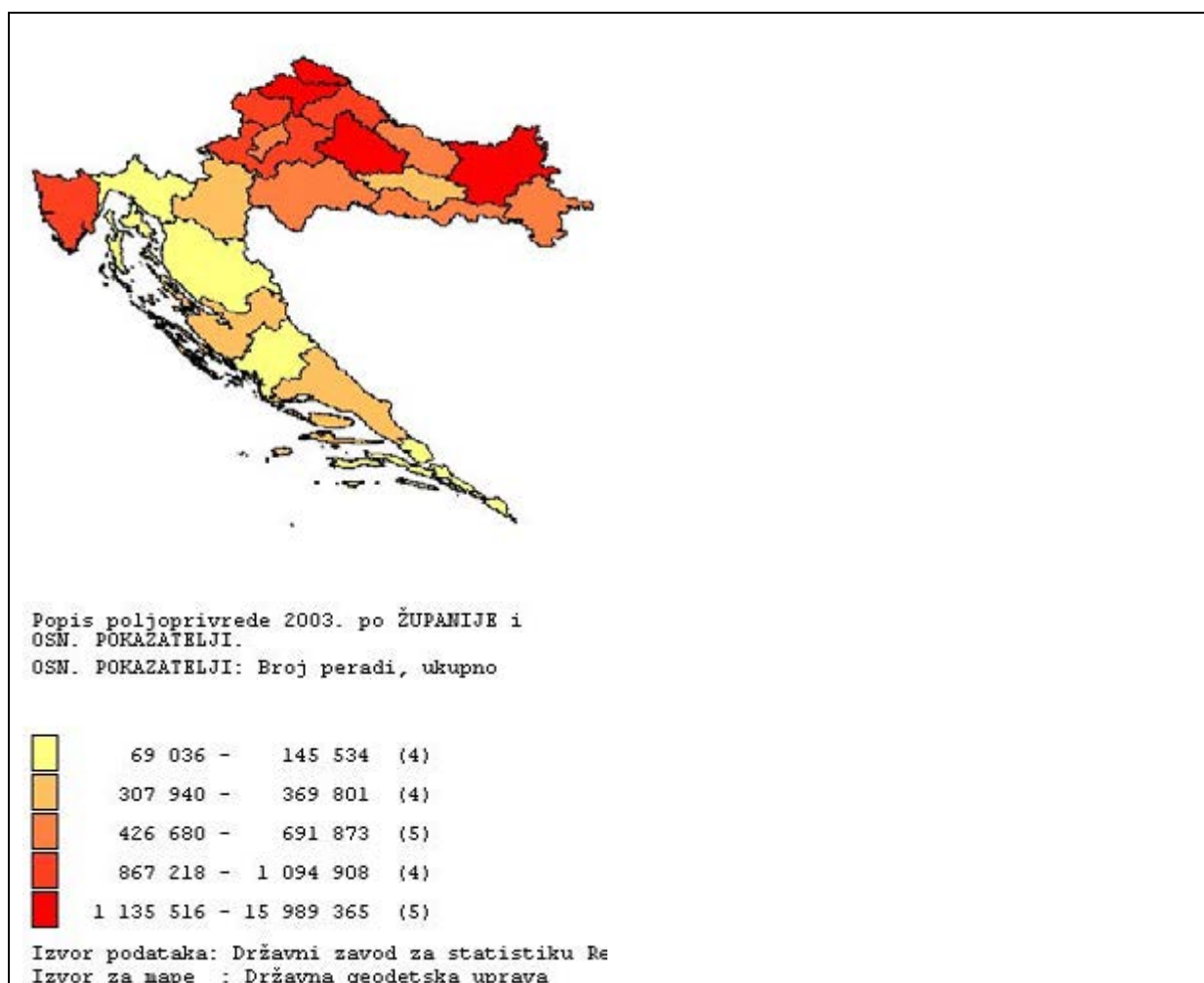
(yellow) Number of poultry, business entities

Table 3.: Number of business entities by the number of poultry per counties

County	By number of poultry, total	By number of poultry, 1 – 50	By number of poultry, 51 – 100	By number of poultry, 101 – 500	By number of poultry, 501 – 1 000	By number of poultry, 1 001 – 3 000	By number of poultry, 3 001 – 5 000
Total Republic of Croatia	498	204	70	41	15	39	20
Zagreb County	28	14	4	2	0	3	1
Krapina-Zagorje County	17	0	1	1	0	0	1
Sisak-Moslavina County	16	4	3	2	1	1	1
Karlovac County	6	2	0	1	1	1	1
Varaždin County	28	2	3	0	1	1	2
Koprivnica-Križevci County	8	3	1	2	0	1	0
Bjelovar-Bilogora County	45	30	6	2	2	3	0
Primorje-Gorski Kotar County	13	1	2	5	1	3	0
Lika-Senj County	0	0	0	0	0	0	0
Virovitica-Podravina County	26	19	3	3	0	1	0
Požega-Slavonia County	10	5	1	0	0	1	1

Brod-Posavina County	57	25	6	5	0	2	3
Zadar County	5	0	0	0	1	2	0
Osijek-Baranja County	77	37	19	8	2	3	2
Šibenik-Knin County	4	1	0	0	1	2	0
Vukovar-Srijem County	48	25	14	2	2	0	3
Split-Dalmatia County	12	2	0	2	2	4	0
Istra County	24	8	2	1	0	6	1
Dubrovnik-Neretva County	3	0	0	0	1	1	1
Međimurje County	60	25	4	4	0	3	3
The City of Zagreb	11	1	1	1	0	1	0

*Scheme 3: Density of poultry per counties **



Agricultural Census 2003 per COUNTIES and BASIC INDICATORS

BASIC INDICATORS: Number of poultry, total

*Source of data: Central Bureau of Statistics of the Republic of Croatia, Croatian Agricultural Agency

Source of maps: State Geodetic Administration

Table 4: Food and Agricultural commodities production*

Commodity	Year										
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Hen Eggs, in shell	46,47	47,21	45,70	52,38	48,05	45,70	50,73	48,20	47,24	40,05	34,27
Indigenous Chicken Meat	24,70	25,60	34,54	41,38	38,50	30,26	29,20	30,86	30,80	43.12	33,09
Indigenous Turkey Meat	6,60	6,64	7,06	7,51	11,36	8,77	8,12	-	8,86	-	-

*Source of data: FAOSTAT

Table 5: Total No of *Gallus gallus* poultry in Croatia 2010-2011

Year	Type of <i>Gallus gallus</i> poultry	Total No of flocks	Total no poultry
2011	Breeding flocks	147	233772
2011	Laying hens	317	2331279
2011	Broilers	3004	36179783
2010	Broilers	2093	36627830
2010	Laying hens	308	2268058
2010	Breeding flocks	123	546267

2.2 Structure of the production of feed

Organisation of and method for feed production

Feed business operators are authorised and registered pursuant to the Veterinary Act (Official Gazette 46/07, 55/11) and the Food Act (Official Gazette 46/07, 55/11). Veterinary Public Health Sector within Veterinary Directorate is responsible for drafting legislation in the area of feedingstuffs, approval and registration of the establishments dealing with feed, maintaining the registers of all approved and registered establishments dealing with feed and publishing registers on the website of MA.

Current situation regarding approved/registered feed business establishments in Croatia is as follows:

- 130 approved establishments dealing with feed
- 1197 registered establishments dealing with feed
- 148 registered establishments for production dealing with feed
- 291 registered family agricultural holdings dealing with feed

Data available at <http://www.mps.hr/default.aspx?id=5905>.

Table 6: Data on feed production in 2009

Premixes	13.092 t
Pigs	186.637 t
Cattle	99.268 t
Poultry	281.797 t
Other Animals	9.784 t

Source – Croatian Chamber of Economy (CCE)
Croatian Feed Industry Association (CFIA) –associate member FEFAC-a

Table 7: Data on import & export compound feed and premixes in 2009

Import compound feed from EU	23.757 t
Import compound feed from third countries	1.363 t
Export compound feed and premixes in EU	468t
Export compound feed and premixes in third countries	15.936 t

Source – Croatian Chamber of Economy (CCE)

2.3 Relevant guidelines for good animal husbandry practices or other guidelines mandatory or voluntary) on biosecurity measures

Guidelines of good manufacturing practice

The guidelines of good manufacturing practice are stipulated by the Veterinary Act, the Food Act and the implementing secondary regulations. Continuous education of veterinarians, producers and animal holders is conducted through the Croatian Veterinary Chamber, the Croatian Chamber of Economy and the Advisory Services of the Ministry of Agriculture. The guidelines are elaborated in accordance with the recommendations of the European Commission, the World Organisation for Animal Health (OIE) and the latest scientific developments.

Primary production establishments and food and feed business operators must ensure the following:

- implementation of hygienic measures on holdings, in establishments and during transport in a regulated manner,
- implementation of measures for the prevention of disease introduction,
- disposal of biological waste,
- respect of animal welfare.

Croatian Chamber of Economy (CCE)-Croatian Feed Industry Association (CFIA) is associate member FEFAC-a. They developed and published guidelines on GMP in animal feed sector on their website:

<http://www.hgk.hr/wps/portal/!ut/p/s.7.0.A/7.0.P5?legacyWcmClippingUrl=http%3A%2F%2Fhgk.biznet.hr%2Fhgk%2Ftekst3.php%3Fa%3Db%26page%3Dtekst%26id%3D2152%26kid%3D1605%26skid%3D2339>

2.4 Routine veterinary supervision of farms

The animal holder is responsible for the care of poultry health and welfare on the holding. Approved veterinarians are conducting supervision on holdings and establishments on a daily basis. The Veterinary Act and the Order on measures to protect animals from infectious and parasitic diseases and the financing thereof in 2011 and 2012 regulates the obligations of authorised veterinary organisations relating to regular control of holdings regarding animal diseases and reporting to county veterinary inspectors.

Approved veterinarians and veterinary inspectors also conduct regular supervision regarding control of animal welfare on farms and sampling within the national residue monitoring programme.

Veterinary inspectors conduct their regular controls in accordance with the Annual Plan of Activities through out planned are the controls of:

- establishments for breeding, keeping and production of animals;
- veterinary organisations, private practices and veterinary services;
- establishments for slaughter, treatment, processing and storage;
- markets, livestock markets and trade of animals and products of animal origin;
- quarantine facilities;
- implementation of measures for the control of infectious and parasitic diseases of animals;
- trade, use and storage of veterinary medicinal products and veterinary medical devices;
- facilities for hatching of domestic poultry and wild feathered game.

2.5 Registration of farms

Pursuant to the the provisions of Article 38, paragraph 1 of Veterinary Act, farms of ungulates and equidae exceeding 20 conditional animal units, poultry and rabbit farms exceeding 10 conditional animal units, hatcheries, wild game breeding farms, establishments for farming of fish and molluscs and other facilities of aquaculture must comply with the stipulated veterinary-health and zoohygiene conditions.

Pursuant to the provisions of Article 38, paragraph 3 of the Veterinary Act, all farms are to be registered in the Farms Register, which is an integral part of the Central Register of Domestic Animals, the responsibility for which lies with the MA's Veterinary Directorate. The Directorate has entered into contract with the Croatian Agricultural Agency, delegating to it the maintenance of the Central Register of Domestic Animals.

In Croatia all breeding farms of Gallus gallus are registered. Updates on this are kept in the Croatian Agricultural Agency.

2.6 Record keeping at farm

The animal holder must keep and regularly update stipulated records and registers on on all movements of animals/flocks onto and off the holding, deaths, medical treatments including vaccinations and made them available at the request of an authorised person. Laboratory results of sampling for Salmonella should be kept on the holding. All documents must be kept for 5 years. All documents must be available for inspection.

Hatcheries and keepers of breeding flocks are obliged to keep the records on all movements of poultry or hatching eggs onto and/or out of the premises. The records must contain the information on the number of eggs/chickens, date and origin of the final destination. Hatcheries are obliged to keep the evidences prescribed by the Ordinance on conditions to be met by facilities for hatching domestic poultry and game birds (OG 36/95). The evidence contains data on number of eggs intended for incubation, number and percentage of hatched eggs, dates of hatching, hygienic control, hatchery waste etc.

2.7 Documents to accompany animals when dispatched

Certificates accompanying animals when placed on the market

Conditions for placing on the market of animals, products of animal origin and feed are stipulated by the Veterinary Act. Animals, their products and feed must come from holdings or establishments in which stipulated veterinary checks have been conducted.

Internal trade

For internal trade, the animal holder must obtain the certificate of health and place of origin of the animal (hereinafter: internal certificate). The internal certificate is issued by an approved

veterinarian who keeps official records on the issued internal certificates. The trade in animals and products of animal origin is permitted only if a country, a region or the holding from which the animal originates has no trade restrictions, that is no protective measures due to animal diseases have been introduced. The internal certificate may not be issued if, in the place of origin of the animals, the existence of an infectious or parasitic disease which can be transmitted by this species of animal is confirmed.

The internal certificate is a public document and it contains data on the animal holder, the identity of the animal (obligatory identification), its origin and health condition. The certificate guarantees that the animals are included in the implementation of imposed measures, that the animals for slaughter are included in the residue monitoring programme, that the animals are not medically treated and, if treated, that the stipulated withdrawal period for permitted veterinary medicinal products has expired, and that they are not treated with prohibited veterinary medicinal products and hormone preparations. The certificate confirms that in the place of origin of the animals or of their keeping, the existence of infectious diseases which can be transmitted by this species of animals has not been confirmed.

International trade

Consignments of animals, products of animal origin and feed must be checked and certified before dispatching to other country in the manner laid down in the legislation of the country of destination.

Ordinance on issuing the certificates for live animals and products of animal origin in international trade (OG 137/08, 97/09) which is aligned with Council Directive 96/93/EC lays down the rules to be observed in issuing the certificates required by veterinary legislation. Ministry of agriculture is in charge of issuing the original certificates, with serial number and water stamp, and for the distribution to the veterinary organisations whose veterinarians are authorised as certifying officers. Copies of the issued certificates must be kept for three years. During the check at the place of dispatch it is controlled whether the consignment fulfils the stipulated conditions for dispatch to the country of destination. In the certification procedure it is checked whether the stipulated checks or tests have been carried out and whether the consignments of animals or products fulfil the stipulated conditions.

The international health certificate or public health certificate for the consignment (hereinafter: certificate) confirms that at the consignment's place of origin the stipulated veterinary checks were conducted and that all guarantees listed in the certificate have been fulfilled. The certification procedure is conducted and the certificate is confirmed by the official veterinarian. In individual cases, in regions where an official veterinarian has not been appointed or where a sufficient number of official veterinarians have not been appointed, the certificate may be confirmed by an approved veterinarian. In the certification procedure an authorised/official veterinarian verifies whether the stipulated checks or tests have been carried out and whether the consignments of animals or products fulfil the stipulated conditions.

The certification procedure is same for commodities of products of animal origin as for commodities of live animals.

An approved veterinarian is a veterinarian designated to conduct activities that are to be performed by authorized veterinary organizations, except activities of veterinary examinations and checks for the purposes of the veterinary organization in which he is employed. The person eligible for the position of an approved veterinarian can be a veterinarian with at least two years of work experience in the profession, holding a license and having passed the state occupational examination for an approved veterinarian. An approved veterinarian is designated by the Director of VD at the proposal of an authorized veterinary organization. VD keeps and updates a register of approved veterinarians.

An official veterinarian is appointed by the minister. An official veterinarian must have three years of experience in positions requiring the qualification of a veterinarian and requiring a valid license as well as completed practical training during the probationary period in the duration of at least 200 hours, under the supervision of other official veterinarians. An official veterinarian must complete training, on an annual basis, designed according to the curriculum drawn up by the VD.

The traceability of the confirmed certificate must be ensured in a manner which enables a connection between the certificate and the official veterinarian who confirmed it. From 1st January 2010 the Ordinance on TRACES (Official Gazette 5/10) setting out an obligation for official bodies and economical operators to use TRACES for certification and CVED procedures has been in force.

2.8 Other relevant measures to ensure the traceability of animals

Hatcheries and keepers of breeding flocks are obliged to keep the records on all movements of poultry or hatching eggs onto and/or out of the premises. The records must contain the information on the number of eggs/chickens, date and origin of the final destination. Hatcheries are obliged to keep the evidences prescribed by the Ordinance on conditions to be met by facilities for hatching domestic poultry and game birds (OG 36/95). The evidence contains data on number of eggs intended for incubation, number and percentage of hatched eggs, dates of hatching, hygienic control, hatchery waste etc.

ANNEX II - PART B

1. Identification of the programme

Disease: Zoonotic Salmonella

Animal population: Broiler flocks of *Gallus gallus*

Request of Community co-financing for year of implementation: 2013

1.1 Contact

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2. Historical data on the epidemiological evolution of the disease

Salmonellosis and *Salmonella* infections in poultry

Salmonellosis and *Salmonella* infections in poultry have been systematically monitored in the Republic of Croatia in the diagnostic laboratory of the Croatian Veterinary Institute since the seventies of the last century. Due to the implementation of strict measures under the National Programme for the Control and Eradication of Fowl Typhoid, *Salmonella*-specific serotypes *S. gallinarum* and *S. pullorum* have become economically insignificant and limited to individual rare cases in extensive production systems (the last case was recorded in 1993).

The development of intensive poultry farming and ever-increasing production and consumption of meat, eggs and related products have facilitated the spread of *Salmonella* infections caused by non-host-specific invasive serotypes – paratyphoid *Salmonellas*, which can not only cause severe infections in poultry, but can also spread through food and cause disease in humans.

Thanks to the systematic and years-long implementation of disease monitoring and control measures prescribed by the annual Order on measures to protect animals from infectious and parasitic diseases and the financing thereof, the total number of isolated *Salmonellas* has significantly decreased.

According to monitoring programme for 2009, 2010 and 2011 all broiler flocks the products of which (fresh meat and/or meat products) were intended for public consumption had to be tested on *Salmonella* spp. presence. Only poultry originating from a flock that has been tested for the presence of salmonella and that were free from *S. Enteritidis* and *S. Typhimurium* and for which the owner had a health certificate not more than 21 days old issued by an official laboratory, may be placed on the market. Broilers of *Gallus gallus* were sampled within three weeks before they were moved to the slaughterhouse.

The baseline study according to Commission Decision 2005/636 has not been carried out but the prevalence is calculated based on data collected throughout regular monitoring

programme. The prevalence of *Salmonella* spp. and *S. Enteritidis* and *S. Typhimurium* in flocks of broilers of *Gallus gallus* sampled within three weeks of leaving the selected holding for slaughter for 2009, 2010 and 2011 was as follows:

Table 1. Results of salmonella monitoring programme for broiler flocks o *Gallus gallus* in 2009-2011

Year	Type of <i>Gallus gallus</i> poultry	Total No of tested flocks	Total No of <i>Salmonella</i> spp. positive flocks	Total No <i>S. Enteritidis</i> positive flocks	Total No <i>S. Typhimurium</i> positive flocks	Total No other <i>Salmonella</i> spp. positive flocks
2009	Breeding flocks	192	0	0	0	0
2009	Laying hens	318	49	47	2	0
2009	Broilers	777	169	36	4	129
2010	Breeding flocks	123	2	2	0	0
2010	Laying hens	308	19	12	0	7
2010	Broilers	2093	58	14	0	44
2011	Breeding flocks	147	1	1	0	0
2011	Laying hens	317	58	14	0	44
2011	Broilers	3004	76	38	3	35

In 2009, 777 broiler flocks were tested on *Salmonella* spp. and out of them 169 flocks were positive on *Salmonella* spp.. The prevalence of *Salmonella* spp. in broiler flocks was 21,75%. Out of that the SE/ST prevalence was 5,14% (36 flocks were SE positive and 4 flocks were ST positive).

In 2010, 2093 broiler flocks were tested on *Salmonella* spp. and out of them 58 flocks were positive on *Salmonella* spp.. The prevalence of *Salmonella* spp. in broiler flocks was 2,77%. Out of that the SE/ST prevalence was 0,67% (14 flocks were SE positive and no flocks were ST positive).

In 2011, 3004 broiler flocks were tested on *Salmonella* spp. and out of them 76 flocks were positive on *Salmonella* spp.. The prevalence of *Salmonella* spp. in broiler flocks was 2,53%. Out of that the SE/ST prevalence was 1,37% (38 flocks were SE positive and 3 flocks were ST positive).

Salmonellosis and *Salmonella* infections in humans

Salmonellosis are the most significant zoonoses in Croatia. On average, about 3500 positive cases of human salmonellosis are reported annually. These are most often the outbreaks caused by *S. Enteritidis*.

In Croatia, most outbreaks are so-called family outbreaks, whereas only a small number of outbreaks are associated with public catering premises and, as a rule, are not linked to industrially produced food and products.

Table 2. DISTRIBUTION OF HUMAN SALMONELLOSIS IN THE PERIOD 1998-2010

Year	Number of diseased	Number of deaths
1998	4288	-
1999	4121	3
2000	5134	3
2001	5620	-
2002	6570	1
2003	5755	4

2004	4940	3
2005	5619	1
2006	4734	1
2007	3331	-
2008	3664	-
2009	3158	1
2010	2098	1

The level of salmonellosis in humans has the lowest figure in 2010 (2098) owing to complex preventive measures aimed to control all possible sources in humans and animals (zoonosis). The most common isolated strains of *Salmonella* spp. from samples of diseased humans are *Salmonella* Enteritidis (84% of all isolates), *Salmonella* senftenberg (2% of all isolates), *Salmonella* typhimurium (1% of all isolates), *Salmonella* infantis (1% of all isolates), *Salmonella* virchow (1% of all isolates), *Salmonella* thompson (1% of all isolates), *Salmonella* derby (1% of all isolates), *Salmonella* coeln (1% of all isolates). Data on human salmonellosis are provided by Croatian national institute of public health.

3. Description of the submitted programme

A concise description of the programme is given with the main objective(s) (monitoring, control, eradication, qualification of herds and/or regions, reducing prevalence and incidence), the main measures (testing, testing and slaughter, testing and killing, qualification of herds and animals, vaccination), the target animal population and the area(s) of implementation and the definition of a positive case.

1. Introduction

The National Programme has been drawn up in accordance with the requirements of the Veterinary Act (OG 41/07), the Ordinance on the control of *Salmonella* and other specified food-borne zoonotic agents (OG 85/12), the Ordinance laying down the procedures for the reduction of the prevalence of *Salmonella enteritidis* and *Salmonella typhimurium* in broilers (OG 72/08), the Ordinance on specific control methods in the framework of the national programmes for the control of *Salmonella* in poultry (OG 72/08) and the Ordinance on harmonised monitoring of antimicrobial resistance in *Salmonella* in poultry and pigs (OG 75/09).

2. Aim of the Programme

To reduce or maintain the low prevalence of *Salmonellas* of public health significance in broiler flocks of *Gallus gallus* intended for slaughter for the production of meat and meat products intended for human consumption, in such a way as to reduce the maximum percentage of flocks of broilers remaining positive for *Salmonella enteritidis* and *Salmonella typhimurium* to 1 % or less by 31 December.

3. Duration of the Programme and the geographical area in which the Programme will be implemented

The 2013 National Programme for the Control of *Salmonella* in Broiler Flocks shall be implemented throughout the Republic of Croatia from 1 January to 31 December of the calendar year.

4. Animal population covered by the Programme

The programme covers all flocks of *Gallus gallus* chickens reared for the purpose of producing meat and/or meat products for human consumption.

"Flock" means all poultry of the same health status kept on the same premises or in the same enclosure and constituting a single epidemiological unit; in the case of housed poultry; this includes all birds sharing the same airspace.

5. Laboratories

5.1. Laboratory testing of samples taken from poultry

5.1.1. National reference laboratories

- a) The national reference laboratory for *Salmonella* in poultry is the Croatian Veterinary Institute – Poultry Centre, Heinzelova 55, Zagreb.
- b) The national reference laboratory for antimicrobial resistance in animals is the Croatian Veterinary Institute Zagreb, Department for Bacteriology and Parasitology, Laboratory for General Bacteriology and Microbiology, Savska cesta 143, Zagreb

5.1.2. Official laboratories

Other official laboratories involved in the implementation of this Programme are these:

- Croatian Veterinary Institute Zagreb, Savska cesta 143, Zagreb;
- Croatian Veterinary Institute, Regional Branch Split, Poljička cesta 33, Split;
- Croatian Veterinary Institute, Regional Branch Križevci, Zakmardijeva 10, Križevci;
- Croatian Veterinary Institute, Regional Branch Vinkovci, J. Kozarca 24, Vinkovci;
- Croatian Veterinary Institute, Regional Branch Rijeka, Podmurvice 29, Rijeka;
- Bioinstitut d.o.o., R. Steinerja 7, Čakovec.

5.1.3. Laboratory testing of samples

Samples are prepared and tested in a laboratory in accordance with the requirements set forth in the Ordinance laying down the procedures for the reduction of the prevalence of *Salmonella enteritidis* and *Salmonella typhimurium* in broilers (Official Gazette 72/08) and the Ordinance on harmonised monitoring of antimicrobial resistance in *Salmonella* in poultry and pigs (Official Gazette 75/09).

The method recommended by the European Community Reference Laboratory (CRL) for *Salmonella* in Bilthoven, the Netherlands, is used for the isolation of the agent.

This method is described in the current version of Annex D of HRN EN/ISO 6579: 2003: „Detection of *Salmonella* spp. in animal faeces and in samples of the primary production stage“. At least one isolate is serotyped according to the Kaufmann-White scheme.

5.1.4. Testing results

In accordance with items 2 and 4 of Annex to the Ordinance laying down the procedures for the reduction of the prevalence of *Salmonella Enteritidis* and *Salmonella Typhimurium* in broilers (Official Gazette 72/08), a flock of broilers shall be considered positive:

- where the presence of *S. Enteritidis* and/or *S. Typhimurium* (other than vaccine strains) is detected in the tested sample;
- where the presence of *S. Enteritidis* or *S. Typhimurium* is not detected but antimicrobials or bacterial growth inhibitory effect are detected, and there is no appropriate proof of treatment of other diseases.

5.2. Laboratory testing of samples of animal feedingstuffs for the presence *Salmonella* spp bacteria.

The official laboratories for the testing of samples of animal feedingstuffs are approved according to the provisions of the Ordinance on accreditation of the official and reference laboratory for food and feed (Official Gazette 86/10).

6. Sampling and official controls

A broiler flock intended for slaughter means poultry of the same species and age kept on the same premises and reared for the production of meat and/or meat products intended for

human consumption. All flocks the products of which (fresh meat and/or meat products) are intended for public consumption must be tested for the presence of *S. Enteritidis* and *S. Typhimurium* on official samples submitted to an approved laboratory. A laboratory report shall be issued on the basis of an officially submitted sample.

Only poultry originating from a flock that has been tested for the presence of *S. Enteritidis* and *S. Typhimurium* and for which the owner has a health certificate not more than 21 days old, issued by an official laboratory, may be placed on the market.

Within the framework of national control programme (routine active monitoring) all samples are taken by authorized veterinarians. FBO are not allowed to take samples within national monitoring programme (for the purpose of the routine active monitoring).

Broilers of *Gallus gallus* will be sampled:

- within three weeks before they are moved to the slaughterhouse. Samples of boot swabs or faeces will be taken inside the house once during that period. In flocks with less than 100 birds the number of composite samples to be taken will depend on the size of the flock.

The sampling shall be carried out in accordance with the requirements set out in Annex II, Part B of the Ordinance on the control of *Salmonella* and other specified food-borne zoonotic agents (Official Gazette 85/12).

Monitoring for antimicrobial resistance

Salmonella isolates collected through this program must be subject to monitoring on antimicrobial resistance in accordance with item 2 of Annex to the Ordinance on harmonised monitoring of antimicrobial resistance in *Salmonella* in poultry and pigs (Official Gazette 75/09).

One isolate of Salmonella serovar from the same epidemiological unit per year will be included for the monitoring purpose (epidemiological unit is flock).

During 2013 at least 170 isolates of Salmonella should be included in the monitoring of antimicrobial resistance. If a smaller number of isolates of the target sample size will be available, all isolates will be tested for the monitoring purpose.

Official laboratories are required to conduct testing of isolates on Salmonella resistance to antimicrobials. If an official laboratory is unable to carry out specified testing, isolates must be submitted to the National Reference Laboratory for antimicrobial resistance of animals specified in Article 2 of the Ordinance on harmonised monitoring of antimicrobial resistance in *Salmonella* in poultry and pigs (Official Gazette 75/09).

The use of antimicrobials is done according to Ordinance on specific control methods in the framework of the national programmes for the control of salmonella in poultry (Official Gazette 72/08) which is fully aligned with the Regulation 1177/2006. Antimicrobials are not used routinely; the application of the same is under strict control of authorised veterinarians and competent veterinary inspectors. Only authorized antimicrobials are allowed to be used in the and only veterinarian may use antimicrobials.

Each treatment of a flock must be recorded in the official document called *Records on Animal Treatment and Waiting Period*. A competent veterinary inspector or official veterinarian is caring out controls on the use of antimicrobials on farms regularly.

Antimicrobials may be used only after authorization by and under supervision of the veterinary inspector and they may be applied only in poultry showing clinical signs of the disease suggesting that an excessive suffering of birds could occur. Results of bacteriological examination and antimicrobial susceptibility test must be available prior to the treatment. In the exceptional cases, antimicrobials may be applied prior to the results of bacteriological examination and anti-microbial susceptibility test are available, provided that samples are

taken by the authorised veterinarian and under the supervision of veterinary inspector prior the application. If sampling has not been performed prior the application of antimicrobials, flocks shall be considered infected by *Salmonella*.

The antimicrobials specified in Table 2. of Decision 2007/407 must be tested using the cut-off values given and the appropriate concentration range to determine the susceptibility of *Salmonella*. Dilution method is used as described by EUCAST and CLSI. The results on MR monitoring are collected according to Directive 2003/99.

The following antimicrobials and the cut-off values are used to determine susceptibility and included for *Salmonella* testing:

	Antimicrobial	Cut-off value (mg/L) R >
Salmonella	Cefotaxime	0,5
	Nalidixic acid	16
	Ciprofloxacin	0,06
	Ampicillin	4
	Tetracycline	8
	Chloramphenicol	16
	Gentamicin	2
	Streptomycin	32
	Trimethoprim	2
	Sulphonamidws	256

Dilution methods is performed according to the methods described by the European Committee on Antimicrobial Susceptibility Testing (EUCAST) and the Clinical and Laboratory Standards Institute (CLSI), accepted as international reference method (ISO standard 20776-1:2006). It is also recommended that the selected isolates of *S. Enteritidis* and *S. Typhimurium* are phage typed.

The data on broiler flocks in the country were taken from the Farm Register and are regularly updated. In the Republic of Croatia, broilers are most often slaughtered between the age of 35 and 42 days. If the farming technology involves the thinning of the flock prior to slaughter, the *Salmonella* status of the flock must be known before the birds are sent for slaughter.

In accordance with paragraph 1, item (c) of Annex to the Ordinance laying down the procedures for the reduction of the prevalence of *Salmonella enteritidis* and *Salmonella typhimurium* in broilers (Official Gazette 72/08), on holdings with several flocks the Veterinary Directorate may exceptionally approve the sampling of at least one flock of broilers per round if:

- an all in/all out system is used;
- the same management applies to all flocks;
- feed and water supply is common to all flocks;
- there is evidence that during one year at least six rounds *Salmonella* spp were tested according to the prescribed testing scheme in all flocks on the holding and samples of all flocks in all rounds were taken by an approved veterinary organisation; and
- all results from the testing for *S. Enteritidis* and *S. Typhimurium* were negative.

The operator shall submit a request for approval and accompanying documents to the Veterinary Directorate.

Official controls at the primary production stage

Each year 10% of holdings with more than 5000 broilers, selected at random, must be tested for *Salmonella*. At least one flock per holding must be tested. The random selection will take into account the size of holding and geographical distribution.

Particular attention will be given to holdings where *S. enteritidis* and/or *S. typhimurium* were detected in the previous fattening cycle. Sampling must also be done on a risk basis each time

the responsible veterinary inspector or the body responsible for the implementation of this Programme considers it necessary.

Samples for the purposes of official control at the primary production stage shall be taken by official veterinarians.

Samples must be submitted for testing to the National Reference Laboratory. Laboratory analysis of samples shall be carried out in accordance with the provisions of the Ordinance laying down the procedures for the reduction of the prevalence of *Salmonella enteritidis* and *Salmonella typhimurium* in broilers (Official Gazette 72/08) and the Ordinance on harmonised monitoring of antimicrobial resistance in *Salmonella* in poultry and pigs (Official Gazette 75/09).

7. Measures to be taken in the event of a confirmed case of salmonellosis

If laboratory analysis confirms the presence of *S. Enteritidis* and/or *S. Typhimurium*, the flock will be considered infected and the responsible veterinary inspector must order the owner to implement the following measures:

- prohibition on the use of antimicrobials for the treatment of broiler flocks infected with *S. Enteritidis* and/or *S. Typhimurium*;
- prohibition on the placing on the market of fresh poultry meat originating from the positive flock;
 - Products originating from this poultry may only be placed on the market for human consumption if they meet the requirements set out in Annex II, Part E of the Ordinance (Official Gazette 85/12) and comply with the provisions of the Ordinance on microbiological criteria for foodstuffs (Official Gazette 74/08, 156/08, 89/10 i 153/11).
- appropriate cleaning, washing and disinfection of buildings, instruments and utensils at places where poultry feed is produced and stored;
- cleaning, washing and disinfection of vehicles using appropriate disinfectants;
- disinfection, disinfestation and deratisation of infected poultry premises; upon completion of disinfection, its efficiency must be bacteriologically tested;
- removal and sanitary treatment of manure in a prescribed way;
- Re-stocking may not take place until negative results have been obtained from disinfection efficiency control;
- When sending positive broiler flocks for slaughter all measures must be taken to minimise the risk of possible spread of disease.

Measures to be taken with regard to a flock positive for other *Salmonellas* of public health significance

In the event of a confirmed case of any other *Salmonella* of public health significance, other than *S. enteritidis* or *S. typhimurium*, the responsible veterinary inspector is obliged to carry out an epidemiological investigation in order to identify the source of infection, paying particular attention to the implementation of biosecurity measures. It will be recommended to the owner to draw up a plan of necessary measures to prevent the introduction and spread of and to eradicate the causative agent.

The use of vaccines against *Salmonella* is not mandatory. Vaccination of poultry as a prophylactic measure to control salmonellosis must be carried out in accordance with the provisions of the Ordinance on specific control methods in the framework of the national programmes for the control of *Salmonella* in poultry (Official Gazette 72/2008);

If live vaccines against *Salmonella* are used, the vaccine manufacturer must provide an appropriate method for bacteriological differentiation between field and vaccine strains. The vaccine manufacturer must send the necessary laboratory diagnostic material to all laboratories approved for the testing of *Salmonella* in poultry.

The procedure for the registration and approval of vaccines is conducted in accordance with the Veterinary Act (Official Gazette 41/07, 55/11) and the Act on Veterinary Medicinal Products and Veterinary Medical Devices (Official Gazette 84/08).

Article 71 of the Ordinance on the quality of animal feed (Official Gazette 26/98, 120/98, 55/99, 76/2003 and 22/06) provides that feed materials and compound feedingstuffs must not contain *Salmonella* spp. in 50 g (zero tolerance).

Any feed which tested positive for *Salmonella* must be sent for safe disposal in accordance with the Ordinance on animal by-products not intended for human consumption (Official Gazette 87/2009).

It is not permitted to use antimicrobials as a specific method to control any salmonella in broiler flocks. In case treatment must be carried out, the same must be done in accordance with the provisions of the Ordinance on specific control methods in the framework of the national programmes for the control of *Salmonella* in poultry (Official Gazette 72/08) and the provisions of the Ordinance on harmonised monitoring of antimicrobial resistance in *Salmonella* in poultry and pigs (Official Gazette 75/09).

The treatment of flocks may be conducted only by an approved veterinary organisation or an approved veterinary service.

Each treatment of a flock must be recorded in the *Records on animals treatments and withdrawal periods*.

4. Measures of the submitted programme

4.1 Summary of measures under the programme

Year of implementation of the Programme: 2013

Measures:

X Control

X Testing

X Slaughter of animals tested positive

X Killing of animals tested positive

Vaccination

Treatment of animal products

X Disposal of products

Monitoring or surveillance

4.2 Designation of the central authority in charge of supervising and coordinating the departments responsible for implementing the programme

Describe the authorities in charge of supervising and coordinating the departments responsible for implementing the programme and the different operators involved. Describe the responsibilities of all involved

Competent authorities and organisations included in the Programme implementation

The competent body for the implementation of this Programme, in compliance with Article 3, paragraphs 1 and 2, items (a) and (b) of the Ordinance on the control of salmonella and other specified food-borne zoonotic agents (Official Gazette 85/12) is the Ministry of Agriculture– the Veterinary Directorate.

The competent body for supervision and control of the Programme implementation in the field is the Ministry of Agriculture– Veterinary Directorate - Veterinary Inspection Sector.

Taking and submitting of samples to the laboratory is conducted by approved veterinarians.

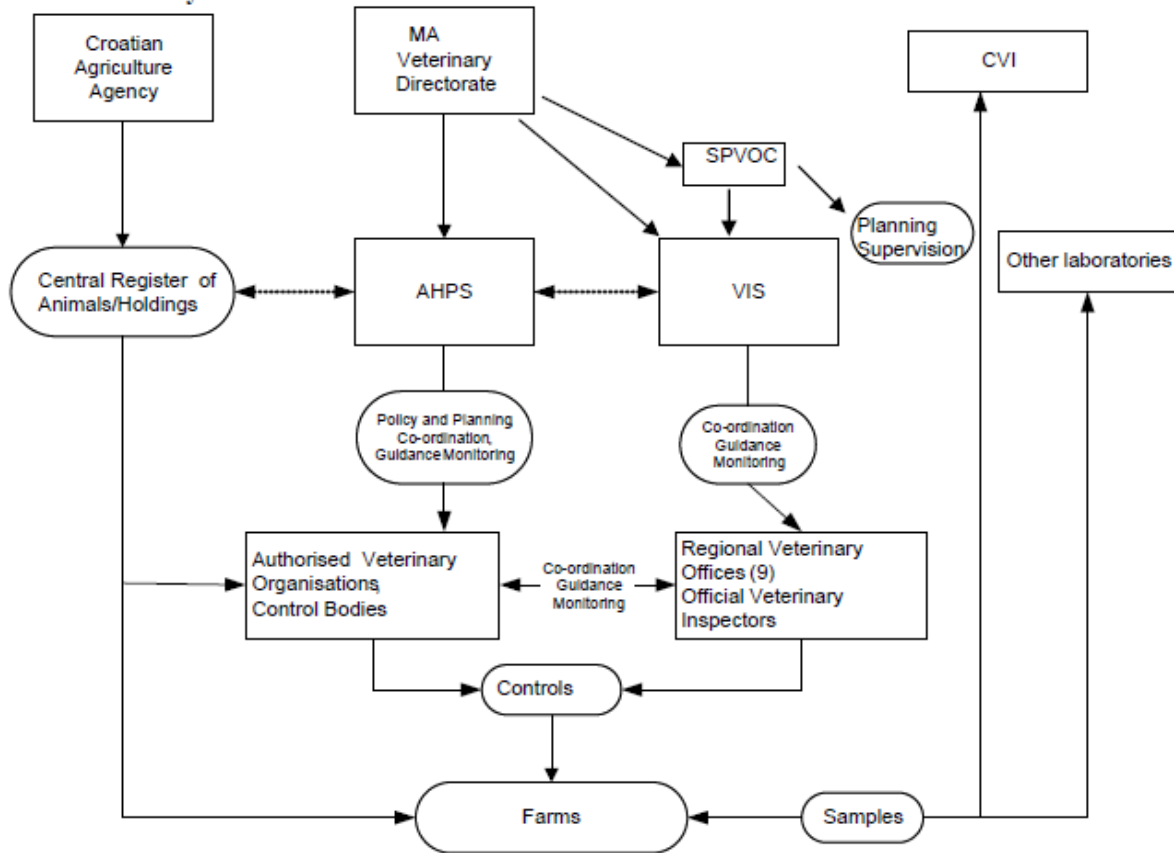
Treatment of flocks may be conducted by approved veterinary organisations or an approved veterinary service in compliance with the provisions of Article 2, paragraph 2, subitem (c) of the Ordinance on specific control methods in the framework of the national programmes for the control of salmonella in poultry (Official Gazette 72/08).

Laboratory diagnostic is done in NRL for salmonella and NRL for AMR as well as in the official laboratories. In August 2010, Croatia issued the "Ordinance on designation of official and

reference laboratories in the implementation of veterinary activities" (OG No 102/10), which provides that all laboratories which perform official control in the field of veterinary medicine including feed and some parts of food of animal origin should be accredited by the Croatian Accreditation Agency to EN ISO 17025:2007.

Information on flow between bodies involved in the implementation of the programme is described in the flow diagram below.

Scheme 2: Control system for animal health in Croatia



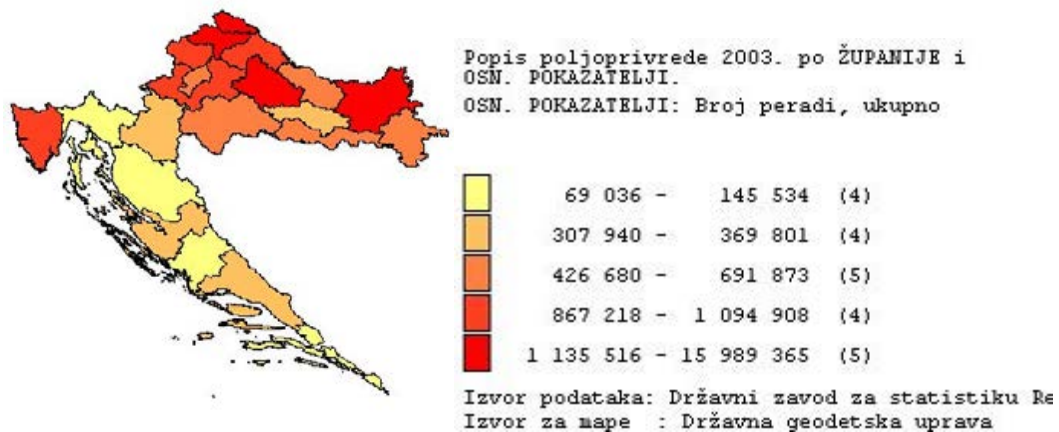
AHPS Animal Health Protection Sector
CAA Croatian Agricultural Agency
CVI Croatian Veterinary Institute
MA Ministry of Agriculture
SPVOC Service for planning and verification of official controls
VIS Veterinary Inspection Service

4.3 Description and delimitation of the geographical and administrative areas in which the programme is to be implemented

Describe the name and denomination, the administrative boundaries, and the surface of the administrative and geographical areas in which the programme is to be applied. Illustrate with maps.

The Programme in Broiler flocks is implemented throughout the Republic of Croatia from 1 January to 31 December.

Scheme 2. Area of programme implementation and Distribution of poultry farms density per counties



4.4 Measures implemented under the programme

4.4.1 Measures and applicable legislation as regards the registration of holdings

Pursuant to the provisions of Article 38, paragraph 1 of Veterinary Act, farms of ungulates and equidae exceeding 20 conditional animal units, poultry and rabbit farms exceeding 10 conditional animal units, hatcheries, wild game breeding farms, establishments for farming of fish and molluscs and other facilities of aquaculture must comply with the stipulated veterinary-health and zoohygiene conditions.

Pursuant to the provisions of Article 38, paragraph 3 of the Veterinary Act, all farms are to be registered in the Farms Register, which is an integral part of the Central Register of Domestic Animals, the responsibility for which lies with the MA's Veterinary Directorate. The Directorate has entered into contract with the Croatian Agricultural Agency, delegating to it the maintenance of the Central Register of Domestic Animals.

In Croatia all broiler farms of *Gallus gallus* are registered. Updates on this are kept in the Croatian Agricultural Agency.

Ordinance on animal health conditions governing trade with EU and imports from third countries of poultry and hatching eggs (OG 83/09, 107/11) is alligned with Directive 90/539 and Directive 2009/158.

4.4.2. Measures and applicable legislation as regards the identification of animals

Not applicable to the poultry

4.4.3 Measures and applicable legislation as regards the notification of the disease

A detail disease notification procedure is prescribed by Veterinary Act and Ordinance on the notification of animal diseases (OG 62/11,114/11). For the purpose of timely reactions and undertaking of measures for the prevention and eradication of the disease, disease notification is organised as urgent exchange of information between the Veterinary Directorate, Official Laboratories and veterinary services in the field. Any suspicion and confirmed case of all zoonotic diseases must be reported immediately.

Pursuant to reports on disease occurrence issued by veterinary organisations and laboratory reports, the Veterinary Directorate drafts a monthly report about the occurrence and spread of animal diseases in the Republic of Croatia. All monthly reports are regularly published on the web site of the MA (www.mps.hr).

Regarding the international obligations on disease notification, in accordance to the aforementioned Croatian legislation, Veterinary Directorate regularly notifies European Commission (ADNS), World Organisation for Animal Health (WAHIS-OIE) and competent

veterinary authorities of neighbouring countries on primary and secondary disease outbreaks as well as prepare six-monthly and annual reports for OIE.

In order to raise awareness of animal owners on the importance of immediate notification of disease as well as to regain the knowledge of veterinarians and veterinary inspectors on disease notification procedure, a leaflet "Obligatory animal disease notification" has been prepared by Veterinary Directorate and distributed throughout veterinary organisations on all holdings in the country.

4.4.4. Measures and applicable legislation as regards the measures in case of a positive result

Legislation:

- Veterinary Act (Official Gazette 41/07,55/11);
- Ordinance on the control of salmonella and other specified food-borne zoonotic agents (Official Gazette 85/12) aligned with regulation 2160/2003;
- Ordinance laying down the procedures for the reduction of the prevalence of *Salmonella enteritidis* and *Salmonella typhimurium* in broilers (Official Gazette 72/08) aligned with Regulation 646/07;
- Ordinance on specific control methods in the framework of the national programmes for the control of salmonella in poultry (Official Gazette 72/08) aligned with Regulation 1177/2006;
- Ordinance on harmonised monitoring of antimicrobial resistance in salmonella in poultry and pigs (Official Gazette 75/09) aligned with Decision Decision 2007/407;
- Ordinance on the notification of animal diseases (Official Gazette 64/11,114/11);
- Order on measures to protect animals from infectious and parasitic diseases and the financing thereof in callender year;
- Food Act (Official Gazette 46/07,55/11) aligned with regulation 178/2002;
- Ordinance on animal by-products not intended for human consumption (Official Gazette 87/09) aligned with Regulation 1774/2002;
- Ordinance on the authorisation of official and reference laboratories in the area of conducting veterinary activity (Official Gazette 102/10).

A flock of broilers is considered positive:

- when presence of *S. Enteritidis* and/or *S. Typhimurium* (other than vaccine strains) is detected in the tested sample;
- when presence of *S. Enteritidis* or *S. Typhimurium* is not detected, but antimicrobials or bacterial growth inhibitors are detected, and at the same time there is no relevant evidence on treatment of other diseases.

If laboratory analysis confirms the presence of *S. Enteritidis* and/or *S. Typhimurium*, the flock will be considered infected and the responsible veterinary inspector must order the owner to implement the following measures:

- prohibition on the use of antimicrobials for the treatment of flocks infected with *S. Enteritidis* and/or *S. Typhimurium*;
- prohibition on the placing on the market of fresh poultry meat originating from the positive flock;
 - Products originating from this poultry may only be placed on the market for human consumption if they meet the requirements set out in Annex II, Part E of the Ordinance (Official Gazette 85/12) and comply with the provisions of the Ordinance on microbiological criteria for foodstuffs (Official Gazette 74/08, 156/08, 89/10 i 153/11).
- appropriate cleaning, washing and disinfection of buildings, instruments and utensils at places where poultry feed is produced and stored;
- cleaning, washing and disinfection of vehicles using appropriate disinfectants;
- disinfection, disinfestation and deratisation of infected poultry premises; upon completion of disinfection, its efficiency must be bacteriologically tested;
- removal and sanitary treatment of manure in a prescribed way;

- Re-stocking may not take place until negative results have been obtained from disinfection efficiency control;
- When sending positive flocks for slaughter all measures must be taken to minimise the risk of possible spread of disease.

It is not permitted to use antimicrobials as a specific method to control any salmonella in broiler flocks. In case treatment must be carried out, the same must be done in accordance with the provisions of the Ordinance on specific control methods in the framework of the national programmes for the control of Salmonella in poultry (Official Gazette 72/08) and the provisions of the Ordinance on harmonised monitoring of antimicrobial resistance in Salmonella in poultry and pigs (Official Gazette 75/09).

The treatment of flocks may be conducted by an approved veterinary organisation or an approved veterinary service.

Each treatment of a flock must be recorded in the Records on animal treatments and withdrawal periods.

The use of vaccines against Salmonella is not mandatory. Vaccination of poultry as a prophylactic measure to control salmonellosis must be carried out in accordance with the provisions of the Ordinance on specific control methods in the framework of the national programmes for the control of Salmonella in poultry (Official Gazette 72/2008). If live vaccines against Salmonella are used, the vaccine manufacturer must provide an appropriate method for bacteriological differentiation between field and vaccine strains. The vaccine manufacturer must send the necessary laboratory diagnostic material to all laboratories approved for the testing of Salmonella in poultry.

The procedure for the registration and approval of vaccines is conducted in accordance with the Veterinary Act (Official Gazette 41/07, 55/11) and the Act on Veterinary Medicinal Products and Veterinary Medical Devices (Official Gazette 84/08).

4.4.5. Measures and applicable legislation as regards the different qualifications of animals and herds

A broiler flock intended for slaughter means poultry of the same species and age kept on the same premises and reared for the production of meat and/or meat products intended for human consumption. All flocks the products of which (fresh meat and/or meat products) are intended for public consumption must be tested for the presence of *S. Enteritidis* and *S. typhimurium* on official samples submitted to an approved laboratory. Only poultry originating from a flock that has been tested for the presence of *S. enteritidis* and *S. typhimurium* and for which the owner has a health certificate not more than 21 days old, issued by an official laboratory, may be placed on the market.

"Flock" means all poultry of the same health status kept on the same premises or in the same enclosure and constituting a single epidemiological unit; in the case of housed poultry; this includes all birds sharing the same airspace.

4.4.6. Control procedures and in particular rules on the movement of animals liable to be affected or contaminated by a given disease and the regular inspection of the holdings or areas concerned

Within the framework of national control programme (routine active monitoring) all samples are taken by authorized veterinarians. FBO are not allowed to take samples within national monitoring programme (for the purpose of the routine active monitoring).

Official controls of holdings are done according to annual plan of the official controls holdings. Particular attention is given to holdings where one of the relevant Salmonellas was detected in the previous rearing or production cycle. Each year 10% of holdings with more than 5000 broilers, selected at random, must be tested for *Salmonella*. At least one flock per holding must be tested. The random selection will take into account the size of holding and geographical distribution. Particular attention will be given to holdings where *S. Enteritidis* and/or *S. Typhimurium* were detected in the previous fattening cycle

In case of suspicion on Salmonella infection, veterinary inspector will order additional sampling in order to confirm or exclude the suspicion and additional measures have to be done on the holding (movement restrictions for live animals, products, disinfection of the vehicles and equipment etc.). A detailed epidemiological investigation is done in order to determine possible source of the infection. In case diseases is confirmed a detail measures are prescribed for SE/ST positive holding.

Samples for the purposes of official control at the primary production stage shall be taken by official veterinarians. All samples taken for the purpose of the official control must be tested in NRL for Salmonella in poultry. In case diseases is confirmed a detail measures are prescribed for SE/ST positive holding.

Within the framework of national control programme (routine active monitoring) all samples are taken by authorized veterinarians. FBO are not allowed to take samples within national monitoring programme (for the purpose of the routine active monitoring).

4.4.7. Measures and applicable legislation as regards the control (testing, vaccination, ...) of the disease

Testing of broiler flocks is done according to the Ordinance laying down the procedures for the reduction of the prevalence of *Salmonella enteritidis* and *Salmonella typhimurium* in broilers (Official Gazette 72/08) aligned with Regulation 646/07 and Annex II, part B of the Ordinance on the control of Salmonella and other specified food-borne zoonotic agents (OG 85/12) which is aligned with Regulation 2160/2003.

Broiler flocks will be sampled within three weeks before they are moved to the slaughterhouse by taking the boot swab samples inside the house.

The use of vaccines against Salmonella is not mandatory. Vaccination of poultry as a prophylactic measure to control salmonellosis must be carried out in accordance with the provisions of the Ordinance on specific control methods in the framework of the national programmes for the control of Salmonella in poultry (Official Gazette 72/2008). If live vaccines against Salmonella are used, the vaccine manufacturer must provide an appropriate method for bacteriological differentiation between field and vaccine strains. The vaccine manufacturer must send the necessary laboratory diagnostic material to all laboratories approved for the testing of Salmonella in poultry. The procedure for the registration and approval of vaccines is conducted in accordance with the Veterinary Act (Official Gazette 41/07, 55/11) and the Act on Veterinary Medicinal Products and Veterinary Medical Devices (Official Gazette 84/08). Vaccination can be done only by authorized veterinary organizations or approved veterinary services. Currently only one vaccine is approved and registered according to the above mentioned legislation – Nobilis Salenvac T (inactivated vaccine), Intervet.

Samples are prepared and tested in a laboratory in accordance with the requirements set forth in the Ordinance laying down the procedures for the reduction of the prevalence of *Salmonella enteritidis* and *Salmonella typhimurium* in broilers (Official Gazette 72/08). The detection of the relevant Salmonella serotypes shall be carried out according to Amendment 1 of HRN EN/ISO 6579: 2003/Amd1:2007. 'Microbiology of food and animal feeding stuffs – Horizontal method for the detection of Salmonella spp. — Amendment 1: annex D: Detection of Salmonella spp. in animal faeces and in environmental samples from the primary production stage. At least one isolate is serotyped according to the Kaufmann-White scheme.

Samples shall be sent by express mail or courier to the official laboratories within 24 hours after collection. If not sent within 24 hours, they must be stored refrigerated. Transportation can be at ambient temperature as long as excessive heat (over 25 °C) and exposure to sunlight are avoided. At the laboratory samples shall be kept refrigerated until examination, which shall be carried out within 48 hours following receipt.

Salmonella isolates collected through this program must be subject to monitoring on antimicrobial resistance in accordance with item 2 of Annex to the Ordinance on harmonised monitoring of antimicrobial resistance in Salmonella in poultry and pigs (Official Gazette 75/09).

It is prohibited to use antimicrobials for the control and treatment of fattening turkey flocks infected by *Salmonella* spp.

Treatment of the flock must be conducted in compliance with the provisions of the Ordinance on specific control methods in the framework of the national programmes for the control of salmonella in poultry (Official Gazette 72/08) which is alligned with Regulation 1177/2006 and the provisions of the Ordinance on harmonised monitoring of antimicrobial resistance in salmonella in poultry and pigs (Official Gazette 75/09).

Antimicrobials must be used on the basis of results of bacteriological examination and antibiograms. A competent veterinary inspector must conduct regular supervision of the use of antimicrobials and he must submit reports on conducted supervision to the Veterinary Directorate once a month (until the 15th of a month for the previous month).

Treatment of an infected flock, in compliance with the Decision issued by a competent veterinary inspector, is conducted by approved veterinary organisations and approved veterinary services. After conducted treatment, it is necessary to conduct a control of efficacy of the conducted therapy in a manner that control samples are taken from poultry twice, on the 7th and 14th day from the beginning of the therapy, and delivered to a laboratory for analysis. Each treatment of a flock must be recorded in the Records on Animal Treatment and Waiting Period.

Official laboratory issues laboratory testing report and sends it to authorized veterinarian, the flock owner and to competent veterinary inspector/official veterinarian.

The veterinary inspector/official veterinarian in charged for the measures in positive flock designates in his official report the slaughterhouse in which positive flock will be slaughtered. Also he has to inform the veterinary inspector in charged for the slaughterhouse that positive flock will come on sanitary slaughter. The same has to be done at least 48 hours before planed slaughter. Upon receipt of information the veterinary inspector in charged for the slaughterhouse informs veterinarian on ante-mortem examination and FBO.

Conditions for placing on the market of animals, products of animal origin and feed are stipulated by the Veterinary Act. Animals, their products and feed must come from holdings or establishments in which stipulated veterinary checks have been conducted.

For internal trade, the flock holder must obtain the certificate of health and place of origin of the animal (hereinafter: internal certificate). The internal certificate is issued by an authorized veterinarian who keeps official records on the issued internal certificates. The internal certificate is a public document and it contains data on the animal holder, the identity of the animal (obligatory identification), it's origin and health condition. The certificate guarantees that the animals are included in the implementation of salmonella programme, that the animals for slaughter are included in the residue monitoring programme, that the animals are not medically treated and, if treated, that the stipulated withdrawal period for permitted veterinary medicinal products has expired, and that they are not treated with prohibited veterinary medicinal products and hormone preparations. In case flock positive on SE/ST is sent on slaughter, the authorized veterinarian must put information into internal certificate on that, especially stating date of official testing, result of testing, unique number of laboratory report and date.

4.4.8 Measures and applicable legislation as regards the compensation for owners of slaughtered and killed animals

Any financial assistance provided to food and feed businesses in the context of the programme.

Compensation for owners of slaughtered or killed flocks is prescribed by Articles 26, 27 and 28 of the Veterinary Act (OG 41/07, 55/11).

Measures of killing or in certain cases emergency slaughter of infected animals or of those suspected of infection, and in the cases of animal welfare protection, disposal of the contaminated objects shall be ordered when the infectious disease can not be successfully and without the risk of spread thereof, be suppressed with the implementation of other measures

stipulated by the Act or when there is no economic justification for the implementation of other measures for the suppression of the disease.

For animals killed, slaughtered or for animals which have died due to the implementation of the ordered measures, as well as for the objects that were damaged or destroyed in the course of the implementation of the ordered measures referred to in Article 26, the animal holder or the owner of the object are entitled to the compensation in the amount of the market value on the day of the implementation of the measure.

The assessment of the value of the animals and objects is carried out by the commission appointed by the CVO, the composition of which must include the competent veterinary inspector. The decision on the entitlement to the damage compensation and on the amount of damage compensation is passed by the CVO upon the proposal of the commission within 60 days, while payment must ensue not later than 90 days from the day of implementation of the measures.

The animal holder or owner of the object is not entitled to damage compensation referred:

- if he failed to immediately report the appearance of the infectious disease and did not treat the animal in the manner stipulated by the of the implementing legislation.
- if he failed to undertake the stipulated or ordered measures for the prevention and control of infectious or parasitic diseases,
- if he transfers the animal from an uninfected to an infected or endangered area or from the infected or endangered area to the uninfected area,
- if he conducts trade of animal contrary to the provisions of Veterinary Act,
- if the animal disease appeared during import or within the duration of quarantine of the imported animal.

Due to the above mentioned:

- Costs of regular sampling and submission of samples to the laboratory are entirely borne by the bird holder. Costs of laboratory examination of samples (salmonellosis and antimicrobial resistance) prescribed by programme are entirely settled from the State Budget.
- Costs of sampling, submission of samples to the laboratory and laboratory examination for the purpose of the official controls are entirely settled from the State Budget.
- Costs incurred by the implementation of measures in case of suspicion/positive results are settled from the State Budget in accordance with the Veterinary Act (Official Gazette 41/07, 55/11).
- Costs of vaccine procurement and preventive vaccination of poultry are entirely borne by the bird holder.
- Costs incurred by the implementation of measures in regard to monitoring of antimicrobial resistance in Salmonella are entirely settled from the State Budget.

4.4.9. Information and assessment on bio-security measures management and infrastructure in place

The guidelines of good manufacturing practice are stipulated by the Veterinary Act, the Food Act and the implementing secondary regulations. Continuous education of veterinarians, producers and animal holders is conducted through the Croatian Veterinary Chamber, the Croatian Chamber of Economy and the Advisory Services of the Ministry of Agriculture. The guidelines are elaborated in accordance with the recommendations of the European Commission, the World Organisation for Animal Health (OIE) and the latest scientific developments.

Primary production establishments and food and feed business operators must ensure the following:

- implementation of hygienic measures on holdings, in establishments and during transport in a regulated manner,
- implementation of measures for the prevention of disease introduction,
- disposal of biological waste,
- respect of animal welfare.

5. General description of the costs and benefits of the programme

A description is provided of all costs for the authorities and society and the benefits for farmers and society in general

In order to assure public health and decrease the possibility of food contamination by zoonotic salmonella serotypes throughout meat and meat products all broiler flocks must be officially sampled and laboratory tested on *S. Enteritidis* and *S. Typhimurium* prior the slaughter. A preliminary calculation was made on the approximate number of tests to be performed in the flocks. The number of calculated tests is based on the total No of samples taken from broiler flocks in 2011 and the testing scheme as provided for in Commission Regulation No 646/2008.

Laboratory testing -total broiler flocks Gallus gallus 2011						
Type of test	No of tests	Type of test	price/per sample	total price (without VAT)	VAT	Total + VAT
Bacteriology testing-isolation Salmonella spp.	6008	Bacteriology testing-isolation Salmonella spp.	13,35 €	80.206,80 €	18.447,56 €	98.654,36 €
Biokemical characterisation API line	76	Biokemical characterisation API	18,41 €	1.399,16 €	321,81 €	1.720,97 €
Serotyping Salmonella spp.	76	Serotyping Salmonella spp.	32,01 €	2.432,76 €	559,53 €	2.992,29 €
Total				84.038,72 €	19.328,91 €	103.367,63 €

Broiler flocks are usually kept until the age of 38-45 days (depending on the technology). The Commission Regulation No 646/2007 requires all relevant broiler flocks to be tested within 3 weeks before leaving for the slaughterhouse in the framework of the routine sampling and at least one flock of all farms where at least 5000 animals are kept to be tested in the framework of official sampling. Within the framework of national control programme (routine active monitoring) all samples are taken by authorized veterinarians and are therefore considered as official samples. FBO are not allowed to take samples within national monitoring programme (for the purpose of the routine active monitoring). Sampling performed by FBO is used only for their self-control purpose.

The number of bacteriological tests planned for the year 2013 represents the estimates of the data of previous years.

In the year 2011, 6008 samples from 3004 broiler flocks were routinely sampled and tested in the framework of programme. Out of that number and based on data from the official laboratories, 126 samples were serotyped and in 76 broiler flocks *Salmonella* spp was confirmed.

According to data on number of tested broiler flocks in 2010 and 2011 it is assumed that in 2013, a 10% increase of production could be expected and increase of number of the bacteriological tests and the costs accordingly.

If we make allowance for this trend, we can establish that in 2013 approximately 6600 bacteriological tests and 150 serotyping tests will be performed in the framework of official sampling.

Costs of compensation for broiler flocks in 2010 and 2011 were 116.539,00 €. Approximately the same value is expected to be paid in 2013.

6. Data on the epidemiological evolution during the last five years: data available only for 2010-2011

Data already submitted via the online system for the years 2007 - 2010 : NO

6.1 Evolution of the zoonotic salmonellosis

6.1.1 Data on evolution of zoonotic salmonellosis for:

Year 2011

Type of flock	Total Number of flocks	Total number of animals	Total number of flocks under the programme	Total number of animals under the programme	Number of flocks checked	Number of positive flocks		Number of flocks depopulated		Total number of animals slaughtered or destroyed		Quantity of eggs destroyed (number or kg)		Quantity of eggs channeled to egg products (number or kg)	
						Serotypes targeted in control programme	Other serotypes	Serotypes targeted in control programme	Other serotypes	Serotypes targeted in control programme	Other serotypes	Serotypes targeted in control programme	Other serotypes	Serotypes targeted in control programme	Other serotypes
Broiler flocks	3004	36.627.830	3004	36.627.830	3004	41	35	41	0	249.696	0	0	0	0	0

Year 2010

Type of flock	Total Number of flocks	Total number of animals	Total number of flocks under the	Total number of animals under the	Number of flocks checked	Number of positive flocks	Number of flocks depopulated	Total number of animals slaughtered or destroyed	Quantity of eggs destroyed (number or kg)	Quantity of eggs channeled to egg products (number or kg)
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			progra mme	progra mme	ked	Serotyp es targete d in control progra mme	Other seroty pes	Serotyp es targete d in control progra mme	Other seroty pes	Serotyp es targete d in control progra mme	Other seroty pes	Serotyp es targete d in control progra mme	Other seroty pes	Serotyp es targete d in control progra mme	Other seroty pes
Broi ler floc ks	2.09 3	36.627. 830	2.093	36.627. 830	2.09 3	14	44	7	0	72.645	0	0	0	0	0

6.2 Stratified data on surveillance and laboratory tests

6.2.1 Stratified data on surveillance and laboratory tests for year: 2011

Animal species (a): Gallus gallus Category (b): Broilers

Description of the used serological tests: Not applicable

Description of the used microbiological or virological tests: Current version of Annex D of HRN EN/ISO 6579: 2003: „Detection of Salmonella spp. in animal faeces and in samples of the primary production stage“.

Description of the other used tests:

Region(c)	Serological tests		Microbiological or virological tests		Other tests	
	Number of samples tested(d)	Number of positive samples(e)	Number of samples tested(d)	Number of positive samples(e)	Number of samples tested(d)	Number of positive samples(e)
CROATIA	0	0	6008	76 (Salmonella spp.)	Biokemical characterisation API line	76
					Serotyping Salmonella spp	76
Total						

(a) Animal species if necessary.

- (b) Category/further specifications such as breeders, laying hens, broilers, breeding turkeys, broiler turkeys, breeding pigs, slaughter pigs, etc, when appropriate.
- (c) Region as defined in the programme of the Member State.
- (d) Number of samples tested.
- (e) Number of positive samples.

6.3 Data on infection for year: 2010-2011

Animal species: Broiles of Gallus gallus

Region(c)	Number of infected herds	Number of infected animals
CROATIA 2010	14 S. Enteritidis	83.231
CROATIA 2011	3 S. Typhimurium	671
CROATIA 2011	38 S. Enteritidis	249.696
Total		

6.4 Data on vaccination or treatment programmes for year 2011

Not applicable-vaccination of broiler flocks has not been carried out.

7. Targets

7.1. Targets related to testing (one table for each year of implementation)

7.1.1. *Targets on diagnostic tests: Sampling 2013*

Animal species: (a): Gallus gallus

Region ^(b)	Type of the test ^(c)	Target population ^(d)	Type of sample ^(e)	Objective ^(f)	Number of planned tests
Croatia	6600	Broiler flocks	Faeces	Surveillance, monitoring	6600
	150	Broiler flocks	Faeces	Surveillance, monitoring	150
	150	Broiler flocks	Faeces	Surveillance, monitoring	150
Total					6900

(a) Animal species if necessary.

(b) Region as defined in the approved control and eradication programme of the Member State.

(c) Description of the test.

(d) Specification of the targeted species and the categories of targeted animals if necessary.

(e) Description of the sample (for instance faeces).

(f) Description of the objective (for instance surveillance, monitoring, , control of vaccination).

7.1.2. Targets on testing of flocks¹

30 flocks are expected to be infected with *S. Enteritidis* and 10 flocks are expected to be infected with *S. Typhimurium*. In total 40 flocks is foreseen to be slaughtered or depopulated. The calculation is based on epi - situation in 2010/2011.

Although only two large companies carried slaughtering of positive flocks originating exclusively from their co-operators and all the other flocks from the producers that were not in cooperation with those companies had to be killed and destroyed due to no interest for such flocks on Croatian market, we did not foreseen slaughtering/culling as you mentioned in the above question.

Year: 2013

Situation on date: 2011

Animal species: Gallus gallus-broiler flocks infection^(a): SE/ST

Region (a1)	Type of flock ^(b)	Total number of flocks ^(c)	Total number of animals	Total number of flocks under the programme	Total number of animals under the programme	Expected number of flocks to be checked ^(d)	Number of flocks ^(e) expected to be positive ^(a)			Number of flocks expected to be depopulated ^(a)		Total number of animals expected to be slaughtered or destroyed ^(a)		Expected quantity of eggs to be destroyed (number or kg) ^(a)		Expected quantity of eggs channelled to egg products (number or kg) ^(a)	
							(a1)	(a2)	(a3)	(a4)	(a3)	(a4)	(a3)	(a4)	(a3)	(a4)	(a3)
Croatia	broilers	3004	36.179.783	3004	36.179.783	3300	30	10	30	40	0	250 000	0	0	0	0	0
Total																	

- (a) For zoonotic salmonellosis indicate the serotypes covered by the control programmes: (a1) for *Salmonella* Enteritidis, (a2) for *Salmonella* Typhimurium, (a3) for other serotypes-specify as appropriate, (a4) for *Salmonella* Enteritidis or *Salmonella* Typhimurium.
- (a1) Region as defined in the approved control and eradication programme of the Member State.
- (b) For example, breeding flocks (rearing, adult flocks), production flocks, laying hen flocks, breeding turkeys, broiler turkeys, breeding pigs, slaughter pigs, etc. Flocks or herds or as appropriate.
- (c) Total number of flocks existing in the region including eligible flocks and non-eligible flocks for the programme.
- (d) Check means to perform a flock level test under the programme for the presence of salmonella. In this column a flock must not be counted twice even if it has been checked more than once.
- (e) If a flock has been checked, in accordance with footnote (d), more than once, a positive sample must be taken into account only once

¹ Specify types of flocks if appropriate (breeders, layers, broilers).

7.2. Targets on vaccination (one table for each year of implementation) – not applicable on broiler flocks of Gallus gallus

8. Detailed analysis of the cost of the programme (one table per year of implementation)

<i>Costs related to</i>	<i>Specification</i>	<i>Number of units</i>	<i>Unitary cost in EUR</i>	<i>Total amount in EUR</i>	<i>Union funding requested (yes/no)</i>
1. Testing					
1.1. Cost of the sampling		<i>0</i>			<i>No</i>
	Domestic animals	<i>0</i>			<i>No</i>
1.2. Cost of the analysis	Bacteriological tests (cultivation) in the framework of official sampling	<i>6.600</i>	<i>13,35</i>	<i>88.110,00</i>	<i>Yes</i>
	Serotyping of relevant isolates	<i>150</i>	<i>35,00</i>	<i>5.250,00</i>	<i>Yes</i>
	Bacteriological test to verify the efficiency of disinfection of poultry houses after depopulation of a salmonella-positive flock	<i>40</i>	<i>13,35</i>	<i>534,00</i>	<i>Yes</i>
	Test for the detection of antimicrobials or bacterial growth inhibitory effect in tissues from birds from flocks tested for salmonella	<i>150</i>	<i>100,00</i>	<i>15.000,00</i>	<i>Yes</i>
	Other (please specify)	<i>-</i>			

2. Vaccination	(If you ask for co-financing for the purchase of vaccines, you should also fill in points 6.4 and 7.2 as vaccination policy should be part of your programme)	0			No
2.1. Purchase of vaccine doses	Number of vaccine doses	0			No
3. Slaughter and destruction					
3.1. Compensation of animals	Compensation of animals slaughtered or killed positive on SE/ST	200.000	2.80	560.000,00	Yes
3.2. Transport costs					No

3.3. Destruction costs					No
3.4. Loss in case of slaughtering					No
3.5 Costs from treatment of animal products (milk, eggs, hatching eggs, etc)					No
4. Cleaning and disinfection					No
5. Salaries (staff contracted for the programme only)					No
6. Consumables and specific equipment					No
7. Other costs					No
TOTAL				668.894,00	

NATIONAL PROGRAMME FOR THE CONTROL OF SALMONELLOSIS IN BREEDING TURKEY FLOCKS IN THE REPUBLIC OF CROATIA

ANNEX II - PART A

General requirements for the national salmonella control programmes

(a) State the aim of the programme

The aim of the national control programme is to reduce or maintain the low prevalence of *Salmonella* in breeding turkey flocks significant for public health in a manner that the maximum percentage of adult breeding turkey flock remaining positive to *S. Enteritidis* and *S. Typhimurium* is reduced to 1 % or less in agricultural holdings in the country until 31 December 2012.

The NP in breeding turkey flocks of *Gallus gallus* is implemented throughout the Republic of Croatia from 1 January to 31 December of the calendar year and is fully aligned with the provisions of Regulation 584/2008 which is transposed into Croatian national legislation within the the Ordinance on the reduction of prevalence of *Salmonella* Enteritidis and *Salmonella* Typhimurium in turkeys (Official Gazette 34/10).

Since less than 100 breeding turkey flocks are registered in Croatia the aim of the programme is set to reduce or maintain the low prevalence of *Salmonella* in breeding turkey flocks significant for public health in a manner that no more than one flock of adult breeding turkeys may remain positive by 31 December 2012.

(b) Animal population and phases

Demonstrate the evidence that it complies with the minimum sampling requirements laid down in part B of Annex II to Regulation (EC) of production which sampling must cover

Breeding turkey flocks

- rearing flocks — day-old chicks
 - four-week-old birds
 - two weeks before moving to laying phase or laying unit
- adult breeding flocks — every three weeks during the laying period
 - at the hatchery every three weeks from breeding flocks the eggs of which are used for production of day-old chicks

All breeding turkey flocks comprising at least 250 birds in the country are included in the implementation of the Programme. If there are less than 100 breeding flocks in the country, not more than one adult breeding flock may remain positive.

“Flock” means all poultry of the same health status kept on the same premises or in the same enclosure and constituting a single epidemiological unit; in the case of housed poultry, this includes all birds sharing the same airspace.

The sampling is carried out in accordance with the requirements set out in Annex II, Part B of the Ordinance on the control of *Salmonella* and other specified food-borne zoonotic agents (Official Gazette 105/06) which is fully aligned with Part B of Annex II of Regulation 2160/2003.

(c) Specific requirements

Demonstrate the evidence that it complies with the specific requirements laid down in Parts C, D and E of of Regulation 2160/2003.

Positive finding to *S. Enteritidis* or *S. Typhimurium*

If the positive finding to *S. Enteritidis* or *S. Typhimurium* is confirmed the flock is considered infected and a competent veterinary inspector must order the implementation of the following measures to the bird holder:

- Prohibition of use of antimicrobials for the treatment of breeding flocks (day-old chicks, poultry in breeding and production) infected by salmonellosis caused by *S. Enteritidis* or *S. Typhimurium*;
- All birds in a positive flock (day-old chicks, poultry in breeding and production) must be slaughtered or destroyed so as to reduce as much as possible the risk of spreading salmonella, as follows:
 - Day-old chicks must be destroyed,
 - Poultry in breeding and production, depending on the age, must be destroyed or slaughtered; Slaughtering of birds must be carried out in compliance with special regulations on food hygiene.
 - Meat and products derived from such poultry may only be placed on the market for human consumption if they meet the requirements set out in Annex II, Part E of the Ordinance (Official Gazette 105/06) and comply with the provisions of the Ordinance on microbiological criteria for foodstuffs (Official Gazette 74/08,156/08, 89/10 i 153/11). If not intended for human consumption, such products must be used or disposed of in accordance with the Ordinance on animal by-products not intended for human consumption (Official Gazette 87/09).
 - Non-incubated eggs from a positive flock must be destroyed in accordance with the Ordinance on animal by-products not intended for human consumption (Official Gazette 87/09). However, such non-incubated eggs may be used for human consumption if they are treated in a manner that guarantees the elimination of *S. Enteritidis* and/or *S. Typhimurium* in accordance with the regulations on food hygiene;
 - Where eggs for hatching from flocks in which *S. Enteritidis* or *S. Typhimurium* is present are still present in a hatchery, they must be destroyed in accordance with the Ordinance on animal by-products not intended for human consumption (Official Gazette 87/09);
 - appropriate cleaning, washing and disinfection of premises, devices and equipment in the sites for production and storage of poultry feed.
 - Cleaning, washing and disinfection of vehicles by appropriate disinfection means;
 - Disinfection, disinfestation and deratisation of infected facilities for breeding and keeping of poultry; when disinfection is completed, its efficiency should be bacteriologically controlled. It is prohibited to introduce new poultry into the facility until a negative control result of disinfection efficiency is obtained;
 - Removal and sanitary treatment of manure in a prescribed manner.
 - A competent veterinary inspector must conduct epidemiological investigation to determine a source of infection;

A competent veterinary inspector must conduct epidemiological investigation to determine a source of infection;

Measures to be taken in a breeding turkey flock suspicious of/positive to other salmonella serotypes with public health significance

In case of a suspicion/confirmed presence of any other salmonella serotype with public health significance, except *S. Enteritidis*/ *S. Typhimurium*:

- It is prohibited to use antimicrobials for the treatment of breeding flocks;
- A competent veterinary inspector must conduct epidemiological investigation in order to determine a source of infection focusing on determining the implementation of bio-safety measures;
- The owner/holder of the flock is bound to conduct relevant bio-safety measures on the holding so as to reduce the possibility of introducing the infection as much as possible.

It is prohibited to use antimicrobials for the control and treatment of breeding flocks infected by *Salmonella* spp.

Treatment of the flock must be conducted in compliance with the provisions of the Ordinance on specific control methods in the framework of the national programmes for the control of salmonella in poultry (Official Gazette 72/08), and the provisions of the Ordinance on harmonised monitoring of antimicrobial resistance in salmonella in poultry and pigs (Official Gazette 75/09).

Treatment of the flock may be conducted by approved veterinary organisations and approved veterinary services.

During the treatment and until the termination of treatment efficacy control:

- It is prohibited to move poultry and eggs from the holding except with a special authorisation issued by a competent veterinary inspector;
- It is prohibited to hatch eggs originating from infected flocks. Eggs hatched during the treatment must be collected and destroyed in accordance with the Ordinance on animal by-products not intended for human consumption (Official Gazette 87/09). Where eggs for hatching from flocks in which *S. Hadar*, *S. Virchow* or *S. Infantis* is present are still present in a hatchery, they must be destroyed in accordance with the Ordinance on animal by-products not intended for human consumption (Official Gazette 87/09);
- It is prohibited to move feed from the holding;
- Cleaning and disinfection, disinfestation and deratisation of infected facilities for breeding and keeping of poultry must be conducted; when disinfection is completed, its efficiency should be bacteriologically controlled;
- Cleaning, washing and disinfection of vehicles must be conducted by appropriate disinfection means;
- Removal and sanitary treatment of manure must be conducted in a prescribed manner.

Each treatment of a flock must be recorded in the Records on Animal Treatment and Waiting Period.

Within the framework of national control programme (routine active monitoring) all samples are taken by authorized veterinarians. FBO are not allowed to take samples within national monitoring programme (for the purpose of the routine active monitoring).

(d) Specification of the following points:

1. General

1.1 A short summary referring to the occurrence of Salmonellosis (Zoonotic Salmonella)

A short summary referring to the occurrence of the salmonellosis [zoonotic salmonella] in the Member State with specific reference to the results obtained in the framework of monitoring in accordance with Article 4 of Directive 2003/99/EC of the European Parliament and of the Council OJ L 325, 12.12.2003, p. 31., particularly highlighting the prevalence values of the salmonella serovars targeted in the salmonella control programmes.

Salmonellosis and *Salmonella* infections in poultry

Salmonellosis and *Salmonella* infections in poultry have been systematically monitored in the Republic of Croatia in the diagnostic laboratory of the Croatian Veterinary Institute since the seventies of the last century. Due to the implementation of strict measures under the National Programme for the Control and Eradication of Fowl Typhoid, *Salmonella*-specific serotypes *S. gallinarum* and *S. pullorum* have become economically insignificant and limited to individual rare cases in extensive production systems (the last case was recorded in 1993).

The development of intensive poultry farming and ever-increasing production and consumption of meat, eggs and related products have facilitated the spread of *Salmonella* infections caused by non-host-specific invasive serotypes – paratyphoid *Salmonellas*, which can not only cause severe infections in poultry, but can also spread through food and cause disease in humans.

Thanks to the systematic and years-long implementation of disease monitoring and control measures prescribed by the annual Order on measures to protect animals from infectious and parasitic diseases and the financing thereof, the total number of isolated *Salmonellas* has significantly decreased.

According to monitoring programme for 2011 and 2012 all breeding turkey flocks of comprising at least 250 birds in the country had to be tested on *Salmonella* spp. presence.

All flocks, the products of which are intended for public consumption, must be examined by submitting official samples to an official laboratory.

Only poultry and eggs originating from a flock that has been tested for the presence of salmonella and that were free from *S. Enteritidis*/*S. Typhimurium* and for which the owner had a health certificate not more than 21 days old issued by an official laboratory, may be placed on the market.

Breeding turkeyflocks were sampled according to the following:

- rearing flocks - day-old chicks
 - four-week-old birds
 - two weeks before moving to laying phase or laying unit
- adult breeding flocks — every second week during the laying period
- at the hatchery every three weeks from breeding flocks the eggs of which are used for production of day-old chicks

The baseline study has not been carried out but the prevalence is calculated based on data collected throughout regular monitoring programme. The prevalence of *Salmonella* spp. and *S. Enteritidis* and *S. Typhimurium* in breeding turkey flocks for 2011 was as follows:

Table 1. Results of salmonella monitoring programme for breeding turkey flocks in 2009-2011

Year	Type of Gallus gallus poultry	Total No of tested flocks	Total No of Salmonella spp. positive flocks	Total No S. Enteritidis positive flocks	Total No S. Typhimurium positive flocks
2011	Breeding turkey flocks	14	1	1	0

In 2011, 14 breeding flocks were tested on Salmonella spp. and out of them 1 flock was positive on Salmonella Enteritidis. The prevalence of Salmonella Enteritidis in breeding turkey flocks was 7,14%.

Salmonelloses and Salmonella infections in humans

Salmonelloses are the most significant zoonoses in Croatia. On average, about 3500 positive cases of human salmonellosis are reported annually. These are most often the outbreaks caused by *S. Enteritidis*.

In Croatia, most outbreaks are so-called family outbreaks, whereas only a small number of outbreaks are associated with public catering premises and, as a rule, are not linked to industrially produced food and products.

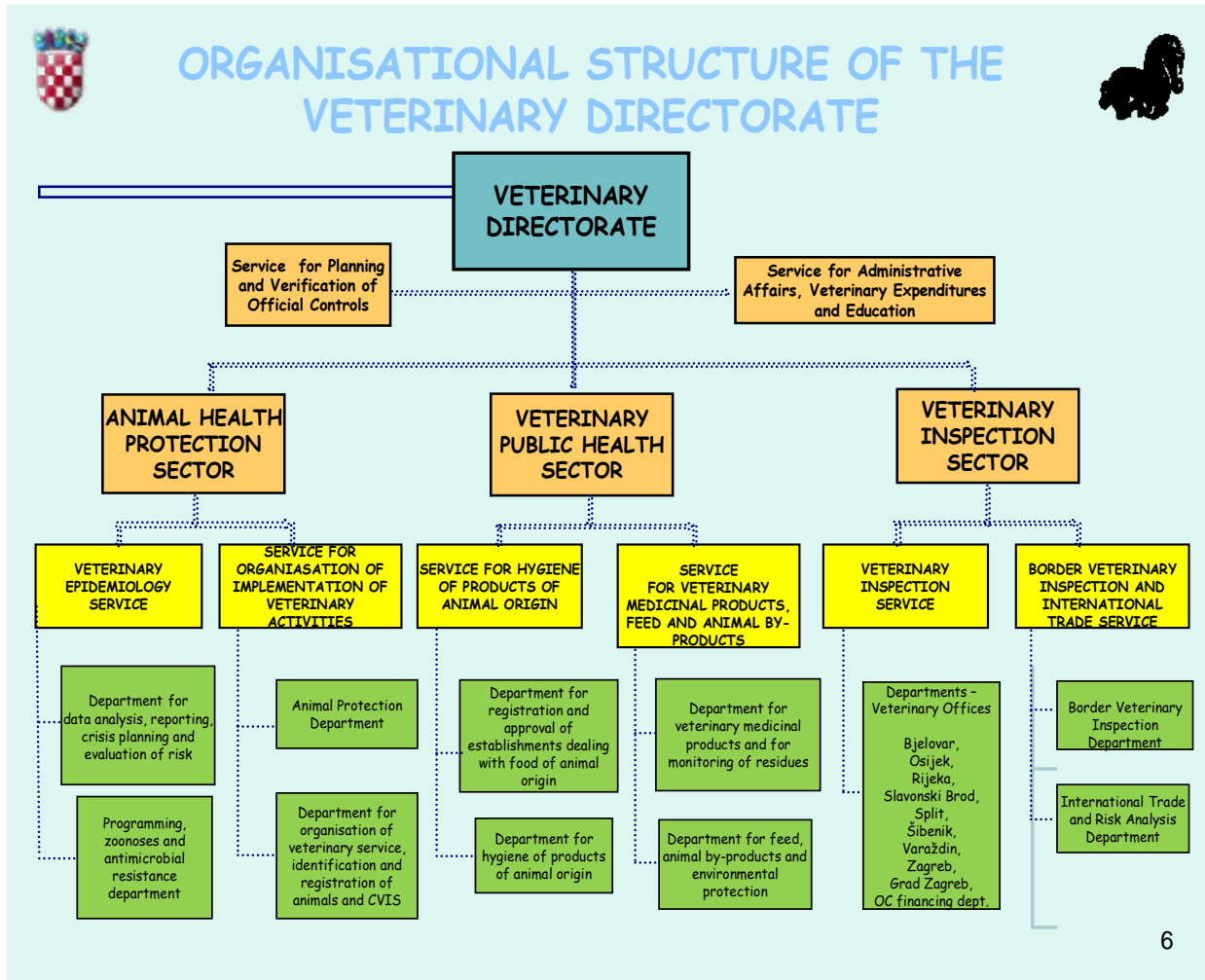
Table 2. DISTRIBUTION OF HUMAN SALMONELLOSIS IN THE PERIOD 1998-2010

Year	Number of diseased	Number of deaths
1998	4288	-
1999	4121	3
2000	5134	3
2001	5620	-

2002	6570	1
2003	5755	4
2004	4940	3
2005	5619	1
2006	4734	1
2007	3331	-
2008	3664	-
2009	3158	1
2010	2098	1

The level of salmonellosis in humans has the lowest figure in 2010 (2098) owing to complex preventive measures aimed to control all possible sources in humans and animals (zoonosis). The most common isolated strains of *Salmonella* spp. from samples of diseased humans are *Salmonella* Enteritidis (84% of all isolates), *Salmonella* senftenberg (2% of all isolates), *Salmonella* typhimurium (1% of all isolates), *Salmonella* infantis (1% of all isolates), *Salmonella* virchow (1% of all isolates), *Salmonella* thompson (1% of all isolates), *Salmonella* derby (1% of all isolates), *Salmonella* coeln (1% of all isolates). Data on human salmonellosis are provided by Croatian national institute of public health.

1.2 The structure and organization of the relevant competent authorities.
Please refer to the information flow between bodies involved in the implementation of the programme.



In accordance with the current internal organisation of MA, the CA in the veterinary field is the Veterinary Directorate.

The Veterinary Directorate has five organisational units:

1. Service for Planning and Verification of Official Controls (SPVOC),
2. Service for Administrative Affairs, Veterinary Expenditures and Education,
3. Animal Health Protection Sector,
4. Animal Public Health Sector,
5. Veterinary Inspection Sector.

The Service for Planning and Verification of Official Controls (SPVOC):

- participates in the preparation of annual plan for official controls of the Veterinary
- inspection service;

- participates in the implementation of risk assessment in establishments dealing with
- food, feed and products of animal origin, in order to determine the appropriate
- frequency of official controls in mentioned establishments;
- monitors the implementation of acts and regulations in the veterinary inspection
- jurisdiction, and the legality of the actions of all veterinary offices in their respective
- areas of jurisdiction; verifies the performance of official controls on the basis of the
- supervision of the veterinary inspectors and official veterinarians and their reports on
- conducted official controls;
- performs official controls in registered establishments, approved establishments and
- establishments approved under special conditions dealing with food and products of
- animal origin, which are under the veterinary inspection competence and in registered
- and approved establishments dealing with feed;
- conduct official controls in registered and approved establishments dealing with
- animal
- by-products and supervises the implementation of official controls in these
- establishments carried out by the state veterinary inspectors and official
- veterinarians;
- performs official controls regarding production and distribution of veterinary
- medicinal
- products and the laboratories which conducts testing and control of veterinary
- medicinal
- products;
- supervises the implementation of monitoring in regard to veterinary inspection;
- performs official controls and supervision on the enforcement of measures for
- preventing and eradication of infectious and parasitic diseases and zoonoses;
- supervises activities of control bodies and authorised veterinary organisations;
- performs official controls on animal welfare, transportation and identification of
- animals;
- performs official controls on production and storage of semen and embryos, as well
- as
- on breeding and reproduction of farm animals;
- performs official controls on laboratories which conduct analysis in the field of
- veterinary medicine;
- participates in the organisation and delivery of training for SVIs, OVAs and AVs;
- participates in the drafting of legislation drawn up by the competent authority and
- performs other duties in accordance with national regulations.

The *Service for Administrative Affairs, Veterinary Expenditures and Education* is competent for monitoring and co-ordination of work on the alignment of legislation in the veterinary field and international agreements in the veterinary field; prepares, monitors and co-ordinates the preparation of regulations governing in the expenditures in field of veterinary medicine, participates in preparation of program funding in the veterinary field (measures for animal health protection and all other measures in the veterinary field of veterinary medicine); prepares proposal for the budget plan for expenditures in field of veterinary medicine; participates in drafting the costs of laboratory diagnostics and analytics monitoring implementation of financing of measures that are paid from the state budget; monitors and aligns Croatian legislation in field of veterinary medicine with the *acquis communautaire* and co-ordinates the work in field of harmonization and application of veterinary legislation, prepares reports of compliance of veterinary legislation with EU legislation, plans legislative actions to transpose and implement the *acquis* relating to the veterinary legislation and follows up and reports on its implementation, participates in the drafting of international treaties and other legal forms of international co-operation in the veterinary field and coordinates process of their execution and implementation; co-operates with the competent authorities of other countries in the field of veterinary medicine and international organizations (Codex); is a contact point for co-ordination with the World organization for animal Health (OIE) develops a draft Pre-Accession Economic program (PEP) in the part relating to the Veterinary Directorate; participates in the process of authorizing official and reference laboratories in the field of

veterinary medicine; is a contact point in co-operation with TAIEX (Technical Assistance and Information Exchange); participates in the preparation of training programs and maintains records of trainings of VD employees and authorized veterinarians and participates in the organization of trainings conducted by the VD, provides technical assistance in the processing of legal issues related to the implementation of laws and within the scope of VD, provides technical assistance in the conduct of officials in the administrative proceedings, gives opinions and explanations concerning the implementation of regulations in field of veterinary medicine; drafts contracts and other civil rights legislation from in the field of veterinary medicine.

The *Animal Health Protection Sector* develops policies and manages activities related to: animal health surveillance and monitoring; control and eradication of animal diseases including zoonoses; contingency planning and crisis management; animal welfare; financing of measures on early detection and eradication of animal diseases, as well as activities related to identification of animals and registration of their movements. It also performs tasks regarding the organisation and functioning of the veterinary service and development and maintenance of the Central Veterinary Information System designed to provide a unified system of all registers and software in the veterinary field. The Sector comprises two Services (Veterinary Epidemiology and Organisation of implementation of veterinary activities) and four departments: Data analysis and contingency planning; Programming and zoonosis; Organisation of veterinary service, identification and registration of animals and CVIS (Central Veterinary Information System) and Animal Protection Department. CVIS will support access or data exchange with information systems from other state organizations, institutes and agencies.

The *Veterinary Public Health Sector* (VPHS) is competent for the safety of: food of animal origin and feed; veterinary medicinal products and veterinary medical devices; monitoring of residues; animal by-products; drafting of legislation and other relevant programmes; organizing educations on implementation of the legislation as well as drafting written instructions for authorised veterinarians, official veterinarians and veterinary inspectors; legal, administrative and related activities. VPHS manages activities related to NCRP, the residue programme for feed and the monitoring programme for bivalves. The Sector comprises two services: Service for Hygiene of Products of Animal Origin and Service for Veterinary Medicinal Products and Feedstuffs.

The *Veterinary Inspection Sector* (VIS) has two services and is organised as it follows:

- *Border Veterinary Inspection and International Trade Service;*
- *Veterinary Inspection Service.*

The Veterinary Inspection Service has ten departments; the Department for Financing Official Controls which is responsible for legal issues and activities related to financing of official controls in the veterinary field and nine Regional Veterinary Inspection Departments (veterinary offices) located in City of Zagreb, Zagreb, Varaždin, Bjelovar, Osijek, Slavonski Brod, Šibenik, Rijeka and Split. These Inspection Departments have 65 branch offices. The veterinary Inspection Service is responsible for implementation of official controls regarding animal health, animal welfare and production, and also in trade of food and feed in line with the Veterinary Act, the Food Act, the Animal Protection Act, and the Act on the Veterinary Medicinal Products. The *Border Veterinary Inspection and International Trade Service* is organised into two departments: the *Border Veterinary Inspection Department* and *International Trade and Risk Analysis Department*. The Border Veterinary Inspection Department is responsible for veterinary checks and controls at BIPs on consignments of animals, products of animal origin, feed of animal origin and other objects that may transmit infectious or parasitic diseases or jeopardise human and animal health. The International Trade and Risk Analysis Department is competent for legal and administrative activities in the field of international trade. These activities include: determining veterinary conditions for the import and transit of consignments of animals and products of animal origin; drafting models of export and import veterinary certificates; keeping abreast of international legislation; drafting of legislation on the control of trade of animals and products of animal origin; drafting orders on security measures for import control of live animals and products of animal origin related to animal diseases and other agents that may harm human and animal health; drafting of the annual monitoring plan for import consignments; and other related activities.

Under the Veterinary Act (OG 41/07, 55/11) official controls are performed by the Official Veterinarians (OV).

Certain tasks of official controls may be delegated to control bodies (veterinary organisations accredited to ISO 17020:1998). Control bodies must be impartial and free from any conflict of interest. According to Article 116 of the Veterinary Act, the costs of veterinary checks, certification, veterinary supervision and monitoring are paid from the state budget. All fees for official controls are paid to the state budget and control bodies are paid from that budget. Under the Ordinance on official controls to ensure the verification of compliance with feed and food, animal health and animal welfare law (OG 99/07, 74/08), administrative measures in case of non-compliance are not delegated. When an authorised veterinarian (AV), performing delegated tasks finds non-compliance, he must notify the OV. The relevant competent authority (CA) may delegate specific tasks to a particular control body under the following conditions:

- There is an accurate description of the tasks to be carried out and the conditions for their implementation;
- There is proof that the control body: has the expertise, equipment and infrastructure required to carry out the tasks delegated to it; sufficient suitably qualified and experienced staff. It must also be impartial and free from conflict of interest as regards the exercise of the tasks delegated to it;
- The control body works to, and is accredited in accordance with, ISO 17020, and communicates the results of the controls carried out to the competent authority;
- There is efficient and effective co-ordination between the delegating competent authority and the control body.

The Ordinance on requirements to be met by veterinary organisations performing veterinary activities (OG 45/09, 80/10) requires the authorized veterinary organizations and control bodies to be impartial and free from any conflict of interest regarding the tasks delegated to them.

138 veterinary organisations, which employ 894 AV, are involved in official controls. According to the Veterinary Act (Official Gazette No 41/07, 55/11) veterinary activities shall be conducted by legal persons through veterinary surgeries, veterinary stations, veterinary hospitals, veterinary clinics, centres for reproduction and artificial insemination, and veterinary pharmacies (veterinary organisations). Veterinary organisations are established as companies. Certain veterinary activities, in accordance with the provisions of the Veterinary Act, are conducted by the Croatian Veterinary Institute as well as by the Faculty of Veterinary Medicine. A veterinary organisation, veterinary practice and veterinary service may be founded provided that an opinion of the Croatian Veterinary Chamber and a veterinary consent of the competent veterinary inspection office have been obtained and may start to conduct their activities on the basis of a Decision on the compliance with the stipulated conditions regarding the arrangement of the facilities, premises, veterinary equipment and professional staff, adopted by the Director at the proposal of an expert commission founded by the Director of the Veterinary Directorate. In the Veterinary Act it is laid down that certain activities can be performed only by veterinary stations and veterinary surgeries which, on the basis of the carried out competition, are authorised by the Veterinary Directorate to perform these activities for the period of 5 years.

According to the Veterinary Act (Official Gazette No 41/07, 55/11) authorised veterinarian may conduct the following activities:

1. veterinary checks and controls on husbandries, farms, livestock markets, animal gatherings, buyout points, facilities for resting of animals, animal exhibitions and other facilities if the veterinary organisation in which he is employed is authorised to do so,
2. issue animal health certificates, certificates for consignments of products of animal origin and feed in internal trade,
3. enforce compulsory identification of animals and keep the stipulated records on the identification and registration of movement animals,
4. implement the stipulated measures for the detection, prevention, combating and control infectious or parasitic diseases,
5. take diagnostic material of animals, samples of products of animal origin and animal waste matter for the purpose of examining the health of animals, i.e. safety of products of animal origin,
6. prohibit the dispatching of animals, products of animal origin and animal waste matter if it is established in the course of a veterinary examination that the consignment has

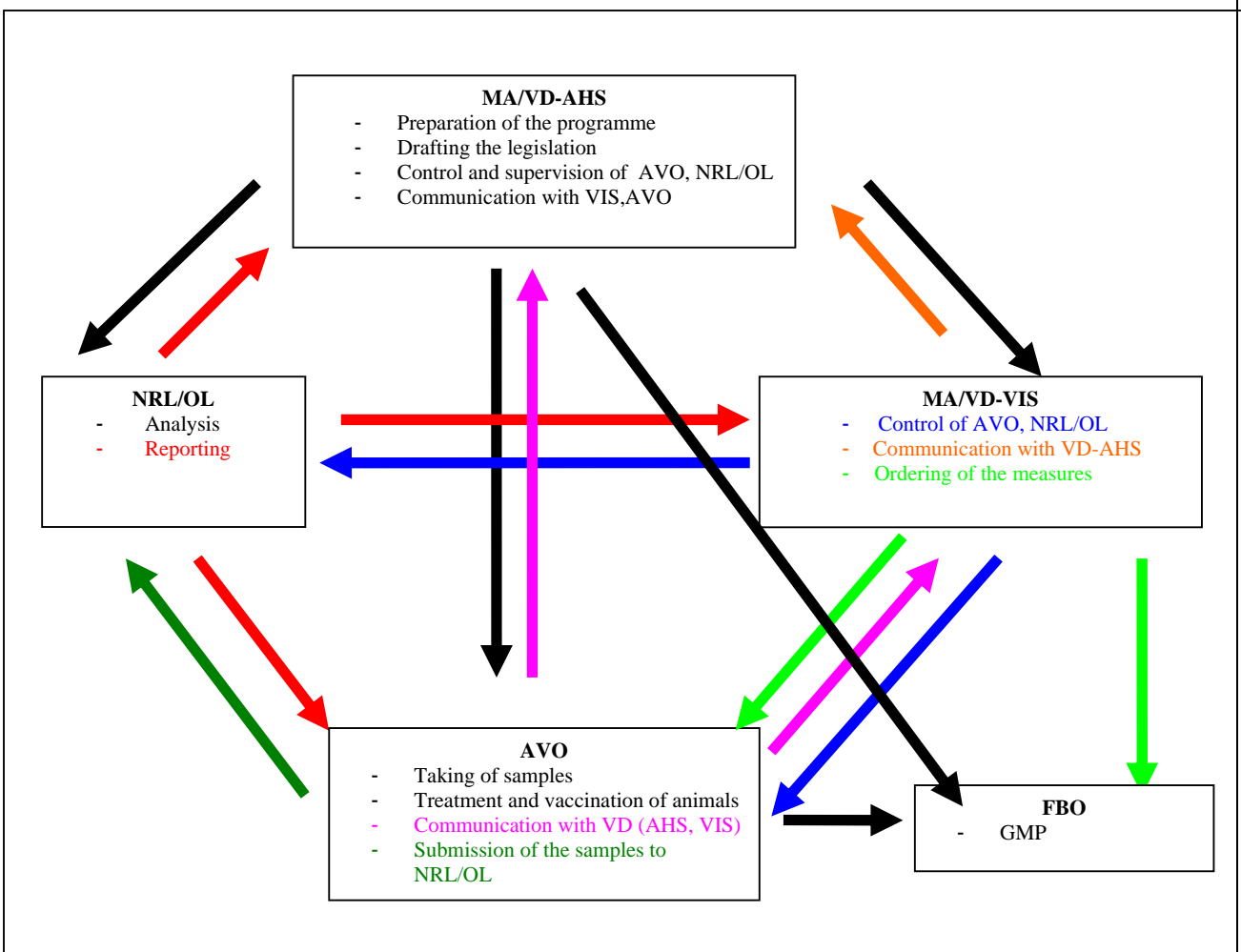
been infected or if contamination is suspected, if it originates from an infected area, if it fails to comply with other stipulated safety conditions, if it is not accompanied by the stipulated and correct documentation, or if the transport vehicle fails to meet the stipulated veterinary conditions.

Epizootiological regions	Authorised veterinary organisations	Authorised veterinarians
Dubrovnik - Neretva County	2	3
Splitsko - Dalmatia County	11	40
Šibensko - Knin County	4	17
Lika - Senj County	7	13
Zadar County	6	20
Primorje - Gorski Kotar County	6	25
Istra County	8	33
Sisak - Moslavina County	8	48
Karlovac County	8	32
City of Zagreb	3	52
Zagreb County	10	104
Varaždin County	5	57
Međimurje County	2	35
Koprivnica - Križevci County	4	96
Virovitica - Podravina County	5	25
SlavonskiBrod - Posavina County	11	34
Požega - Slavonia County	3	24
Osijek - Baranja County	10	67
Vukovar - Srijem County	7	54
Krapina - Zagorje County	7	29
Bjelovar - Bilogora County	11	80
TOTAL	138	894

In August 2010, Croatia issued the "Ordinance on designation of official and reference laboratories in the implementation of veterinary activities" (OG No 102/10), which provides that all laboratories which perform official control in the field of veterinary medicine including feed and some parts of food of animal origin should be accredited by the Croatian Accreditation Agency to EN ISO 17025: 2007.

Information on flow between bodies involved in the implementation of the programme is described in the *flow diagram* below

Flow diagram



Abbreviations:

- MA/VD-AHS – Ministry of Agriculture/Veterinary Directorate-Animal Health Sector
- MA/VD-VIS – Ministry of Agriculture/Veterinary Directorate- Veterinary Inspection Sector
- AVO- authorized veterinary organizations
- NRL-National referent laboratory
- OL – Official laboratory
- FBO-Food business operator

1.3 Approved laboratories where samples collected within the programme are analysed.

NRL IN CROATIA

The national reference laboratory for Salmonella in poultry is the Croatian Veterinary Institute – Poultry Centre, Heinzelova 55, Zagreb.

The national reference laboratory for antimicrobial resistance in animals is the Croatian Veterinary Institute Zagreb, Department for Bacteriology and Parasitology, Laboratory for General Bacteriology and Microbiology, Savska cesta 143, Zagreb

Other official laboratories involved in the implementation of this Programme are:

- Croatian Veterinary Institute Zagreb, Savska cesta 143, Zagreb;
- Croatian Veterinary Institute, Regional Branch Split, Poljička cesta 33, Split;
- Croatian Veterinary Institute, Regional Branch Križevci, Zakmardijeva 10, Križevci;
- Croatian Veterinary Institute, Regional Branch Vinkovci, J. Kozarca 24, Vinkovci;
- Croatian Veterinary Institute, Regional Branch Rijeka, Podmurvice 29, Rijeka;
- Bioinstitut d.o.o., R. Steinerja 7, Čakovec.

Accreditation status of laboratories

The laboratories involved in salmonella national programmes are accredited to the required standards and fully comply with the provisions of the Article 11 and Article 12 of Regulation 2160/2003 and Ordinance on authorization of the official and reference laboratories regarding the implementation of veterinary activities (Official Gazette 102/10).

Due to the above mentioned all official laboratories providing diagnostic testing of the samples taken from poultry within this programme are accredited in accordance with the:

- HRN EN ISO/IEC 17025 standard;
- Current version of Annex D of HRN EN/ISO 6579: 2003: „Detection of *Salmonella* spp. in animal faeces and in samples of the primary production stage“.

Official laboratories are obliged to regularly participate in collaborative testing organised or coordinated by the national reference (NRL). NRL is obliged to organize interlaboratory testing for official laboratories in Croatia at least once per year. Testing for the presence of salmonella is carried out using the methods and protocols recommended by international standardization bodies.

1.4 Methods used in the examination of the samples in the framework of the programme.

Samples are prepared and tested in a laboratory in accordance with the requirements set forth in the Ordinance on the reduction of prevalence of *Salmonella* Enteritidis and *Salmonella* Typhimurium in turkeys (Official Gazette 34/10) and the Ordinance on harmonised monitoring of antimicrobial resistance in *Salmonella* in poultry and pigs (Official Gazette 75/09).

The detection of the relevant *Salmonella* serotypes shall be carried out according to Amendment 1 of HRN EN/ISO 6579: 2003/Amd1:2007. 'Microbiology of food and animal feeding stuffs – Horizontal method for the detection of *Salmonella* spp. — Amendment 1: annex D: Detection of *Salmonella* spp. in animal faeces and in environmental samples from the primary production stage. At least one isolate is serotyped according to the Kaufmann-White scheme.

1.5 Official controls (including sampling schemes) at feed, flock and/or herd level

Official controls at the primary production stage

Control at the level of primary production

Eggs for hatching may be placed on the market or incubated only if they come from salmonella-free flocks (*S. Enteritidis*, *S. Typhimurium*) and if flock holders possess health certificates for the flock issued by an approved laboratory and not older than 21 days. The certificate is issued on the basis of officially submitted samples.

All flocks, the products of which are intended for public consumption, must be examined by submitting official samples to an official laboratory.

Sampling is conducted in compliance with the requirements specified in Part B of Annex II to the Ordinance on the control of salmonella and other specified food-borne zoonotic agents (Official Gazette 105/06) and the Ordinance on the reduction of prevalence of *Salmonella* Enteritidis and *Salmonella* Typhimurium in turkeys (Official Gazette 34/10). Samples for the purposes of official control at the primary production stage shall be taken by official veterinarians.

Samples must be submitted for testing to the National Reference Laboratory for salmonellosis in poultry. Laboratory analysis of samples shall be carried out in accordance with the provisions of Regulation 584/2008.

Official controls on feedingstuffs for the presence of *Salmonella* spp.

In accordance with Articles 66 and 67 of the Food Act (Official Gazette 46/07, 55/11), the competent authority (the Ministry of Agriculture is the central state administration authority in charge of safety, hygiene and quality of food and feed and the organisation of official controls) must ensure that official controls on feed safety are carried out in all stages of production, warehousing, distribution and use.

Regulation (EC) No 882/2004, which lays down the general rules for the organization and implementation of official controls, has been transposed into national legislation through the Ordinance on official controls performed to ensure the verification of compliance with feed and food law, animal health and animal welfare rules (OG 99/07).

An annual action plan of the Veterinary Inspection Sector is distributed to veterinary offices, defines an annual plan for the implementation of official controls as well as feed monitoring carried out by state veterinary inspectors and official veterinarians. Reports on official controls performed are collected once a month, via a web application, from all state veterinary inspectors and are submitted to the Head of the Veterinary Inspection Sector and CVO.

Checklists for carrying out official controls in the veterinary field are prepared in the central office of the Veterinary Directorate and are intended to assist staff carrying official controls. These checklists are distributed to all veterinary offices and their use is mandatory.

Written procedures for carrying out official controls have also been developed and distributed to veterinary offices, as have been the operational instructions for carrying out inspections and audits in the area of food of animal origin.

The annual plan of activities of state veterinary inspectors and official inspectors includes official controls of the following:

- Inspection of veterinary organisations, private veterinary surgeries and veterinary services in performing their veterinary activity;
- Inspection of establishment where animals are bred, kept, and produced
- Inspection of establishments involved in trade in animals, vehicles used for the transportation of animals, and trade in animals;
- Inspection of establishments involved in temporary storage and processing of animal by-products.

Official controls in establishments handling food of animal origin are carried out at a frequency based on risk assessment for each individual establishment. The risk assessment database is kept in the central office of the Veterinary Directorate and is updated as new information becomes available, and the data are sent electronically to field offices.

Official controls and scheme of sampling at feed

All feed businesses operators must satisfy the conditions stipulated by Annex II to the Ordinance on feed hygiene (Official Gazette 41/08) in each of the registered or approved establishments as well as to establish and implement an internal control system based on the HACCP principles, except in registered establishments engaged in primary production or mixing of complementary feed (formerly "superconcentrates") with feed material, where they must satisfy the conditions stipulated by Part A, Annex I to the abovementioned Ordinance.

To define the frequency of official controls in feed establishments, the following risk factors were taken into account:

- type of establishment or risks posed by registered or approved activities
- quantities produced (in tonnes)
- risks posed by used raw materials or products, especially by-products of other industries
- origin of used feed material, feed additives or pre-mixtures (e.g. imports from distant countries)
- product range
- frequency of batch changes (different types of feed for different animal species)
- use of feed additives (coccidiostats) or risk types of feed materials (fishmeal, fish oil).

Drafting of the sampling plan

When defining a number and types of analytical tests within the monitoring plan, as one of the official control methods, risk levels associated with registered or approved activities in feed establishments, produced quantities, types of raw materials or products (including potential by-products of other industries), use of fishmeal or production of medicated feedingstuffs are taken into account. The notifications obtained through the Rapid Alert System for Food and Feed (RASFF) were also taken into account.

The activities carried out in approved establishments are generally considered to be connected with the use of more dangerous or higher risk substances or products. It has been also established that the annual quantities of finished products produced in approved establishments are higher than those in registered establishments, and that such finished products are distributed to a higher number of customers. Consequently, the frequency of sampling and laboratory analyses (monitoring) of raw materials and finished products from approved establishments should be higher than that for other feed establishments.

Criteria for feed sampling for microbiological analysis

Sampling should focus on poultry feed. The sampling records must state the exact category of poultry for which the compound feed is intended (parent flock, breeding chicken, table egg laying hens, laying hens for hatching eggs, broilers) and its age range. The same applies to pig feed, especially that for piglets.

Sampling basically covers *Salmonella spp.* in order to prove the safety of compound feed. Sampling is carried out in accordance with the feed monitoring plan. Article 71 of the Ordinance on the quality of animal feed (Official Gazette 26/98, 120/98, 55/99, 76/2003, 22/06) sets the zero (0) tolerance requirement for *Salmonella spp.* If *Salmonella spp.* are, however, present in compound feed, such feed is safely disposed of.

In accordance with the aforementioned annual plan of official controls and feed monitoring, sampling should be carried out throughout the year. Sampling is carried out in accordance with the provisions of the Ordinance on methods of sampling of feedingstuffs (Official Gazette 128/06), except for sampling of feed for pesticide residues and that for microbiological testing. Sampling for microbiological testing should be based on a random sample taken in the quantity that may be divided into four samples of a minimum 0.5 kg weight.

All columns of the sampling and analytical method records template, which is given in the Annex to the annual plan, should be completed during the sampling procedure.

The original copy of the records should be kept by the official veterinarian or the state veterinary inspector who conducted sampling, a copy of the records delivered to a client/feed business operator, and another copy delivered to a laboratory.

Sampling for monitoring purposes

Only one sample is taken during feed sampling as stipulated by the annual monitoring plan. If the analytical results show that the submitted sample does not comply with the provisions on feed, the veterinary inspector/official veterinarian must take additional samples and request the analytical testing of samples beyond the scope of this monitoring plan. On family farms and agricultural holdings, samples may be taken at the same time the holding is inspected or the live animals on farms monitored for residues.

Sampling for official controls

Sampling for official controls, other than sampling for monitoring purposes, should be targeted, i.e. the official veterinarian or the state veterinary inspector must provide an explanation for each sample taken and analytical test chosen, except in the case of sampling for monitoring purposes.

If samples should be taken and analysed during inspection (other than sampling for monitoring purposes), the veterinary inspector/official veterinarian must notify the client/feed business operator about the right to take two identical official samples. One sample is delivered to the official or the reference laboratory and the other sample is intended for potential re-testing, if so required by the client /feed business operator. After the latter is officially packed (in a sealed packaging), it is kept by the feed business operator. The deadline for requesting repeated analysis is eight days following the date of delivery of analytical results for the first sample to the client /feed business operator.

The client /feed business operator must be informed that the sample should be kept under appropriate storage conditions, which should be identical to those for that specific type of the raw material or the product.

This second sample is sent to the reference laboratory or to the accredited official laboratory for re-testing (this may be the same laboratory which carried out the first analysis). The results of this analysis are final and relevant.

Microbiological criteria control

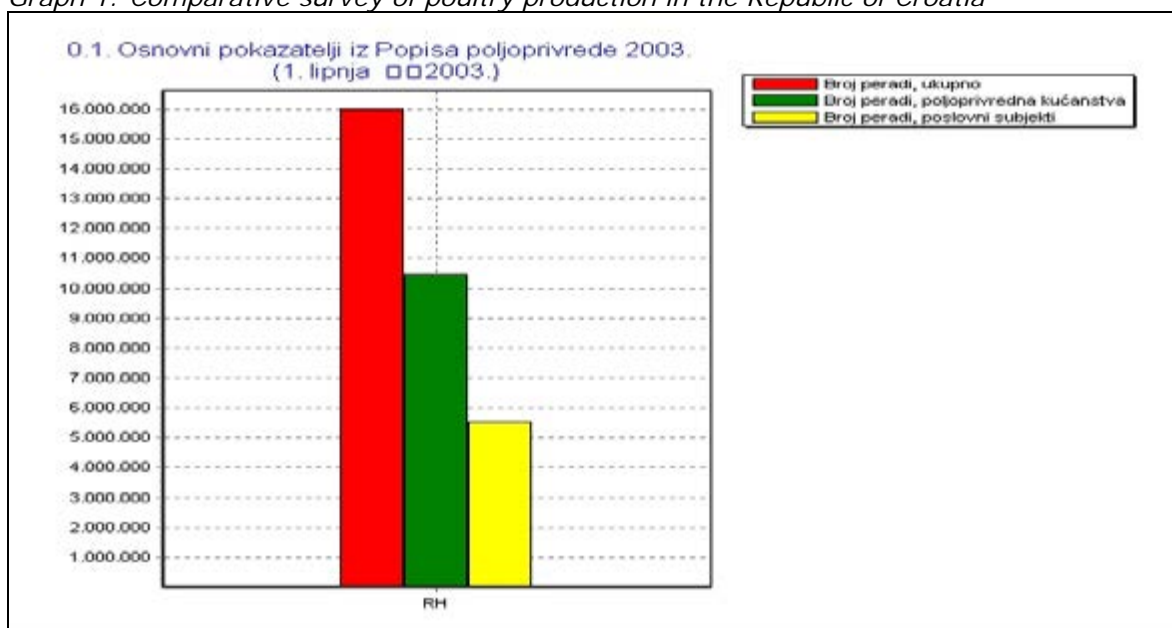
Ordinance on microbiological criteria for foodstuffs (Official Gazette 74/08,156/08, 89/10 i 153/11) requires that samples be taken in slaughterhouses and poultry meat processing plants for bacteriological testing for *Salmonella* spp..

2. Food and business covered by the programme

2.1 The structure of the production of the given species and products thereof

Organisation of and method for poultry production

Graph 1: Comparative survey of poultry production in the Republic of Croatia



O.1 Basic indicators in Agricultural Census 2003 (1 June 2003)

(red) Number of poultry, total

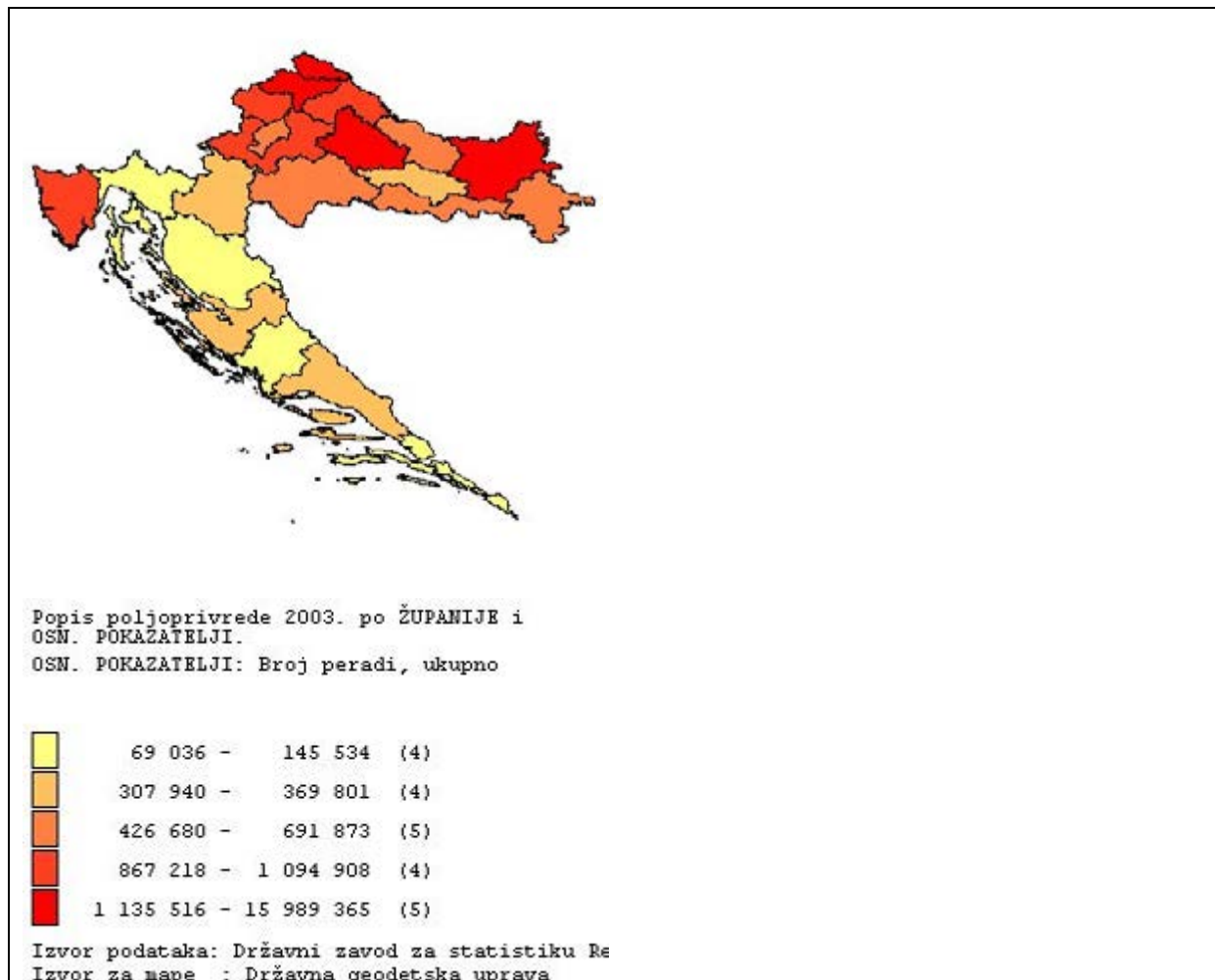
(green) Number of poultry, agricultural holdings

(yellow) Number of poultry, business entities

County	By number of poultry, total	By number of poultry, 1 – 50	By number of poultry, 51 – 100	By number of poultry, 101 – 500	By number of poultry, 501 – 1 000	By number of poultry, 1 001 – 3 000	By number of poultry, 3 001 – 5 000
Total Republic of Croatia	498	204	70	41	15	39	20
Zagreb County	28	14	4	2	0	3	1
Krapina-Zagorje County	17	0	1	1	0	0	1
Sisak-Moslavina County	16	4	3	2	1	1	1
Karlovac County	6	2	0	1	1	1	1
Varaždin County	28	2	3	0	1	1	2

Koprivnica-Križevci County	8	3	1	2	0	1	0
Bjelovar-Bilogora County	45	30	6	2	2	3	0
Primorje-Gorski Kotar County	13	1	2	5	1	3	0
Lika-Senj County	0	0	0	0	0	0	0
Virovitica-Podravina County	26	19	3	3	0	1	0
Požega-Slavonia County	10	5	1	0	0	1	1
Brod-Posavina County	57	25	6	5	0	2	3
Zadar County	5	0	0	0	1	2	0
Osijek-Baranja County	77	37	19	8	2	3	2
Šibenik-Knin County	4	1	0	0	1	2	0
Vukovar-Srijem County	48	25	14	2	2	0	3
Split-Dalmatia County	12	2	0	2	2	4	0
Istra County	24	8	2	1	0	6	1
Dubrovnik-Neretva County	3	0	0	0	1	1	1
Međimurje County	60	25	4	4	0	3	3
The City of Zagreb	11	1	1	1	0	1	0

Scheme 3: Density of poultry per counties *



Agricultural Census 2003 per COUNTIES and BASIC INDICATORS

BASIC INDICATORS: Number of poultry, total

*Source of data: Central Bureau of Statistics of the Republic of Croatia, Croatian Agricultural Agency

Source of maps: State Geodetic Administration

Table 5: Food and Agricultural commodities production*

Commodity	Year										
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Hen Eggs, in shell	46,47	47,21	45,70	52,38	48,05	45,70	50,73	48,20	47,24	40,05	34,27
Indigenous Chicken Meat	24,70	25,60	34,54	41,38	38,50	30,26	29,20	30,86	30,80	43,12	33,09
Indigenous Turkey Meat	6,60	6,64	7,06	7,51	11,36	8,77	8,12	-	8,86	-	-

*Source of data: FAOSTAT

Table 6: Total No of turkeys (breeding and fattening flocks) in Croatia 2010-2011

Year	Total no poultry
2011	609 000
2011	726 000

2.2 Structure of the production of feed

Organisation of and method for feed production

Feed business operators are authorised and registered pursuant to the Veterinary Act (Official Gazette 46/07, 55/11) and the Food Act (Official Gazette 46/07, 55/11). Veterinary Public Health Sector within Veterinary Directorate is responsible for drafting legislation in the area of feedingstuffs, approval and registration of the establishments dealing with feed, maintaining the registers of all approved and registered establishments dealing with feed and publishing registers on the website of MA.

Current situation regarding approved/registered feed business establishments in Croatia is as follows:

- 130 approved establishments dealing with feed
- 1197 registered establishments dealing with feed
- 148 registered establishments for production dealing with feed
- 291 registered family agricultural holdings dealing with feed

Data available at <http://www.mps.hr/default.aspx?id=5905>.

Table 7: Data on feed production in 2009

Premixes	13.092 t
Pigs	186.637 t
Cattle	99.268 t
Poultry	281.797 t
Other Animals	9.784 t

Source – Croatian Chamber of Economy (CCE)
Croatian Feed Industry Association (CFIA) –associate member FEFAC-a

Table 8: Data on import & export compound feed and premixes in 2009

Import compound feed from EU	23.757 t
Import compound feed from third countries	1.363 t
Export compound feed and premixes in EU	468t
Export compound feed and premixes in third countries	15.936 t

Source – Croatian Chamber of Economy (CCE)

2.3 Relevant guidelines for good animal husbandry practices or other guidelines mandatory or voluntary) on biosecurity measures

Guidelines of good manufacturing practice

The guidelines of good manufacturing practice are stipulated by the Veterinary Act, the Food Act and the implementing secondary regulations. Continuous education of veterinarians, producers and animal holders is conducted through the Croatian Veterinary Chamber, the Croatian Chamber of Economy and the Advisory Services of the Ministry of Agriculture. The guidelines are elaborated in accordance with the recommendations of the European Commission, the World Organisation for Animal Health (OIE) and the latest scientific developments.

Primary production establishments and food and feed business operators must ensure the following:

- implementation of hygienic measures on holdings, in establishments and during transport in a regulated manner,
- implementation of measures for the prevention of disease introduction,
- disposal of biological waste,
- respect of animal welfare.

Croatian Chamber of Economy (CCE)-Croatian Feed Industry Association (CFIA) is associate member FEFAC-a. They developed and published guidelines on GMP in animal feed sector on their website:

<http://www.hgk.hr/wps/portal/!ut/p/s.7.0.A/7.0.P5?legacyWcmClippingUrl=http%3A%2F%2Fhgk.biznet.hr%2Fhgk%2Ftekst3.php%3Fa%3Db%26page%3Dtekst%26id%3D2152%26kid%3D1605%26skid%3D2339>

2.4 Routine veterinary supervision of farms

The animal holder is responsible for the care of poultry health and welfare on the holding. Approved veterinarians are conducting supervision on holdings and establishments on a daily basis. The Veterinary Act and the Order on measures to protect animals from infectious and parasitic diseases and the financing thereof in 2011 and 2012 regulates the obligations of authorised veterinary organisations relating to regular control of holdings regarding animal diseases and reporting to county veterinary inspectors.

Approved veterinarians and veterinary inspectors also conduct regular supervision regarding control of animal welfare on farms and sampling within the national residue monitoring programme.

Veterinary inspectors conduct their regular controls in accordance with the Annual Plan of Activities through out planned are the controls of:

- establishments for breeding, keeping and production of animals;
- veterinary organisations, private practices and veterinary services;
- establishments for slaughter, treatment, processing and storage;
- markets, livestock markets and trade of animals and products of animal origin;
- quarantine facilities;
- implementation of measures for the control of infectious and parasitic diseases of animals;
- trade, use and storage of veterinary medicinal products and veterinary medical devices;
- facilities for hatching of domestic poultry and wild feathered game.

2.5 Registration of farms

Pursuant to the the provisions of Article 38, paragraph 1 of Veterinary Act, farms of ungulates and equidae exceeding 20 conditional animal units, poultry and rabbit farms exceeding 10 conditional animal units, hatcheries, wild game breeding farms, establishments for farming of fish and molluscs and other facilities of aquaculture must comply with the stipulated veterinary-health and zoohygiene conditions.

Pursuant to the provisions of Article 38, paragraph 3 of the Veterinary Act, all farms are to be registered in the Farms Register, which is an integral part of the Central Register of Domestic Animals, the responsibility for which lies with the MA's Veterinary Directorate. The Directorate has entered into contract with the Croatian Agricultural Agency, delegating to it the maintenance of the Central Register of Domestic Animals.

In Croatia all broiler farms of *Gallus gallus* are registered. Updates on this are kept in the Croatian Agricultural Agency.

2.6 Record keeping at farm

The animal holder must keep and regularly update stipulated records and registers on on all movements of animals/flocks onto and off the holding, deaths, medical treatments including vaccinations and made them available at the request of an authorised person. Laboratory results of sampling for *Salmonella* should be kept on the holding. All documents must be kept for 5 years. All documents must be available for inspection.

Hatcheries and keepers of breeding flocks are obliged to keep the records on all movements of poultry or hatching eggs onto and/or out of the premises. The records must contain the information on the number of eggs/chickens, date and origin of the final destination. Hatcheries are obliged to keep the evidences prescribed by the Ordinance on conditions to be met by facilities for hatching domestic poultry and game birds (OG 36/95). The evidence contains data on number of eggs intended for incubation, number and percentage of hatched eggs, dates of hatching, hygienic control, hatchery waste etc.

2.7 Documents to accompany animals when dispatched

Certificates accompanying animals when placed on the market

Conditions for placing on the market of animals, products of animal origin and feed are stipulated by the Veterinary Act. Animals, their products and feed must come from holdings or establishments in which stipulated veterinary checks have been conducted.

Internal trade

For internal trade, the animal holder must obtain the certificate of health and place of origin of the animal (hereinafter: internal certificate). The internal certificate is issued by an approved veterinarian who keeps official records on the issued internal certificates. The trade in animals and products of animal origin is permitted only if a country, a region or the holding from which the animal originates has no trade restrictions, that is, no protective measures due to animal diseases have been introduced. The internal certificate may not be issued if, in the place of origin of the animals, the existence of an infectious or parasitic disease which can be transmitted by this species of animal is confirmed.

The internal certificate is a public document and it contains data on the animal holder, the identity of the animal (obligatory identification), its origin and health condition. The certificate guarantees that the animals are included in the implementation of imposed measures, that the animals for slaughter are included in the residue monitoring programme, that the animals are not medically treated and, if treated, that the stipulated withdrawal period for permitted veterinary medicinal products has expired, and that they are not treated with prohibited veterinary medicinal products and hormone preparations. The certificate confirms that in the place of origin of the animals or of their keeping, the existence of infectious diseases which can be transmitted by this species of animals has not been confirmed. The SVI supervise the issuing of health certificates.

International trade

Consignments of animals, products of animal origin and feed must be checked and certified before dispatching to other country in the manner laid down in the legislation of the country of destination.

On 26 November 2008 MA issued the Ordinance on issuing the certificates for live animals and products of animal origin in international trade (OG 137/08, 97/09) which is aligned with Council Directive 96/93/EC of 17 December 1996 on the certification of animals and animal products. This Ordinance lays down the rules to be observed in issuing the certificates required by veterinary legislation. Article 3.(3) and (4) of the above mentioned ordinance stipulates that „Certifying officers must not sign blank or incomplete certificates, or certificates relating to animals or products which they have not inspected or which have passed out of their control. Where a certificate is signed on the basis of another certificate or attestation, the certifying officer shall be in possession of that document before signing“. MA is in charge of issuing the original certificates, with serial number and water stamp, and for the distribution to the veterinary organisations whose veterinarians are authorised as certifying officers. Copies of the issued certificates must be kept for three years.

During the check at the place of dispatch it is controlled whether the consignment fulfils the stipulated conditions for dispatch to the country of destination. In the certification procedure it is checked whether the stipulated checks or tests have been carried out and whether the consignments of animals or products fulfil the stipulated conditions.

The international health certificate or public health certificate for the consignment (hereinafter: certificate) confirms that at the consignment's place of origin the stipulated veterinary checks were conducted and that all guarantees listed in the certificate have been fulfilled. The certification procedure is conducted and the certificate is confirmed by the official veterinarian. In individual cases, in regions where an official veterinarian has not been appointed or where a sufficient number of official veterinarians have not been appointed, the certificate may be confirmed by an approved veterinarian. In the certification procedure an authorised/official veterinarian verifies whether the stipulated checks or tests have been carried out and whether the consignments of animals or products fulfil the stipulated conditions.

The certification procedure is same for commodities of products of animal origin as for commodities of live animals.

An approved veterinarian is a veterinarian designated to conduct activities that are to be performed by authorized veterinary organizations, except activities of veterinary examinations and checks for the purposes of the veterinary organization in which he is employed. The person eligible for the position of an approved veterinarian can be a veterinarian with at least two years of work experience in the profession, holding a license and having passed the state occupational examination for an approved veterinarian. An approved veterinarian is designated by the Director of VD at the proposal of an authorized veterinary organization. VD keeps and updates a register of approved veterinarians.

An official veterinarian is appointed by the minister. An official veterinarian must have three years of experience in positions requiring the qualification of a veterinarian and requiring a valid license as well as completed practical training during the probationary period in the duration of at least 200 hours, under the supervision of other official veterinarians. An official veterinarian must complete training, on an annual basis, designed according to the curriculum drawn up by the VD.

The traceability of the confirmed certificate must be ensured in a manner which enables a connection between the certificate and the official veterinarian who confirmed it. From 1st January 2010 the Ordinance on TRACES (Official Gazette 5/10) setting out an obligation for official bodies and economical operators to use TRACES for certification and CVED procedures has been in force.

2.8 Other relevant measures to ensure the traceability of animals

Hatcheries and keepers of breeding flocks are obliged to keep the records on all movements of poultry or hatching eggs onto and/or out of the premises. The records must contain the information on the number of eggs/chickens, date and origin of the final destination. Hatcheries are obliged to keep the evidences prescribed by the Ordinance on conditions to be met by facilities for hatching domestic poultry and game birds (OG 36/95). The evidence contains data on number of eggs intended for incubation, number and percentage of hatched eggs, dates of hatching, hygienic control, hatchery waste etc.

ANNEX II - PART B

1. Identification of the programme

Disease: Zoonotic Salmonella

Animal population: Breeding turkey flocks

Request of Community co-financing for year of implementation: 2013

1.1 Contact

Name : IVANA LOHMAN JANKOVIĆ, Ministry of Agriculture-Veterinary Directorate

Phone :00385 1 610 9650

Fax. :00385 1 610 9207

Email : ivana.lohman@mps.hr

2. Historical data on the epidemiological evolution of the disease

Salmonellosis and Salmonella infections in poultry

Salmonellosis and Salmonella infections in poultry have been systematically monitored in the Republic of Croatia in the diagnostic laboratory of the Croatian Veterinary Institute since the seventies of the last century. Due to the implementation of strict measures under the National Programme for the Control and Eradication of Fowl Typhoid, Salmonella-specific serotypes *S. gallinarum* and *S. pullorum* have become economically insignificant and limited to individual rare cases in extensive production systems (the last case was recorded in 1993).

The development of intensive poultry farming and ever-increasing production and consumption of meat, eggs and related products have facilitated the spread of Salmonella infections caused by non-host-specific invasive serotypes – paratyphoid Salmonellas, which can not only cause severe infections in poultry, but can also spread through food and cause disease in humans.

Thanks to the systematic and years-long implementation of disease monitoring and control measures prescribed by the annual Order on measures to protect animals from infectious and parasitic diseases and the financing thereof, the total number of isolated Salmonellas has significantly decreased.

According to monitoring programme for 2011 and 2012 all breeding turkey flocks comprising at least 250 birds in the country had to be tested on Salmonella spp. presence. Only poultry and eggs originating from a flock that has been tested for the presence of salmonella and that were free from *S. Enteritidis*/*S. Typhimurium* and for which the owner had a health certificate not more than 21 days old issued by an official laboratory, may be placed on the market.

Breeding turkey flocks were sampled according to the following:

- rearing flocks— day-old chicks
 - four-week-old birds
 - two weeks before moving to laying phase or laying unit
- adult breeding flocks — every three week during the laying period
- at the hatchery every three weeks from breeding flocks the eggs of which are used for production of day-old chicks

The baseline study has not been carried out but the prevalence is calculated based on data collected throughout regular monitoring programme. The prevalence of *Salmonella* spp. and *S. Enteritidis* and *S. Typhimurium* in breeding turkey flocks for 2011 was as follows:

Table 1. Results of salmonella monitoring programme for breeding turkey flocks in 2009-2011

Year	Type of Gallus gallus poultry	Total No of tested flocks	Total No of Salmonella spp. positive flocks	Total No S. Enteritidis positive flocks	Total No S. Typhimurium positive flocks
2011	Breeding turkey flocks	14	1	1	0

In 2011, 14 breeding flocks were tested on Salmonella spp. and out of them 1 flock was positive on Salmonella Enteritidis. The prevalence of Salmonella Enteritidis in breeding turkey flocks was 7,14%.

Salmonellosis and *Salmonella* infections in humans

Salmonellosis are the most significant zoonoses in Croatia. On average, about 3500 positive cases of human salmonellosis are reported annually. These are most often the outbreaks caused by *S. Enteritidis*.

In Croatia, most outbreaks are so-called family outbreaks, whereas only a small number of outbreaks are associated with public catering premises and, as a rule, are not linked to industrially produced food and products.

Table 2. DISTRIBUTION OF HUMAN SALMONELLOSIS IN THE PERIOD 1998-2010

Year	Number of diseased	Number of deaths
1998	4288	-
1999	4121	3
2000	5134	3
2001	5620	-
2002	6570	1
2003	5755	4
2004	4940	3
2005	5619	1
2006	4734	1
2007	3331	-
2008	3664	-
2009	3158	1
2010	2098	1

The level of salmonellosis in humans has the lowest figure in 2010 (2098) owing to complex preventive measures aimed to control all possible sources in humans and animals (zoonosis). The most common isolated strains of Salmonella spp. from samples of diseased humans are Salmonella Enteritidis (84% of all isolates), Salmonella senftenberg (2% of all isolates), Salmonella typhimurium (1% of all isolates), Salmonella infantis (1% of all isolates), Salmonella virchow (1% of all isolates), Salmonella thompson (1% of all isolates), Salmonella derby (1% of all isolates), Salmonella coeln (1% of all isolates). Data on human salmonellosis are provided by Croatian national institute of public health.

3. Description of the submitted programme

A concise description of the programme is given with the main objective(s) (monitoring, control, eradication, qualification of herds and/or regions, reducing prevalence and incidence), the main measures (testing, testing and slaughter, testing and killing, qualification of herds and animals, vaccination), the target animal population and the area(s) of implementation and the definition of a positive case.

1. Introduction

The National Programme was elaborated in compliance with the requirements laid down in the Veterinary Act (Official Gazette 41/07, 55/11), the Ordinance on the control of salmonella and other specified food-borne zoonotic agents (Official Gazette 105/06), Ordinance on the reduction of prevalence of *Salmonella* Enteritidis and *Salmonella* Typhimurium in turkeys (Official Gazette 34/10) and the Ordinance on specific control methods in the framework of the national programmes for the control of salmonella in poultry (Official Gazette 72/08).

2. Aim of the Programme

The aim of the national control programme is to reduce or maintain the low prevalence of *Salmonella* in breeding turkey flocks significant for public health in a manner that the maximum percentage of adult breeding turkey flock remaining positive to *S. Enteritidis* and *S. Typhimurium* is reduced to 1 % or less in agricultural holdings in the country until 31 December 2012.

3. Duration of the Programme and the geographical area in which the Programme will be implemented

The 2013 National Programme for the Control of *Salmonella* in breeding turkey flocks shall be implemented throughout the Republic of Croatia from 1 January to 31 December of the calendar year.

4. Animal population covered by the Programme

The National Programme is implemented on the entire territory of the Republic of Croatia. All breeding turkey flocks with 250 hens or more must be examined by submitting official samples to an official laboratory.

"Flock" means all poultry of the same health status kept on the same premises or in the same enclosure and constituting a single epidemiological unit; in the case of housed poultry; this includes all birds sharing the same airspace.

5. Laboratories

5.1. Laboratory testing of samples taken from poultry

5.1.1. National reference laboratories

- a) The national reference laboratory for *Salmonella* in poultry is the Croatian Veterinary Institute – Poultry Centre, Heinzelova 55, Zagreb.
- b) The national reference laboratory for antimicrobial resistance in animals is the Croatian Veterinary Institute Zagreb, Department for Bacteriology and Parasitology, Laboratory for General Bacteriology and Microbiology, Savska cesta 143, Zagreb

5.1.2. Official laboratories

Other official laboratories involved in the implementation of this Programme are these:

- Croatian Veterinary Institute Zagreb, Savska cesta 143, Zagreb;
- Croatian Veterinary Institute, Regional Branch Split, Poljička cesta 33, Split;
- Croatian Veterinary Institute, Regional Branch Križevci, Zakmardijeva 10, Križevci;
- Croatian Veterinary Institute, Regional Branch Vinkovci, J. Kozarca 24, Vinkovci;
- Croatian Veterinary Institute, Regional Branch Rijeka, Podmurvice 29, Rijeka;
- Bioinstitut d.o.o., R. Steinera 7, Čakovec.

5.1.3. Laboratory testing of samples

Samples are prepared and tested in a laboratory in accordance with the requirements set forth in the Ordinance on the reduction of prevalence of *Salmonella* Enteritidis and *Salmonella* Typhimurium in turkeys (Official Gazette 34/10) and the Ordinance on harmonised monitoring of antimicrobial resistance in *Salmonella* in poultry and pigs (Official Gazette 75/09).

The detection of the relevant *Salmonella* serotypes shall be carried out according to Amendment 1 of HRN EN/ISO 6579: 2003/Amd1:2007. 'Microbiology of food and animal feeding stuffs – Horizontal method for the detection of *Salmonella* spp. — Amendment 1: annex D: Detection of *Salmonella* spp. in animal faeces and in environmental samples from the primary production stage. At least one isolate is serotyped according to the Kaufmann-White scheme.

5.1.4. Testing results

In accordance with Ordinance on the reduction of prevalence of *Salmonella* Enteritidis and *Salmonella* Typhimurium in turkeys (Official Gazette 34/10), a flock of breeding turkey shall be considered positive when presence of relevant salmonella (other than vaccine strains) is detected in one or more samples.

5.2. Laboratory testing of samples of animal feedingstuffs for the presence *Salmonella* spp bacteria.

The official laboratories for the testing of samples of animal feedingstuffs are approved according to the provisions of the Ordinance on accreditation of the official and reference laboratory for food and feed (Official Gazette 86/10).

6. Sampling and official controls

6.1. Sampling at the primary production stage

Eggs for hatching may be placed on the market or incubated only if they come from salmonella-free flocks (*S. Enteritidis*/*S. Typhimurium*) and if flock holders possess health certificates for the flock issued by an approved laboratory and not older than 21 days. The certificate is issued on the basis of officially submitted samples.

All flocks, the products of which are intended for public consumption, must be examined by submitting official samples to an official laboratory.

From breeding turkey flocks and flocks for production of hatching eggs, samples are taken:

- from day-old chicks;
Samples are taken in sites in the building in which the birds are kept at each delivery of chicks. Transport liners and chicks should be taken for testing and submitted to an approved laboratory.
- from four-weeks old chicks;
Boot swabs samples or faeces samples are taken in sites in the building in which the birds are kept once when they are four weeks old. The number of single and pooled samples taken depends on the size of the flock.
- Two weeks before moving to laying phase or laying unit;

Boot swabs samples or faeces samples are taken in sites in the building in which the birds are kept once in that period. The number of single and pooled samples taken depends on the size of the flock.

- During the laying phase;
Samples are taken in the laying unit every three weeks. The sample type which is submitted for laboratory testing depends on the type of keeping of birds (cage or free range/floor system).
- At the hatchery;
Samples are taken every three weeks from turkey flocks the eggs of which are used for production of day-old chicks.
At least one sample must be taken per breeding flock. Sampling in the hatchery must be carried out on the day of hatching when samples from all breeding flocks are available. If this is not possible, it is necessary to obtain a valid guarantee by the bird holder that samples have been taken from each flock.
 - If there are more than 50 000 eggs in the incubator deriving from the same breeding flock, two samples shall be taken.

Sampling of breeding turkey flocks from which hatching eggs will be put on the EU market must be done on the holding.

Sampling is conducted in compliance with the requirements specified in Part B of Annex II to the Ordinance on the control of salmonella and other specified food-borne zoonotic agents (Official Gazette 105/06) and the Ordinance on the reduction of prevalence of Salmonella Enteritidis and Salmonella Typhimurium in turkeys (Official Gazette 34/10).

7. Measures to be taken in the event of a confirmed case of salmonellosis

7.1. Measures to be taken in a breeding turkey flock suspicious of *S. Enteritidis/S. Typhimurium*

A flock suspicious of being infected with *S. Enteritidis/S. Typhimurium* is any flock in which, by laboratory examination of submitted samples, the presence of the aforementioned salmonella serotypes is confirmed or if, on the basis of the conducted epidemiological examination, a relation with the cases of infection in humans is confirmed.

After obtaining the first positive test result, and for the purpose of excluding/confirming the suspicion, a competent veterinary inspector must order the approved veterinary organisation to take additional samples from the suspicious flock and to deliver them promptly to the national reference laboratory.

The additional sample must be examined bacteriologically and serologically, and it consists of:

- Blood: 60 samples (for the confirmation of salmonella D group),
- Cloacal swabs: 300 swabs,
- Dead birds: 5 birds per facility, and
- Dust from a building in which poultry is kept: 100 grams per facility (dust should be collected on the surface area not less than 900cm² i.e. 90x10 cm)

In case of a suspicion of *S. Enteritidis/S. Typhimurium* in a breeding turkey flock, a competent veterinary inspector must order the implementation of the following measures to the bird holder:

- Prohibition of movement of poultry and eggs from the holding except with a special authorisation issued by a competent veterinary inspector;
- Prohibition of hatching of eggs originating from flocks suspicious of salmonellosis;
- Prohibition of movement of feed from the holding;
- Prohibition of removal of manure from the holding;
- Appropriate cleaning, washing and disinfection of premises, devices and equipment in the sites for production and storage of poultry feed by appropriate disinfection means;

- Appropriate cleaning, washing and disinfection of vehicles by appropriate means;
- The measures remain in force until the presence of *S. Enteritidis*/*S. Typhimurium* is excluded by repeated laboratory testing.
- In case that some other disease appears in a breeding turkey flock suspicious of salmonella infection, treatment must be conducted in compliance with the provisions of Article 2, paragraph 2), item (c) of the Ordinance on specific control methods in the framework of the national programmes for the control of salmonella in poultry (Official Gazette 72/08).

7.2. Measures to be taken in a breeding turkey flock in which the presence of *S. Enteritidis*/*S. Typhimurium* is confirmed by additional laboratory examination.

If the positive finding to *S. Enteritidis* or *S. Typhimurium* is confirmed the flock is considered infected and a competent veterinary inspector must order the implementation of the following measures to the bird holder:

- Prohibition of use of antimicrobials for the treatment of breeding flocks (day-old chicks, turkeys in breeding and production) infected by salmonellosis caused by *S. Enteritidis* or *S. Typhimurium*;
- All birds in a positive flock (day-old chicks, turkeys in breeding and production) must be slaughtered or destroyed so as to reduce as much as possible the risk of spreading salmonella, as follows:
 - Day-old chicks must be destroyed,
 - Turkeys in breeding and production, depending on the age, must be destroyed or slaughtered; Slaughtering of birds must be carried out in compliance with special regulations on food hygiene.
 - Meat and products derived from such poultry may only be placed on the market for human consumption if they meet the requirements set out in Annex II, Part E of the Ordinance (Official Gazette 105/06) and comply with the provisions of the Ordinance on microbiological criteria for foodstuffs (Official Gazette 74/08, 156/08, 89/10 i 153/11). If not intended for human consumption, such products must be used or disposed of in accordance with the Ordinance on animal by-products not intended for human consumption (Official Gazette 87/09).
 - Non-incubated eggs from a positive flock must be destroyed in accordance with the Ordinance on animal by-products not intended for human consumption (Official Gazette 87/09). However, such non-incubated eggs may be used for human consumption if they are treated in a manner that guarantees the elimination of *S. Enteritidis* and/or *S. Typhimurium* in accordance with the regulations on food hygiene;
 - Where eggs for hatching from flocks in which *S. Enteritidis* or *S. Typhimurium* is present are still present in a hatchery, they must be destroyed in accordance with the Ordinance on animal by-products not intended for human consumption (Official Gazette 87/09);
 - appropriate cleaning, washing and disinfection of premises, devices and equipment in the sites for production and storage of poultry feed.
 - Cleaning, washing and disinfection of vehicles by appropriate disinfection means;
 - Disinfection, disinfestation and deratisation of infected facilities for breeding and keeping of poultry; when disinfection is completed, its efficiency should be bacteriologically controlled. It is prohibited to introduce new poultry into the facility until a negative control result of disinfection efficiency is obtained;
 - Removal and sanitary treatment of manure in a prescribed manner.

A competent veterinary inspector must conduct epidemiological investigation to determine a source of infection;

7.3. Measures to be taken in a breeding turkey flock suspicious of/positive to other salmonella serotypes with public health significance

In case of a suspicion/confirmed presence of any other salmonella serotype with public health significance, except *S. Enteritidis*/*S. Typhimurium*:

- it is prohibited to use antimicrobials for the treatment of breeding flocks;
- A competent veterinary inspector must conduct epidemiological investigation in order to determine a source of infection focusing on determining the implementation of bio-safety measures;
- The owner/holder of the flock is bound to conduct relevant bio-safety measures on the holding so as to reduce the possibility of introducing the infection as much as possible.

It is prohibited to use antimicrobials for the control and treatment of breeding turkey flocks infected by salmonellosis caused by *Salmonella* spp.

Treatment of the flock must be conducted in compliance with the provisions of the Ordinance on specific control methods in the framework of the national programmes for the control of salmonella in poultry (Official Gazette 72/08), and the provisions of the Ordinance on harmonised monitoring of antimicrobial resistance in salmonella in poultry and pigs (Official Gazette 75/09).

Treatment of the flock may be conducted by approved veterinary organisations and approved veterinary services. Each treatment of a flock must be recorded in the Records on Animal Treatment and Waiting Period.

Within the framework of national control programme (routine active monitoring) all samples are taken by authorized veterinarians. FBO are not allowed to take samples within national monitoring programme (for the purpose of the routine active monitoring).

7.4. Vaccination

The use of salmonella vaccines is not obligatory. Vaccination of poultry as a prophylactic measure for the control of salmonellosis must be conducted in compliance with the provisions of the Ordinance on specific control methods in the framework of the national programmes for the control of salmonella in poultry (Official Gazette 72/08).

When live salmonella vaccines are used, the vaccine manufacturer must provide an appropriate method to distinguish bacteriologically wild-type strains of salmonella from vaccine strains.

The vaccine registration and authorisation procedure is conducted in compliance with the Veterinary Act (Official Gazette 41/07, 55/11) and the Act on Veterinary Medicinal Products and Veterinary Medical Devices (Official Gazette 84/08).

4. Measures of the submitted programme
4.1 Summary of measures under the programme

Year of implementation of the Programme: 2012

4.1. Summary of measures under the programme

Duration of the programme:

First year: 2011 Last year: 2011

Control	Control/Eradication
x Testing	Testing
x Slaughter of animals tested positive	Slaughter of animals tested positive
x Killing of animals tested positive	Killing of animals tested positive
x Vaccination	Extended slaughter or killing
Treatment of animal products	Disposal of products
x Disposal of products	
Monitoring or surveillance	
Other measures (specify):	

4.2 Designation of the central authority in charge of supervising and coordinating the departments responsible for implementing the programme
Describe the authorities in charge of supervising and coordinating the departments responsible for implementing the programme and the different operators involved. Describe the responsibilities of all involved

Competent authorities and organisations included in the Programme implementation

The competent body for the implementation of this Programme, in compliance with Article 3, paragraphs 1 and 2, items (a) and (b) of the Ordinance on the control of salmonella and other specified food-borne zoonotic agents (Official Gazette 105/06) is the Ministry of Agriculture–the Veterinary Directorate.

The competent body for supervision and control of the Programme implementation in the field is the Ministry of Agriculture– Veterinary Directorate - Veterinary Inspection Sector.

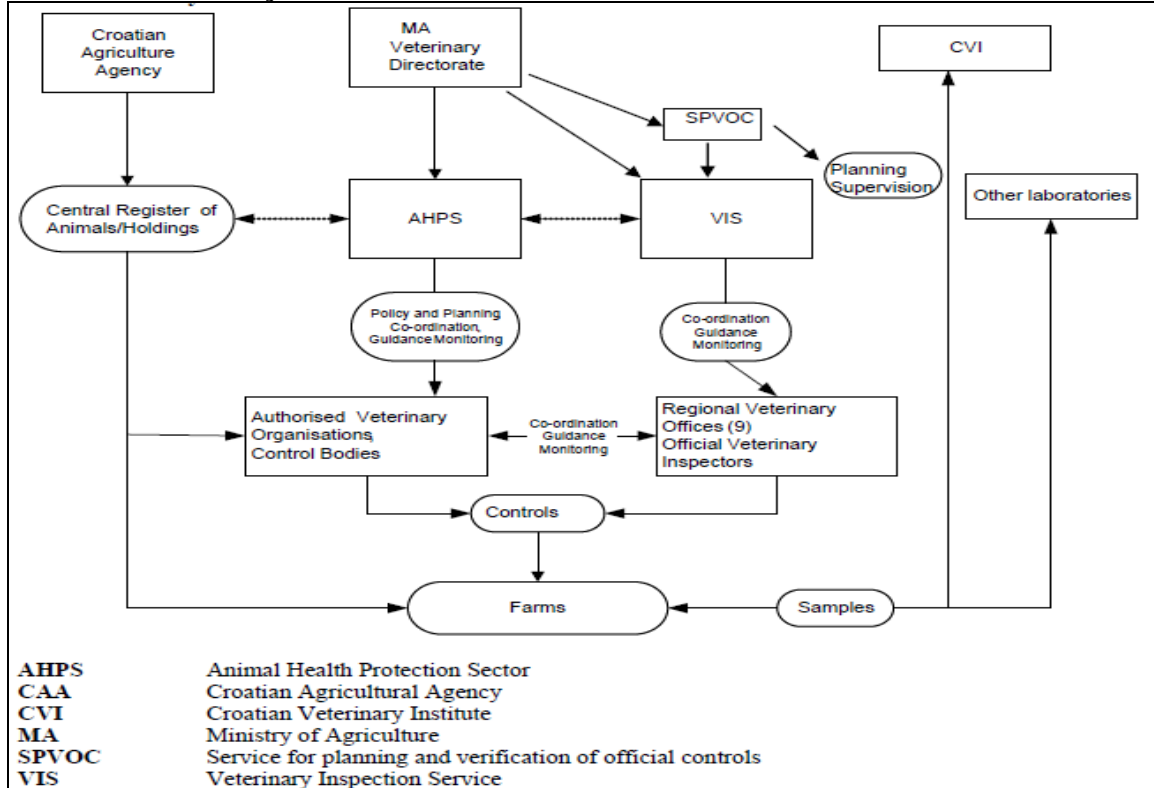
Taking and submitting of samples to the laboratory is conducted by approved veterinarians.

Treatment of flocks may be conducted by approved veterinary organisations or an approved veterinary service in compliance with the provisions of Article 2, paragraph 2, subitem (c) of the Ordinance on specific control methods in the framework of the national programmes for the control of salmonella in poultry (Official Gazette 72/08).

Laboratory diagnostic is done in NRL for salmonella and NRL for AMR as well as in the official laboratories. In August 2010, Croatia issued the "Ordinance on designation of official and reference laboratories in the implementation of veterinary activities" (OG No 102/10), which provides that all laboratories which perform official control in the field of veterinary medicine including feed and some parts of food of animal origin should be accredited by the Croatian Accreditation Agency to EN ISO 17025:2007.

Information on flow between bodies involved in the implementation of the programme is described in the Scheme 2: Control system for animal health in Croatia:

Scheme 2: Control system for animal health in Croatia

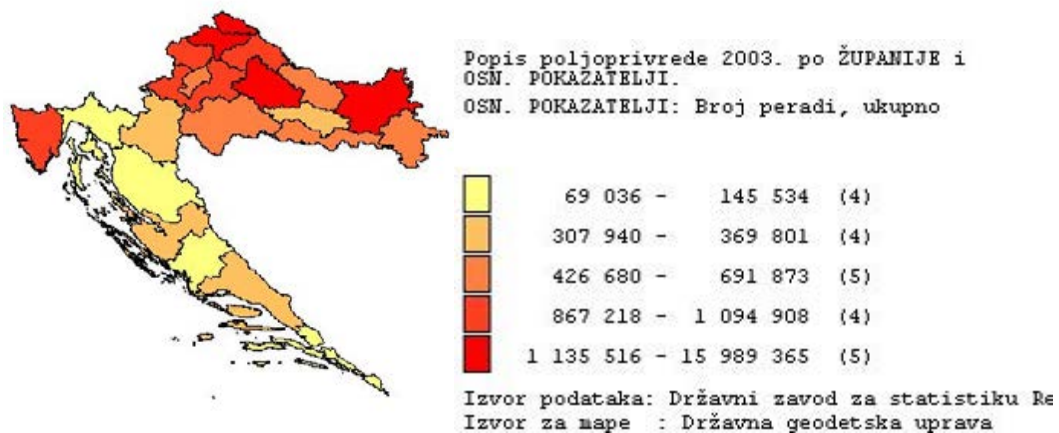


4.3 Description and delimitation of the geographical and administrative areas in which the programme is to be implemented

Describe the name and denomination, the administrative boundaries, and the surface of the administrative and geographical areas in which the programme is to be applied. Illustrate with maps.

The Programme in breeding turkey flocks is implemented throughout the Republic of Croatia from 1 January to 31 December.

Scheme 3. Area of programme implementation and Distribution of poultry farms density per counties



4.4 Measures implemented under the programme

4.4.1 Measures and applicable legislation as regards the registration of holdings

Pursuant to the provisions of Article 38, paragraph 1 of Veterinary Act, farms of ungulates and equidae exceeding 20 conditional animal units, poultry and rabbit farms exceeding 10 conditional animal units, hatcheries, wild game breeding farms, establishments for farming of fish and molluscs and other facilities of aquaculture must comply with the stipulated veterinary-health and zoohygiene conditions.

Pursuant to the provisions of Article 38, paragraph 3 of the Veterinary Act, all farms are to be registered in the Farms Register, which is an integral part of the Central Register of Domestic Animals, the responsibility for which lies with the MA's Veterinary Directorate. The Directorate has entered into contract with the Croatian Agricultural Agency, delegating to it the maintenance of the Central Register of Domestic Animals.

In Croatia all broiler farms of *Gallus gallus* are registered. Updates on this are kept in the Croatian Agricultural Agency.

Ordinance on animal health conditions governing trade with EU and imports from third countries of poultry and hatching eggs (OG 83/09, 107/11) is alligned with Directive 90/539 and Directive 2009/158.

4.4.2. Measures and applicable legislation as regards the identification of animals

Not applicable to the poultry

4.4.3 Measures and applicable legislation as regards the notification of the disease

A detail disease notification procedure is prescribed by Veterinary Act and Ordinance on the notification of animal diseases (OG 62/11,114/11). For the purpose of timely reactions and undertaking of measures for the prevention and eradication of the disease, disease notification is organised as urgent exchange of information between the Veterinary Directorate, Official Laboratories and veterinary services in the field. Any suspicion and confirmed case of all zoonotic diseases must be reported immediately.

Pursuant to reports on disease occurrence issued by veterinary organisations and laboratory reports, the Veterinary Directorate drafts a monthly report about the occurrence and spread of animal diseases in the Republic of Croatia. All monthly reports are regularly published on the web site of the MA (www.mps.hr).

Regarding the international obligations on disease notification, in accordance to the aforementioned Croatian legislation, Veterinary Directorate regularly notifies European Commission (ADNS), World Organisation for Animal Health (WAHIS-OIE) and competent veterinary authorities of neighbouring countries on primary and secondary disease outbreaks as well as prepare six-monthly and annual reports for OIE.

In order to raise awareness of animal owners on the importance of immediate notification of disease as well as to regain the knowledge of veterinarians and veterinary inspectors on disease notification procedure, a leaflet "Obligatory animal disease notification" has been prepared by Veterinary Directorate and distributed throughout veterinary organisations on all holdings in the country.

4.4.4. Measures and applicable legislation as regards the measures in case of a positive result

Legislation:

- Veterinary Act (Official Gazette 41/07,55/11);
- Ordinance on the control of salmonella and other specified food-borne zoonotic agents (Official Gazette 105/06) aligned with regulation 2160/2003;
- Ordinance on the reduction of prevalence of *Salmonella Enteritidis* and *Salmonella Typhimurium* in turkeys (Official Gazette 34/10) aligned with Regulation 584/2008;

- Ordinance on specific control methods in the framework of the national programmes for the control of salmonella in poultry (Official Gazette 72/08) aligned with Regulation 1177/2006;
- Ordinance on harmonised monitoring of antimicrobial resistance in salmonella in poultry and pigs (Official Gazette 75/09) aligned with Decision Decision 2007/407;
- Ordinance on the notification of animal diseases (Official Gazette 64/11,114/11);
- Order on measures to protect animals from infectious and parasitic diseases and the financing thereof in callender year;
- Food Act (Official Gazette 46/07,55/11) aligned with regulation 178/2002;
- Ordinance on animal by-products not intended for human consumption (Official Gazette 87/09) aligned with Regulation 1774/2002;
- Ordinance on the authorisation of official and reference laboratories in the area of conducting veterinary activity (Official Gazette 102/10).

If the positive finding to *S. Enteritidis*/*S. Typhimurium* is confirmed in samples taken on the holding or samples taken in the hatchery, the flock is considered infected and a competent veterinary inspector must order the implementation of the measures prescribed in the Ordinance on the reduction of prevalence of *Salmonella Enteritidis* and *Salmonella Typhimurium* in turkeys (Official Gazette 34/10) aligned with Regulation 584/2008, Annex II, part C of the Ordinance on the control of salmonella and other specified food-borne zoonotic agents (Official Gazette 105/06) aligned with regulation 2160/2003 and point 8 of the National monitoring programme for the control of Salmonellosis in adult breeding turkey flocks in the Republic of Croatia.

A flock suspicious of being infected with *S. Enteritidis*/*S. Typhimurium* is any flock in which, by laboratory examination of submitted samples, the presence of the aforementioned salmonella serotypes is confirmed or if, on the basis of the conducted epidemiological examination, a relation with the cases of infection in humans is confirmed.

After obtaining the first positive test result, and for the purpose of excluding/confirming the suspicion, a competent veterinary inspector must order the approved veterinary organisation to take additional samples from the suspicious flock and to deliver them promptly to the national reference laboratory.

The following measures are ordered to the bird holder:

- Prohibition of movement of poultry and eggs from the holding except with a special authorisation issued by a competent veterinary inspector;
- Prohibition of hatching of eggs originating from flocks suspicious of salmonellosis;
- Prohibition of movement of feed from the holding;
- Prohibition of removal of manure from the holding;
- Appropriate cleaning, washing and disinfection of premises, devices and equipment in the sites for production and storage of poultry feed by appropriate disinfection means;
- Appropriate cleaning, washing and disinfection of vehicles by appropriate means;
- The measures remain in force until the presence of *S. Enteritidis*/*S. Typhimurium* is excluded by repeated laboratory testing.
- In case that some other disease appears in a breeding flock suspicious of salmonella infection, treatment must be conducted in compliance with the provisions of Article 2, paragraph 2), item (c) of the Ordinance on specific control methods in the framework of the national programmes for the control of salmonella in poultry (Official Gazette 72/08).

If the positive finding to *S. Enteritidis* or *S. Typhimurium* is confirmed the flock is considered infected and the following measures are implemented:

- Prohibition of use of antimicrobials for the treatment of breeding flocks (day-old chicks, turkeys in breeding and production) infected by salmonellosis caused by *S. Enteritidis* or *S. Typhimurium*;
- All birds in a positive flock (day-old chicks, turkeys in breeding and production) must be slaughtered or destroyed so as to reduce as much as possible the risk of spreading salmonella, as follows:

- Day-old chicks must be destroyed,
- Turkeys in breeding and production, depending on the age, must be destroyed or slaughtered; Slaughtering of birds must be carried out in compliance with special regulations on food hygiene.
- Meat and products derived from such poultry may only be placed on the market for human consumption if they meet the requirements set out in Annex II, Part E of the Ordinance (Official Gazette 105/06) and comply with the provisions of the Ordinance on microbiological criteria for foodstuffs (Official Gazette 74/08,156/08, 89/10 i 153/11). If not intended for human consumption, such products must be used or disposed of in accordance with the Ordinance on animal by-products not intended for human consumption (Official Gazette 87/09).
- Non-incubated eggs from a positive flock must be destroyed in accordance with the Ordinance on animal by-products not intended for human consumption (Official Gazette 87/09). However, such non-incubated eggs may be used for human consumption if they are treated in a manner that guarantees the elimination of *S. Enteritidis* and/or *S. Typhimurium* in accordance with the regulations on food hygiene;
- Where eggs for hatching from flocks in which *S. Enteritidis* or *S. Typhimurium* is present are still present in a hatchery, they must be destroyed in accordance with the Ordinance on animal by-products not intended for human consumption (Official Gazette 87/09);
- Appropriate cleaning, washing and disinfection of premises, devices and equipment in the sites for production and storage of poultry feed.
- Cleaning, washing and disinfection of vehicles by appropriate disinfection means;
- Disinfection, disinfestation and deratisation of infected facilities for breeding and keeping of poultry; when disinfection is completed, its efficiency should be bacteriologically controlled. It is prohibited to introduce new poultry into the facility until a negative control result of disinfection efficiency is obtained;
- Removal and sanitary treatment of manure in a prescribed manner,
- A competent veterinary inspector must conduct epidemiological investigation to determine a source of infection.

In case of a suspicion/confirmed presence of any other salmonella serotype with public health significance, except *S. Enteritidis*/*S. Typhimurium*:

- it is prohibited to use antimicrobials for the treatment of breeding flocks;
- A competent veterinary inspector must conduct epidemiological investigation in order to determine a source of infection focusing on determining the implementation of bio-safety measures;
- The owner/holder of the flock is bound to conduct relevant bio-safety measures on the holding so as to reduce the possibility of introducing the infection as much as possible.

4.4.5. Measures and applicable legislation as regards the different qualifications of animals and herds

The National Programme is implemented on the entire territory of the Republic of Croatia. All breeding turkey flocks with 250 hens or more must be examined by submitting official samples to an official laboratory.

"Flock" means all poultry of the same health status kept on the same premises or in the same enclosure and constituting a single epidemiological unit; in the case of housed poultry; this includes all birds sharing the same airspace.

4.4.6. Control procedures and in particular rules on the movement of animals liable to be affected or contaminated by a given disease and the regular inspection of the holdings or areas concerned

Within the framework of national control programme (routine active monitoring) all samples are taken by authorized veterinarians. FBO are not allowed to take samples within national monitoring programme (for the purpose of the routine active monitoring).

Official controls of holdings and hatcheries are done according to annual plan of the official controls holdings. Particular attention is given to holdings where one of the relevant Salmonellas was detected in the previous rearing or production cycle. Sampling must also be done on a risk basis each time the responsible veterinary inspector or the body responsible for the implementation of this Programme considers it necessary.

Samples for the purposes of official control at the primary production stage shall be taken by official veterinarians in accordance with Ordinance on the reduction of prevalence of Salmonella Enteritidis and Salmonella Typhimurium in turkeys (Official Gazette 34/10) aligned with Regulation 584/2008. All samples taken for the purpose of the official control must be tested in NRL for Salmonella in poultry.

In case of suspicion on Salmonella infection, veterinary inspector will order additional sampling in order to confirm or exclude the suspicion and additional measures have to be done on the holding (movement restrictions for live animals, products, hatching eggs, disinfection of the vehicles and equipment etc.). A detailed epidemiological investigation is done in order to determine all possible contact holdings and possible source of the infection. In case diseases is confirmed a detail measures are prescribed for SE/ST positive holding.

4.4.7. Measures and applicable legislation as regards the control (testing, vaccination, ...) of the disease

Testing of breeding turkey flocks is done according to Ordinance on the reduction of prevalence of Salmonella Enteritidis and Salmonella Typhimurium in turkeys (Official Gazette 34/10) aligned with Regulation 584/2008 and Annex II, part B of the Ordinance on the control of Salmonella and other specified food-borne zoonotic agents (OG 105/06) which is aligned with Regulation 2160/2003.

From breeding turkey flocks and flocks for production of hatching eggs samples are taken:

- from day-old chicks;
 - Samples are taken in sites in the building in which the birds are kept at each delivery of chicks. Transport liners and chicks should be taken for testing and submitted to an approved laboratory.
- from four-weeks old chicks;
 - Boot swabs samples or faeces samples are taken in sites in the building in which the birds are kept once when they are four weeks old. The number of single and pooled samples taken depends on the size of the flock.
- Two weeks before moving to laying phase or laying unit;
 - Boot swabs samples or faeces samples are taken in sites in the building in which the birds are kept once in that period. The number of single and pooled samples taken depends on the size of the flock.
- During the laying phase;
 - Samples are taken in the laying unit every two weeks. The sample type which is submitted for laboratory testing depends on the type of keeping of birds (cage or free range/floor system).
- At the hatchery;
 - Samples are taken every three weeks from turkey flocks the eggs of which are used for production of day-old chicks pursuant to Table 2 of Annex I to this Ordinance.
 - At least one sample must be taken per breeding flock. Sampling in the hatchery must be carried out on the day of hatching when samples from all breeding flocks are available. If this is not possible, it is necessary to obtain a valid guarantee by the bird holder that samples have been taken from each flock.
 - If there are more than 50 000 eggs in the incubator deriving from the same breeding flock, two samples shall be taken.

In case of suspicion and for the purpose of the official controls the additional sample must be taken, and it consists of:

- Blood: 60 samples (for the confirmation of salmonella D group),
- Cloacal swabs: 300 swabs,
- Dead birds: 5 birds per facility, and
- Dust from a building in which poultry is kept: 100 grams per facility (dust should be collected on the surface area not less than 900cm² i.e. 90x10 cm)

The use of vaccines against Salmonella is not mandatory. Vaccination of poultry as a prophylactic measure to control salmonellosis must be carried out in accordance with the provisions of the Ordinance on specific control methods in the framework of the national programmes for the control of Salmonella in poultry (Official Gazette 72/2008). If live vaccines against Salmonella are used, the vaccine manufacturer must provide an appropriate method for bacteriological differentiation between field and vaccine strains. The vaccine manufacturer must send the necessary laboratory diagnostic material to all laboratories approved for the testing of Salmonella in poultry. The procedure for the registration and approval of vaccines is conducted in accordance with the Veterinary Act (Official Gazette 41/07, 55/11) and the Act on Veterinary Medicinal Products and Veterinary Medical Devices (Official Gazette 84/08).

Vaccination can be done only by authorized veterinary organizations or approved veterinary services. Currently only one vaccine is approved and registered according to the above mentioned legislation – Nobilis Salenvac T (inactivated vaccine), Intervet.

Samples shall be sent by express mail or courier to the official laboratories within 24 hours after collection. If not sent within 24 hours, they must be stored refrigerated. Transportation can be at ambient temperature as long as excessive heat (over 25 °C) and exposure to sunlight are avoided. At the laboratory samples shall be kept refrigerated until examination, which shall be carried out within 48 hours following receipt.

In accordance with Ordinance on the reduction of prevalence of Salmonella Enteritidis and Salmonella Typhimurium in turkeys (Official Gazette 34/10), a flock of breeding turkey shall be considered positive when presence of relevant salmonella (other than vaccine strains) is detected in one or more samples.

It is prohibited to use antimicrobials for the control and treatment of breeding turkey flocks infected by salmonellosis caused by Salmonella spp.

Treatment of the flock must be conducted in compliance with the provisions of the Ordinance on specific control methods in the framework of the national programmes for the control of salmonella in poultry (Official Gazette 72/08) which is alligened with Regulation 1177/2006 and the provisions of the Ordinance on harmonised monitoring of antimicrobial resistance in salmonella in poultry and pigs (Official Gazette 75/09).

Antimicrobials must be used on the basis of results of bacteriological examination and antibiograms. A competent veterinary inspector must conduct regular supervision of the use of antimicrobials and he must submit reports on conducted supervision to the Veterinary Directorate once a month (until the 15th of a month for the previous month).

Treatment of an infected flock, in compliance with the Decision issued by a competent veterinary inspector, is conducted by approved veterinary organisations and approved veterinary services. After conducted treatment, it is necessary to conduct a control of efficacy of the conducted therapy in a manner that control samples are taken from poultry twice, on the 7th and 14th day from the beginning of the therapy, and delivered to a laboratory for analysis. Each treatment of a flock must be recorded in the *Records on Animal Treatment and Waiting Period*.

4.4.8 Measures and applicable legislation as regards the compensation for owners of slaughtered and killed animals

Any financial assistance provided to food and feed businesses in the context of the programme.

Compensation for owners of slaughtered or killed flocks is prescribed by Articles 26, 27 and 28 of the Veterinary Act (OG 41/07, 55/11).

Measures of killing or in certain cases emergency slaughter of infected animals or of those suspected of infection, and in the cases of animal welfare protection, disposal of the contaminated objects shall be ordered when the infectious disease can not be successfully and without the risk of spread thereof, be suppressed with the implementation of other measures stipulated by the Act or when there is no economic justification for the implementation of other measures for the suppression of the disease.

For animals killed, slaughtered or for animals which have died due to the implementation of the ordered measures, as well as for the objects that were damaged or destroyed in the course of the implementation of the ordered measures referred to in Article 26, the animal holder or the owner of the object are entitled to the compensation in the amount of the market value on the day of the implementation of the measure.

The assessment of the value of the animals and objects is carried out by the commission appointed by the CVO, the composition of which must include the competent veterinary inspector. The decision on the entitlement to the damage compensation and on the amount of damage compensation is passed by the CVO upon the proposal of the commission within 60 days, while payment must ensue not later than 90 days from the day of implementation of the measures.

The animal holder or owner of the object is not entitled to damage compensation referred:

- if he failed to immediately report the appearance of the infectious disease and did not treat the animal in the manner stipulated by the of the implementing legislation.
- if he failed to undertake the stipulated or ordered measures for the prevention and control of infectious or parasitic diseases,
- if he transfers the animal from an uninfected to an infected or endangered area or from the infected or endangered area to the uninfected area,
- if he conducts trade of animal contrary to the provisions of Veterinary Act,
- if the animal disease appeared during import or within the duration of quarantine of the imported animal.

Due to the above mentioned:

- Costs of regular sampling and submission of samples to the laboratory are entirely borne by the bird holder. Costs of laboratory examination of samples (salmonellosis and antimicrobial resistance) prescribed by programme are entirely settled from the State Budget.
- Costs of sampling, submission of samples to the laboratory and laboratory examination for the purpose of the official controls are entirely settled from the State Budget.
- Costs incurred by the implementation of measures in case of suspicion/positive results are settled from the State Budget in accordance with the Veterinary Act (Official Gazette 41/07, 55/11).
- Costs of vaccine procurement and preventive vaccination of poultry are entirely borne by the bird holder.
- Costs incurred by the implementation of measures in regard to monitoring of antimicrobial resistance in *Salmonella* are entirely settled from the State Budget.

4.4.9 Information and assessment on bio-security measures management and infrastructure in place

The guidelines of good manufacturing practice are stipulated by the Veterinary Act, the Food Act and the implementing secondary regulations. Continuous education of veterinarians, producers and animal holders is conducted through the Croatian Veterinary Chamber, the Croatian Chamber of Economy and the Advisory Services of the Ministry of Agriculture. The guidelines are elaborated in accordance with the recommendations of the European Commission, the World Organisation for Animal Health (OIE) and the latest scientific developments.

Primary production establishments and food and feed business operators must ensure the following:

- implementation of hygienic measures on holdings, in establishments and during transport in a regulated manner,
- implementation of measures for the prevention of disease introduction,
- disposal of biological waste,
- respect of animal welfare.

5. General description of the costs and benefits of the programme

A description is provided of all costs for the authorities and society and the benefits for farmers and society in general

Breeding flocks are considered as a top of production pyramid. In order to stop the possible spreading of relevant Salmonella serotypes to lower production units (fattening turkeys), decrease the possibility of food contamination by zoonotic salmonella serotypes throughout meat, eggs and their products and to assure public health, all breeding turkey flocks must be officially sampled and laboratory tested.

A preliminary calculation was made on the approximate number of tests to be performed in the flocks. The number of calculated tests is based on the total No of samples taken from all breeding flocks included in programme during 2011 and the testing scheme as provided for in Commission Regulation 584/2008.

Laboratory testing -total breeding turkey flocks Gallus gallus 2011						
Type of test	No of tests	Type of test	price/per sample	total price (without VAT)	VAT	Total + VAT
Bacteriology testing-isolation Salmonella spp.	330	Bacteriology testing-isolation Salmonella spp.	13,35 €	4.405,50 €	1.013,27 €	5.418,77 €
Biokemical characterisation API line	1	Biokemical characterisation API	18,41 €	18,41 €	4,23 €	22,64 €
Serotyping Salmonella spp.	1	Serotyping Salmonella spp.	32,01 €	32,01 €	7,36 €	39,37 €
Total				4.455,92 €	1.024,86 €	5.480,78 €

In the year 2011 a total number of 330 samples from breeding turkey flocks were tested in the framework of official sampling. This number includes routine sampling of flocks and hatcheries as well as additional confirmatory sampling carried out when a flock is tested positive.

Within the framework of national control programme (routine active monitoring) all samples are taken by authorized veterinarians and are therefore considered as official samples. FBO are not allowed to take samples within national monitoring programme (for the purpose of the routine active monitoring). Sampling performed by FBO is used only for their self-control purpose.

The number of bacteriological tests planned for the year 2013 represents the estimates of the data of previous years.

In the year 2011, 330 samples from 14 breeding flocks of Gallus gallus were sampled and tested in the framework of programme. Out of that number and based on data from the official laboratories only 1 sample was serotyped and Salmonella spp was confirmed.

According to data on number of tested breeding flocks in 2009, 2010 and 2011, it is assumed that in 2013, no increase of production could be expected and no increase of the costs accordingly.

If we make allowance for this trend, we can establish that in 2013 approximately 330 bacteriological tests and 10 serotyping tests will be performed in the framework of official sampling.

6. Data on the epidemiological evolution during the last five years: data available only for: 2011
 Data already submitted via the online system for the years 2007 - 2010: NO

6.1 Evolution of the zoonotic salmonellosis

6.1.1 Data on evolution of zoonotic salmonellosis for:

Year 2011

Type of flock	Total Number of flocks	Total number of animals	Total number of flocks under the programme	Total number of animals under the programme	Number of flocks checked	Number of positive flocks		Number of flocks depopulated		Total number of animals slaughtered or destroyed		Quantity of eggs destroyed (number or kg)		Quantity of eggs channeled to egg products (number or kg)	
						Serotypes targeted in control programme	Other serotypes	Serotypes targeted in control programme	Other serotypes	Serotypes targeted in control programme	Other serotypes	Serotypes targeted in control programme	Other serotypes	Serotypes targeted in control programme	Other serotypes
Breeding flocks	14	No data available	14	No data available	14	1	0	1	0	60	0	0	0	0	0

6.2 Stratified data on surveillance and laboratory tests

6.2.1 Stratified data on surveillance and laboratory tests for year: 2011

Animal species (a): Turkeys Category (b): Breeding flock

Description of the used serological tests: Not applicable

Description of the used microbiological or virological tests: Current version of Annex D of HRN EN/ISO 6579: 2003: „Detection of Salmonella spp. in animal faeces and in samples of the primary production stage“.

Description of the other used tests:

Region(c)	Serological tests		Microbiological or virological tests		Other tests	
	Number of samples tested(d)	Number of positive samples(e)	Number of samples tested(d)	Number of positive samples(e)	Number of samples tested(d)	Number of positive samples(e)
CROATIA	0	0	330	1 (Salmonella spp.)	Biokemical characterisation API line	1
					Serotyping Salmonella spp	1
Total						

- (a) Animal species if necessary.
- (b) Category/further specifications such as breeders, laying hens, broilers, breeding turkeys, broiler turkeys, breeding pigs, slaughter pigs, etc, when appropriate.
- (c) Region as defined in the programme of the Member State.
- (d) Number of samples tested.
- (e) Number of positive samples.

6.3 Data on infection for year: 2011

Animal species: Breeding turkey flocks

Region(c)	Number of infected herds	Number of infected animals
CROATIA 2011	1 x S. Enteritidis	60
Total	1	60

6.4 Data on vaccination or treatment programmes for year 2011

Not applicable-vaccination of breeding turkey flocks has not been carried out.

7. Targets

7.1. Targets related to testing (one table for each year of implementation)

7.1.1. *Targets on diagnostic tests: Sampling 2013*

Animal species: (a): Breeding turkey flocks

Region ^(b)	Type of the test ^(c)	Target population ^(d)	Type of sample ^(e)	Objective ^(f)	Number of planned tests
Croatia	Bacteriology testing-isolation Salmonella spp.	Breeding flocks	Faeces	Surveillance, monitoring	330
	Biokemical characterisation API	Breeding flocks	Faeces	Surveillance, monitoring	10
	Serotyping Salmonella spp.	Breeding flocks	Faeces, Dust	Surveillance, monitoring	10
Total					350

- (a) Animal species if necessary.
- (b) Region as defined in the approved control and eradication programme of the Member State.
- (c) Description of the test.
- (d) Specification of the targeted species and the categories of targeted animals if necessary.
- (e) Description of the sample (for instance faeces).
- (f) Description of the objective (for instance surveillance, monitoring, , control of vaccination).

7.1.2. Targets on testing of flocks¹

Year: 2013

Situation on date: 2011

Animal species: Turkey-breeding flocks Infection^(a): SE/ST

Region (a1)	Type of flock ^(b)	Total number of flocks ^(c)	Total number of animals	Total number of flocks under the programme	Total number of animals under the programme	Expected number of flocks to be checked ^(d)	Number of flocks expected to be positive ^(e)			Number of flocks expected to be depopulated ^(a)		Total number of animals expected to be slaughtered or destroyed ^(a)		Expected quantity of eggs to be destroyed (number or kg) ^(a)		Expected quantity of eggs channelled to egg products (number or kg) ^(a)	
							(a1)	(a2)	(a3)	(a4)	(a3)	(a4)	(a3)	(a4)	(a3)	(a4)	(a3)
Croatia	Breeding flocks	14	-	14	-	20	1	1	0	2	0	600	0	30.000	0	0	0
Total																	

- (a) For zoonotic salmonellosis indicate the serotypes covered by the control programmes: (a1) for *Salmonella* Enteritidis, (a2) for *Salmonella* Typhimurium, (a3) for other serotypes-specify as appropriate, (a4) for *Salmonella* Enteritidis or *Salmonella* Typhimurium.
- (a1) Region as defined in the approved control and eradication programme of the Member State.
- (b) For example, breeding flocks (rearing, adult flocks), production flocks, laying hen flocks, breeding turkeys, broiler turkeys, breeding pigs, slaughter pigs, etc. Flocks or herds or as appropriate.
- (c) Total number of flocks existing in the region including eligible flocks and non-eligible flocks for the programme.
- (d) Check means to perform a flock level test under the programme for the presence of salmonella. In this column a flock must not be counted twice even if it has been checked more than once.
- (e) If a flock has been checked, in accordance with footnote (d), more than once, a positive sample must be taken into account only once

¹ Specify types of flocks if appropriate (breeders, layers, broilers).

7.2. Targets on vaccination (one table for each year of implementation) – Not applicable

7.2.1. *Targets on vaccination*²

Animal species: ^(a): Breeding turkey flocks

Region ^(b)	Total number of herds ^(c) in vaccination programme	Total number of animals in vaccination programme	Targets on vaccination programme			
			Number of herds ^(c) in vaccination programme	Number of herds ^(c) expected to be vaccinated	Number of animals expected to be vaccinated	Number of doses of vaccine expected to be administered
CROATIA	0	0	0	0	0	0
Total						

- (a) Animal species if necessary.
- (b) Region as defined in the approved control and eradication programme of the Member State.
- (c) Herds or flocks or holdings as appropriate.

² Data to provide only if appropriate.

8. Detailed analysis of the cost of the programme (one table per year of implementation)

<i>Costs related to</i>	<i>Specification</i>	<i>Number of units</i>	<i>Unitary cost in EUR</i>	<i>Total amount in EUR</i>	<i>Union funding requested (yes/no)</i>
1. Testing					
1.1. Cost of the sampling		<i>0</i>			<i>No</i>
	Domestic animals	<i>0</i>			<i>No</i>
1.2. Cost of the analysis	Bacteriological tests (cultivation) in the framework of official sampling	<i>330</i>	<i>13,35</i>	<i>4.405,50</i>	<i>Yes</i>
	Serotyping of relevant isolates	<i>10</i>	<i>35,00</i>	<i>350,00</i>	<i>Yes</i>
	Bacteriological test to verify the efficiency of disinfection of poultry houses after depopulation of a salmonella-positive flock	<i>10</i>	<i>13,35</i>	<i>135,50</i>	<i>Yes</i>
	Test for the detection of antimicrobials or bacterial growth inhibitory effect in tissues from birds from flocks tested for salmonella	<i>-</i>			<i>No</i>
	Other (please specify)	<i>-</i>			

2. Vaccination	(If you ask for co-financing for the purchase of vaccins, you should also fill in points 6.4 and 7.2 as vaccination policy should be part of your programme)	0			No
2.1. Purchase of vaccine doses	Number of vaccine doses	0			No
3. Slaughter and destruction					
3.1. Compensation of animals	Compensation of animals slaughtered or killed positive on SE/ST	6.000	10,00	60.000,00	Yes
	Compensation of eggs destroyed from flocks positive on SE/ST	30.000	1,00	30.000,00	Yes
3.2. Transport costs					No

3.3. Destruction costs					No
3.4. Loss in case of slaughtering					No
3.5 Costs from treatment of animal products (milk, eggs, hatching eggs, etc)					No
4. Cleaning and disinfection					No
5. Salaries (staff contracted for the programme only)					No
6. Consumables and specific equipment					No
7. Other costs					No
TOTAL				94.891,00	

NATIONAL PROGRAMME FOR THE CONTROL OF SALMONELLOSIS IN FLOCKS OF TURKEYS BRED FOR MEAT PRODUCTION (FATTENING TURKEYS) IN THE REPUBLIC OF CROATIA

ANNEX II - PART A

General requirements for the national salmonella control programmes

(a) State the aim of the programme

The aim of the national programme for the control of Salmonella is to reduce or maintain the low prevalence of Salmonella significant for public health in fattening turkey flocks intended for slaughtering for production of meat and meat products intended for human consumption in a manner that the maximum percentage of fattening turkey flocks remaining positive to *S. Enteritidis* and *S. Typhimurium* is reduced to 1 % or less until 31 December 2012.

The national programme in fattening turkey flocks is implemented throughout the Republic of Croatia from 1 January to 31 December of the calendar year and is fully aligned with the provisions of Regulation 584/2008 which is transposed into Croatian national legislation within the the Ordinance on the reduction of prevalence of Salmonella Enteritidis and Salmonella Typhimurium in turkeys (Official Gazette 34/10).

(b) Animal population and phases

Demonstrate the evidence that it complies with the minimum sampling requirements laid down in part B of Annex II to Regulation (EC) of production which sampling must cover

Turkeys — Birds leaving for slaughter

The programme covers all fattening turkey flocks the meat and/or meat products of which are intended for human consumption.

"Flock" means all poultry of the same health status kept on the same premises or in the same enclosure and constituting a single epidemiological unit; in the case of housed poultry; this includes all birds sharing the same airspace.

A fattening turkey flock intended for slaughtering means poultry of the same species and age from one facility, bred for production of meat and/or meat products intended for human consumption. All flocks the products of which (fresh meat and/or meat products) are intended for public consumption must be examined for the presence of *S. Enteritidis* and *S. Typhimurium* by submitting official samples to an official laboratory. The certificate is issued on the basis of officially submitted samples. From fattening turkeys samples are taken within three weeks before moving the poultry to a slaughterhouse.

Slaughtering of fattening turkeys is mostly carried out when the poultry is 24 weeks old. However, in intensive breeding when turkeys are fattened throughout the year, slaughtering of female turkeys may start earlier when they are 20 weeks old or less (the so-called thinning out of a flock). In such cases (when 'all in-all out' principle is not applied in slaughtering of a flock), it is important to know the flock status in regard to salmonella before submitting the first delivery of turkeys for slaughter. If a delivery of turkeys for slaughter from the same flock lasts more than 6 weeks, it is necessary to repeat the sampling of the flock for the presence of salmonella. The results of the analysis on the samples must be known before the animals leave for the slaughterhouse.

The sampling is carried out in accordance with the requirements set out in Annex II, Part B of the Ordinance on the control of Salmonella and other specified food-borne zoonotic agents (Official Gazette 85/12) which is fully aligned with part B of Annex II of Regulation 2160/2003.

(c) Specific requirements

Demonstrate the evidence that it complies with the specific requirements laid down in Parts C, D and E of of Regulation 2160/2003.

If laboratory analysis confirms the presence of *S. Enteritidis* and/or *S. Typhimurium*, the flock will be considered infected and the responsible veterinary inspector must order the owner to implement the following measures:

- prohibition on the use of antimicrobials for the treatment of fattening turkey flocks infected with *S. Enteritidis* and/or *S. Typhimurium*;
- prohibition on the placing on the market of fresh poultry meat originating from the positive flock;
 - Products originating from this poultry may only be placed on the market for human consumption if they meet the requirements set out in Annex II, Part E of the Ordinance (Official Gazette 85/12) and comply with the provisions of the Ordinance on microbiological criteria for foodstuffs (Official Gazette 74/08,156/08, 89/10 i 153/11).
- appropriate cleaning, washing and disinfection of buildings, instruments and utensils at places where poultry feed is produced and stored;
- cleaning, washing and disinfection of vehicles using appropriate disinfectants;
- disinfection, disinfestation and deratisation of infected poultry premises; upon completion of disinfection, its efficiency must be bacteriologically tested;
- removal and sanitary treatment of manure in a prescribed way;
- Re-stocking may not take place until negative results have been obtained from disinfection efficiency control;
- When sending positive fattening turkey flocks for slaughter all measures must be taken to minimise the risk of possible spread of disease.

In the event of a confirmed case of any other *Salmonella* spp. of public health significance, other than *S. Enteritidis* or *S. Typhimurium*, the responsible veterinary inspector is obliged to carry out an epidemiological investigation in order to identify the source of infection, paying particular attention to the implementation of biosecurity measures. It will be recommended to the owner to draw up a plan of necessary measures to prevent the introduction and spread of and to eradicate the causative agent.

It is not permitted to use antimicrobials as a specific method to control any salmonella in fattening turkey flocks. In case treatment must be carried out, the same must be done in accordance with the provisions of the Ordinance on specific control methods in the framework of the national programmes for the control of *Salmonella* in poultry (Official Gazette 72/08) and the provisions of the Ordinance on harmonised monitoring of antimicrobial resistance in *Salmonella* in poultry and pigs (Official Gazette 75/09).

The treatment of flocks may be carried out by an approved veterinary organisation or an approved veterinary service. Each treatment of a flock must be recorded in the Records on animal treatments and withdrawal periods.

Within the framework of national control programme (routine active monitoring) all samples are taken by authorized veterinarians. FBO are not allowed to take samples within national monitoring programme (for the purpose of the routine active monitoring).

(d) Specification of the following points:

1. General

1.1 A short summary referring to the occurrence of Salmonellosis (Zoonotic *Salmonella*)
A short summary referring to the occurrence of the salmonellosis [zoonotic salmonella] in the Member State with specific reference to the results obtained in the framework of monitoring in accordance with Article 4 of Directive 2003/99/EC, particularly highlighting the prevalence values of the salmonella serovars targeted in the salmonella control programmes.

Salmonellosis and *Salmonella* infections in poultry

Salmonellosis and *Salmonella* infections in poultry have been systematically monitored in the Republic of Croatia in the diagnostic laboratory of the Croatian Veterinary Institute since the

seventies of the last century. Due to the implementation of strict measures under the National Programme for the Control and Eradication of Fowl Typhoid, Salmonella-specific serotypes *S. gallinarum* and *S. pullorum* have become economically insignificant and limited to individual rare cases in extensive production systems (the last case was recorded in 1993).

The development of intensive poultry farming and ever-increasing production and consumption of meat, eggs and related products have facilitated the spread of Salmonella infections caused by non-host-specific invasive serotypes – paratyphoid Salmonellas, which can not only cause severe infections in poultry, but can also spread through food and cause disease in humans.

Thanks to the systematic and years-long implementation of disease monitoring and control measures prescribed by the annual Order on measures to protect animals from infectious and parasitic diseases and the financing thereof, the total number of isolated Salmonellas has significantly decreased.

According to monitoring programme for 2011 and 2012 all fattening turkey flocks the products of which (fresh meat and/or meat products) were intended for public consumption had to be tested on Salmonella spp. presence. Only poultry originating from a flock that has been tested for the presence of salmonella and that were free from *S. Enteritidis* and *S. Typhimurium* and for which the owner had a health certificate not more than 6 weeks old issued by an official laboratory, could be placed on the market.

The baseline study has not been carried out but the prevalence is calculated based on data collected throughout regular monitoring programme. The prevalence of Salmonella spp. and *S. Enteritidis* and *S. Typhimurium* in fattening turkey flocks sampled within three weeks of leaving the selected holding for slaughter for 2011 was as follows:

Table 1. Results of salmonella monitoring programme for fattening turkey flocks in 2011

Year	Type of Gallus gallus poultry	Total No of tested flocks	Total No of Salmonella spp. positive flocks	Total No S. Enteritidis positive flocks	Total No S. Typhimurium positive flocks	Total No other Salmonella spp. positive flocks
2011	fattening turkey flocks	169	1	0	1	0

In 2011 as the first year of the programme implementation, 169 fattening turkey flocks were tested on Salmonella spp. and out of them 1 flock was positive on Salmonella spp.. The prevalence of ST in fattening turkey flocks was 0,6%.

Salmonellosis and Salmonella infections in humans

Salmonellosis are the most significant zoonoses in Croatia. On average, about 3500 positive cases of human salmonellosis are reported annually. These are most often the outbreaks caused by *S. Enteritidis*.

In Croatia, most outbreaks are so-called family outbreaks, whereas only a small number of outbreaks are associated with public catering premises and, as a rule, are not linked to industrially produced food and products.

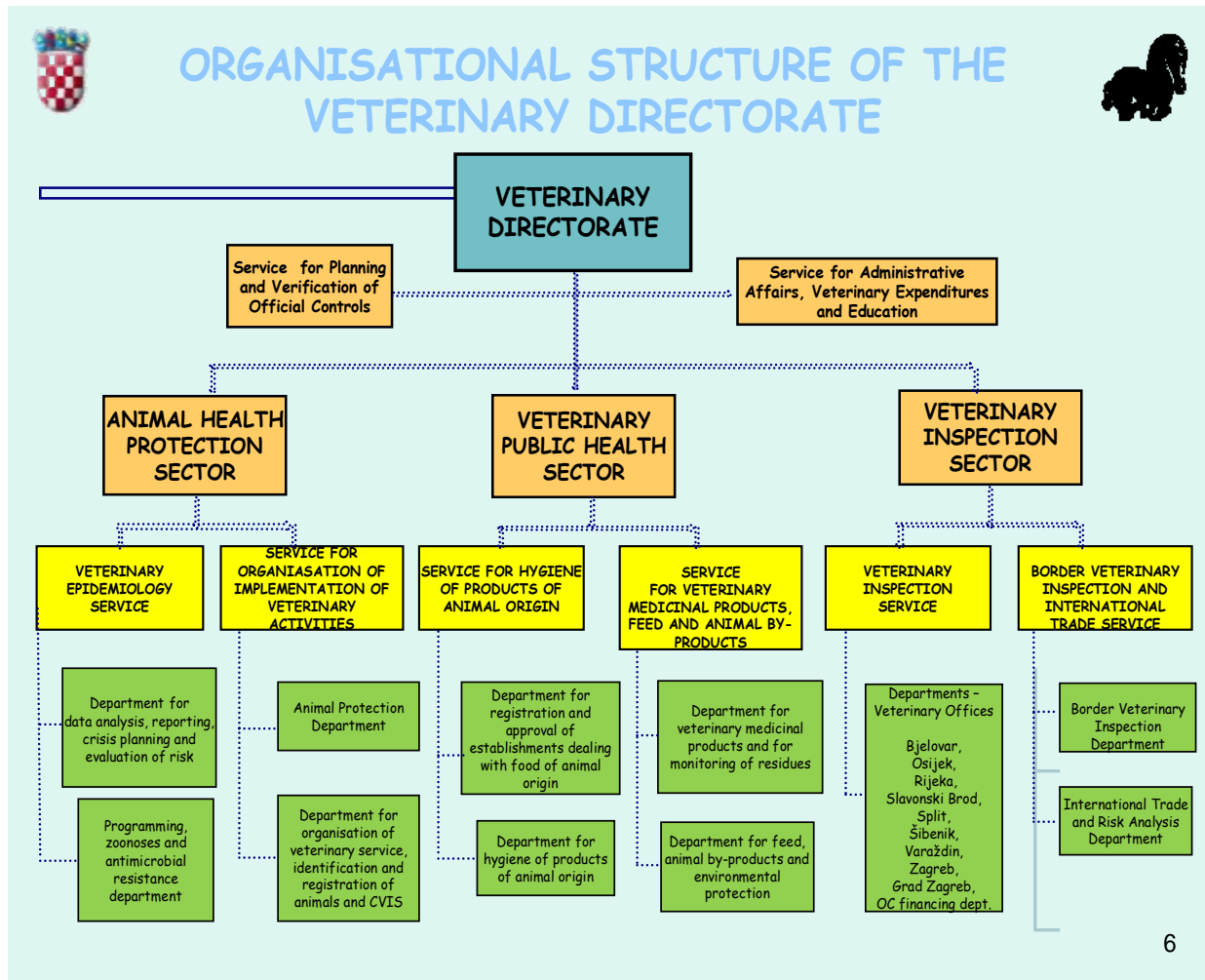
Year	Number of diseased	Number of deaths
1998	4288	-
1999	4121	3
2000	5134	3

2001	5620	-
2002	6570	1
2003	5755	4
2004	4940	3
2005	5619	1
2006	4734	1
2007	3331	-
2008	3664	-
2009	3158	1
2010	2098	1

The level of salmonellosis in humans has the lowest figure in 2010 (2098) owing to complex preventive measures aimed to control all possible sources in humans and animals (zoonosis). The most common isolated strains of *Salmonella* spp. from samples of diseased humans are *Salmonella* Enteritidis (84% of all isolates), *Salmonella* senftenberg (2% of all isolates), *Salmonella* typhimurium (1% of all isolates), *Salmonella* infantis (1% of all isolates), *Salmonella* virchow (1% of all isolates), *Salmonella* thompson (1% of all isolates), *Salmonella* derby (1% of all isolates), *Salmonella* coeln (1% of all isolates). Data on human salmonellosis are provided by Croatian national institute of public health.

1.2 The structure and organization of the relevant competent authorities.

Please refer to the information flow between bodies involved in the implementation of the programme.



In accordance with the current internal organisation of Ministry of Agriculture (MA), the competent authority (CA) in the veterinary field is the Veterinary Directorate.

The Veterinary Directorate has five organisational units:

1. Service for Planning and Verification of Official Controls (SPVOC),
2. Service for Administrative Affairs, Veterinary Expenditures and Education,
3. Animal Health Protection Sector,
4. Animal Public Health Sector,
5. Veterinary Inspection Sector.

The Service for Planning and Verification of Official Controls (SPVOC):

- participates in the preparation of annual plan for official controls of the Veterinary inspection service;
- participates in the implementation of risk assessment in establishments dealing with food, feed and products of animal origin, in order to determine the appropriate frequency of official controls in mentioned establishments;
- monitors the implementation of acts and regulations in the veterinary inspection jurisdiction, and the legality of the actions of all veterinary offices in their respective areas of jurisdiction;
- verifies the performance of official controls on the basis of the supervision of the veterinary inspectors and official veterinarians and their reports on conducted official controls;
- performs official controls in registered establishments, approved establishments and establishments approved under special conditions dealing with food and products of animal origin, which are under the veterinary inspection competence and in registered and approved establishments dealing with feed;
- conduct official controls in registered and approved establishments dealing with animal by-products and supervises the implementation of official controls in these establishments carried out by the state veterinary inspectors and official veterinarians;
- performs official controls regarding production and distribution of veterinary medicinal products and the laboratories which conducts testing and control of veterinary medicinal products;
- supervises the implementation of monitoring in regard to veterinary inspection;
- performs official controls and supervision on the enforcement of measures for preventing and eradication of infectious and parasitic diseases and zoonoses;
- supervises activities of control bodies and authorised veterinary organisations;
- performs official controls on animal welfare, transportation and identification of animals;
- performs official controls on production and storage of semen and embryos, as well as on breeding and reproduction of farm animals;
- performs official controls on laboratories which conduct analysis in the field of veterinary medicine;
- participates in the organisation and delivery of training for State veterinary inspectors, official veterinarians and authorised veterinarians;
- participates in the drafting of legislation drawn up by the competent authority and performs other duties in accordance with national regulations.

The Service for Administrative Affairs, Veterinary Expenditures and Education is competent for monitoring and co-ordination of work on the alignment of legislation in the veterinary field and international agreements in the veterinary field; prepares, monitors and co-ordinates the preparation of regulations governing in the expenditures in field of veterinary medicine, participates in preparation of program funding in the veterinary field (measures for animal health protection and all other measures in the veterinary field of veterinary medicine); prepares proposal for the budget plan for expenditures in field of veterinary medicine; participates in drafting the costs of laboratory diagnostics and analytics monitoring implementation of financing of measures that are paid from the state budget; monitors and aligns Croatian legislation in field of veterinary medicine with the *acquis communautaire* and

co-ordinates the work in field of harmonization and application of veterinary legislation, prepares reports of compliance of veterinary legislation with EU legislation, plans legislative actions to transpose and implement the acquis relating to the veterinary legislation and follows up and reports on its implementation, participates in the drafting of international treaties and other legal forms of international co-operation in the veterinary field and coordinates process of their execution and implementation; co-operates with the competent authorities of other countries in the field of veterinary medicine and international organizations (Codex); is a contact point for co-ordination with the World organization for animal Health (OIE) develops a draft Pre-Accession Economic program (PEP) in the part relating to the Veterinary Directorate; participates in the process of authorizing official and reference laboratories in the field of veterinary medicine; is a contact point in co-operation with TAIEX (Technical Assistance and Information Exchange); participates in the preparation of training programs and maintains records of trainings of VD employees and authorized veterinarians and participates in the organization of training conducted by the VD, provides technical assistance in the processing of legal issues related to the implementation of laws and within the scope of VD, provides technical assistance in the conduct of officials in the administrative proceedings, gives opinions and explanations concerning the implementation of regulations in field of veterinary medicine; drafts contracts and other civil rights legislation from in the field of veterinary medicine.

The Animal Health Protection Sector develops policies and manages activities related to: animal health surveillance and monitoring; control and eradication of animal diseases including zoonoses; contingency planning and crisis management; animal welfare; financing of measures on early detection and eradication of animal diseases, as well as activities related to identification of animals and registration of their movements. It also performs tasks regarding the organisation and functioning of the veterinary service and development and maintenance of the Central Veterinary Information System designed to provide a unified system of all registers and software in the veterinary field. The Sector comprises two Services (Veterinary Epidemiology and Organisation of implementation of veterinary activities) and four departments: Data analysis and contingency planning; Programming and zoonosis; Organisation of veterinary service, identification and registration of animals and CVIS (Central Veterinary Information System) and Animal Protection Department. CVIS will support access or data exchange with information systems from other state organizations, institutes and agencies.

The Veterinary Public Health Sector (VPHS) is competent for the safety of: food of animal origin and feed; veterinary medicinal products and veterinary medical devices; monitoring of residues; animal by-products; drafting of legislation and other relevant programmes; organizing educations on implementation of the legislation as well as drafting written instructions for authorised veterinarians, official veterinarians and veterinary inspectors; legal, administrative and related activities. VPHS manages activities related to NCRP, the residue programme for feed and the monitoring programme for bivalves. The Sector comprises two services: Service for Hygiene of Products of Animal Origin and Service for Veterinary Medicinal Products and Feedstuffs.

The Veterinary Inspection Sector (VIS) has two services and is organised as it follows:

- Border Veterinary Inspection and International Trade Service;
- Veterinary Inspection Service.

The Veterinary Inspection Service has ten departments; the Department for Financing Official Controls which is responsible for legal issues and activities related to financing of official controls in the veterinary field and nine Regional Veterinary Inspection Departments (veterinary offices) located in City of Zagreb, Zagreb, Varaždin, Bjelovar, Osijek, Slavonski Brod, Šibenik, Rijeka and Split. These Inspection Departments have 65 branch offices. The veterinary Inspection Service is responsible for implementation of official controls regarding animal health, animal welfare and production, and also in trade of food and feed in line with the Veterinary Act, the Food Act, the Animal Protection Act, and the Act on the Veterinary Medicinal Products. The Border Veterinary Inspection and International Trade Service is organised into two departments: the Border Veterinary Inspection Department and International Trade and Risk Analysis Department. The Border Veterinary Inspection Department is responsible for veterinary checks and controls at BIPs on consignments of animals, products of animal origin, feed of animal origin and other objects that may transmit infectious or parasitic diseases or jeopardise human and animal health. The International Trade

and Risk Analysis Department is competent for legal and administrative activities in the field of international trade. These activities include: determining veterinary conditions for the import and transit of consignments of animals and products of animal origin; drafting models of export and import veterinary certificates; keeping abreast of international legislation; drafting of legislation on the control of trade of animals and products of animal origin; drafting orders on security measures for import control of live animals and products of animal origin related to animal diseases and other agents that may harm human and animal health; drafting of the annual monitoring plan for import consignments; and other related activities.

Under the Veterinary Act (OG 41/07, 55/11) official controls are performed by the Official Veterinarians (OV).

Certain tasks of official controls may be delegated to control bodies (veterinary organisations accredited to ISO 17020:1998). Control bodies must be impartial and free from any conflict of interest. According to Article 116 of the Veterinary Act, the costs of veterinary checks, certification, veterinary supervision and monitoring are paid from the state budget. All fees for official controls are paid to the state budget and control bodies are paid from that budget. Under the Ordinance on official controls to ensure the verification of compliance with feed and food, animal health and animal welfare law (OG 99/07, 74/08), administrative measures in case of non-compliance are not delegated. When an authorised veterinarian (AV), performing delegated tasks finds non-compliance, he must notify the OV. The relevant competent authority (CA) may delegate specific tasks to a particular control body under the following conditions:

- There is an accurate description of the tasks to be carried out and the conditions for their implementation;
- There is proof that the control body: has the expertise, equipment and infrastructure required to carry out the tasks delegated to it; sufficient suitably qualified and experienced staff. It must also be impartial and free from conflict of interest as regards the exercise of the tasks delegated to it;
- The control body works to, and is accredited in accordance with, ISO 17020, and communicates the results of the controls carried out to the competent authority;
- There is efficient and effective co-ordination between the delegating competent authority and the control body.

The Ordinance on requirements to be met by veterinary organisations performing veterinary activities (OG 45/09, 80/10) requires the authorized veterinary organizations and control bodies to be impartial and free from any conflict of interest regarding the tasks delegated to them.

138 veterinary organisations, which employ 894 AV, are involved in official controls. According to the Veterinary Act (Official Gazette No 41/07, 55/11) veterinary activities shall be conducted by legal persons through veterinary surgeries, veterinary stations, veterinary hospitals, veterinary clinics, centres for reproduction and artificial insemination, and veterinary pharmacies (veterinary organisations). Veterinary organisations are established as companies. Certain veterinary activities, in accordance with the provisions of the Veterinary Act, are conducted by the Croatian Veterinary Institute as well as by the Faculty of Veterinary Medicine. A veterinary organisation, veterinary practice and veterinary service may be founded provided that an opinion of the Croatian Veterinary Chamber and a veterinary consent of the competent veterinary inspection office have been obtained and may start to conduct their activities on the basis of a Decision on the compliance with the stipulated conditions regarding the arrangement of the facilities, premises, veterinary equipment and professional staff, adopted by the Director at the proposal of an expert commission founded by the Director of the Veterinary Directorate. In the Veterinary Act it is laid down that certain activities can be performed only by veterinary stations and veterinary surgeries which, on the basis of the carried out competition, are authorised by the Veterinary Directorate to perform these activities for the period of 5 years.

According to the Veterinary Act (Official Gazette No 41/07, 55/11) authorised veterinarian may conduct the following activities:

1. veterinary checks and controls on husbandries, farms, livestock markets, animal gatherings, buyout points, facilities for resting of animals, animal exhibitions and other facilities if the veterinary organisation in which he is employed is authorised to do so,
2. issue animal health certificates, certificates for consignments of products of animal origin and feed in internal trade,

3. enforce compulsory identification of animals and keep the stipulated records on the identification and registration of movement animals,
4. implement the stipulated measures for the detection, prevention, combating and control infectious or parasitic diseases,
5. take diagnostic material of animals, samples of products of animal origin and animal waste matter for the purpose of examining the health of animals, i.e. safety of products of animal origin,
6. prohibit the dispatching of animals, products of animal origin and animal waste matter if it is established in the course of a veterinary examination that the consignment has been infected or if contamination is suspected, if it originates from an infected area, if it fails to comply with other stipulated safety conditions, if it is not accompanied by the stipulated and correct documentation, or if the transport vehicle fails to meet the stipulated veterinary conditions.

Epizootiological regions	Authorised veterinary organisations	Authorised veterinarians
Dubrovnik - Neretva County	2	3
Splitsko - Dalmatia County	11	40
Šibensko - Knin County	4	17
Lika - Senj County	7	13
Zadar County	6	20
Primorje - Gorski Kotar County	6	25
Istra County	8	33
Sisak - Moslavina County	8	48
Karlovac County	8	32
City of Zagreb	3	52
Zagreb County	10	104
Varaždin County	5	57
Međimurje County	2	35
Koprivnica - Križevci County	4	96
Virovitica - Podravina County	5	25
SlavonskiBrod - Posavina County	11	34
Požega - Slavonia County	3	24
Osijek - Baranja County	10	67
Vukovar - Srijem County	7	54
Krapina - Zagorje County	7	29
Bjelovar - Bilogora County	11	80
TOTAL	138	894

In August 2010, Croatia issued the "Ordinance on designation of official and reference laboratories in the implementation of veterinary activities" (OG No 102/10), which provides that all laboratories which perform official control in the field of veterinary medicine including feed and some parts of food of animal origin should be accredited by the Croatian Accreditation Agency to EN ISO 17025:2007.

- Croatian Veterinary Institute, Regional Branch Split, Poljička cesta 33, Split;
- Croatian Veterinary Institute, Regional Branch Križevci, Zakmardijeva 10, Križevci;
- Croatian Veterinary Institute, Regional Branch Vinkovci, J. Kozarca 24, Vinkovci;
- Croatian Veterinary Institute, Regional Branch Rijeka, Podmurvice 29, Rijeka;
- Bioinstitut d.o.o., R. Steinera 7, Čakovec.

Accreditation status of laboratories

The laboratories involved in salmonella national programmes are accredited to the required standards and fully comply with the provisions of the Article 11 and Article 12 of Regulation 2160/2003 and Ordinance on authorization of the official and reference laboratories regarding the implementation of veterinary activities (Official Gazette 102/10).

Due to the above mentioned all official laboratories providing diagnostic testing of the samples taken from poultry within this programme are accredited in accordance with the:

- HRN EN ISO/IEC 17025 standard;
- Current version of Annex D of HRN EN/ISO 6579: 2003: „Detection of Salmonella spp. in animal faeces and in samples of the primary production stage“.

Official laboratories are obliged to regularly participate in collaborative testing organised or coordinated by the national reference (NRL). NRL is obliged to organize interlaboratory testing for official laboratories in Croatia at least once per year. Testing for the presence of salmonella is carried out using the methods and protocols recommended by international standardization bodies.

1.4 Methods used in the examination of the samples in the framework of the programme.

Samples are prepared and tested in a laboratory in accordance with the requirements set forth in the Ordinance on the reduction of prevalence of Salmonella Enteritidis and Salmonella Typhimurium in turkeys (Official Gazette 34/10) and the Ordinance on harmonised monitoring of antimicrobial resistance in Salmonella in poultry and pigs (Official Gazette 75/09).

The method recommended by the European Community Reference Laboratory (CRL) for Salmonella in Bilthoven, the Netherlands, is used for the isolation of the agent.

This method is described in the current version of Annex D of HRN EN/ISO 6579: 2003: „Detection of Salmonella spp. in animal faeces and in samples of the primary production stage“. At least one isolate is serotyped according to the Kaufmann-White scheme.

1.5 Official controls (including sampling schemes) at feed, flock and/or herd level

Official controls at the primary production stage

Official control at the level of primary production must be conducted in compliance with item 1, subitem (b), paragraph (iii) of the Annex to the Ordinance on the reduction of prevalence of Salmonella Enteritidis and Salmonella Typhimurium in turkeys (Official Gazette 34/10) aligned with Regulation 584/2008.

Particular attention will be given to holdings where S. Enteritidis and/or S. Typhimurium were detected in the previous fattening cycle. Sampling must also be done on a risk basis each time the responsible veterinary inspector or the body responsible for the implementation of this Programme considers it necessary.

Holdings in which sampling will be carried out for the purpose of the official control must be selected at random, taking into consideration the size of the holding and geographical location of the holding.

Fattening turkey flocks must be sampled for the purpose of official control within three weeks before delivery for slaughter.

Samples collected within the official control must be examined for antimicrobials pursuant to the Ordinance on harmonised monitoring of antimicrobial resistance in salmonella in poultry and pigs (Official Gazette 75/09). Samples must be submitted for testing to the National Reference Laboratory for salmonellosis in poultry.

Samples for the purposes of official control at the primary production stage shall be taken by official veterinarians in accordance with Table 3:

Table 3.

FATTENING TURKEY FLOCKS				
Poultry category/age	Sampling site	Sample	Number/quantity of samples	Sampling frequency
			Minimum number of boot swab pairs	
Fattening turkey	Poultry house	Boot swabs	2 per flock	Within three weeks before the birds are moved to the slaughterhouse

Official controls on feedingstuffs for the presence of Salmonella spp.

In accordance with Articles 66 and 67 of the Food Act (Official Gazette 46/07, 55/11), the competent authority (the Ministry of Agriculture is the central state administration authority in charge of safety, hygiene and quality of food and feed and the organisation of official controls) must ensure that official controls on feed safety are carried out in all stages of production, warehousing, distribution and use.

Regulation (EC) No 882/2004, which lays down the general rules for the organization and implementation of official controls, has been transposed into national legislation through the Ordinance on official controls performed to ensure the verification of compliance with feed and food law, animal health and animal welfare rules (OG 99/07).

An annual action plan of the Veterinary Inspection Sector is distributed to veterinary offices, defines an annual plan for the implementation of official controls as well as feed monitoring carried out by state veterinary inspectors and official veterinarians. Reports on official controls performed are collected once a month, via a web application, from all state veterinary inspectors and are submitted to the Head of the Veterinary Inspection Sector and CVO.

Checklists for carrying out official controls in the veterinary field are prepared in the central office of the Veterinary Directorate and are intended to assist staff carrying official controls. These checklists are distributed to all veterinary offices and their use is mandatory.

Written procedures for carrying out official controls have also been developed and distributed to veterinary offices, as have been the operational instructions for carrying out inspections and audits in the area of food of animal origin.

The annual plan of activities of state veterinary inspectors and official inspectors includes official controls of the following:

- Inspection of veterinary organisations, private veterinary surgeries and veterinary services in performing their veterinary activity;
- Inspection of establishments where animals are bred, kept, and produced
- Inspection of establishments involved in trade in animals, vehicles used for the transportation of animals, and trade in animals;
- Inspection of establishments involved in temporary storage and processing of animal by-products.

Official controls in establishments handling food of animal origin are carried out at a frequency based on risk assessment for each individual establishment. The risk assessment database is

kept in the central office of the Veterinary Directorate and is updated as new information becomes available, and the data are sent electronically to field offices.

Official controls and scheme of sampling at feed

All feed businesses operators must satisfy the conditions stipulated by Annex II to the Ordinance on feed hygiene (Official Gazette 41/08) in each of the registered or approved establishments as well as to establish and implement an internal control system based on the HACCP principles, except in registered establishments engaged in primary production or mixing of complementary feed (formerly "superconcentrates") with feed material, where they must satisfy the conditions stipulated by the abovementioned Ordinance.

To define the frequency of official controls in feed establishments, the following risk factors were taken into account:

- type of establishment or risks posed by registered or approved activities,
- quantities produced (in tonnes),
- risks posed by used raw materials or products, especially by-products of other industries,
- origin of used feed material, feed additives or pre-mixtures (e.g. imports from distant countries),
- product range,
- frequency of batch changes (different types of feed for different animal species),
- use of feed additives (coccidiostats) or risk types of feed materials (fishmeal, fish oil).

Drafting of the sampling plan

When defining a number and types of analytical tests within the monitoring plan, as one of the official control methods, risk levels associated with registered or approved activities in feed establishments, produced quantities, types of raw materials or products (including potential by-products of other industries), use of fishmeal or production of medicated feedingstuffs are taken into account. The notifications obtained through the Rapid Alert System for Food and Feed (RASFF) were also taken into account.

The activities carried out in approved establishments are generally considered to be connected with the use of more dangerous or higher risk substances or products. It has been also established that the annual quantities of finished products produced in approved establishments are higher than those in registered establishments, and that such finished products are distributed to a higher number of customers. Consequently, the frequency of sampling and laboratory analyses (monitoring) of raw materials and finished products from approved establishments should be higher than that for other feed establishments.

Criteria for feed sampling for microbiological analysis

Sampling should focus on poultry feed. The sampling records must state the exact category of poultry for which the compound feed is intended (parent flock, breeding chicken, table egg laying hens, laying hens for hatching eggs, broilers) and its age range. The same applies to pig feed, especially that for piglets.

Sampling basically covers *Salmonella* spp. in order to prove the safety of compound feed. Sampling is carried out in accordance with the feed monitoring plan. Article 71 of the Ordinance on the quality of animal feed (Official Gazette 26/98, 120/98, 55/99, 76/2003, 22/06) sets the zero (0) tolerance requirement for *Salmonella* spp. If *Salmonella* spp. are, however, present in compound feed, such feed is safely disposed of.

In accordance with the aforementioned annual plan of official controls and feed monitoring, sampling should be carried out throughout the year. Sampling is carried out in accordance with the provisions of the Ordinance on methods of sampling of feedingstuffs (Official Gazette 128/06), except for sampling of feed for pesticide residues and that for microbiological testing. Sampling for microbiological testing should be based on a random sample taken in the quantity that may be divided into four samples of a minimum 0.5 kg weight.

All columns of the sampling and analytical method records template, which is given in the Annex to the annual plan, should be completed during the sampling procedure.

The original copy of the records should be kept by the official veterinarian or the state veterinary inspector who conducted sampling, a copy of the records delivered to a client/feed business operator, and another copy delivered to a laboratory.

Sampling for monitoring purposes

Only one sample is taken during feed sampling as stipulated by the annual monitoring plan. If the analytical results show that the submitted sample does not comply with the provisions on feed, the veterinary inspector/official veterinarian must take additional samples and request the analytical testing of samples beyond the scope of this monitoring plan. On family farms and agricultural holdings, samples may be taken at the same time the holding is inspected or the live animals on farms monitored for residues.

Sampling for official controls

Sampling for official controls, other than sampling for monitoring purposes, should be targeted, i.e. the official veterinarian or the state veterinary inspector must provide an explanation for each sample taken and analytical test chosen, except in the case of sampling for monitoring purposes.

If samples should be taken and analysed during inspection (other than sampling for monitoring purposes), the veterinary inspector/official veterinarian must notify the client/feed business operator about the right to take two identical official samples. One sample is delivered to the official or the reference laboratory and the other sample is intended for potential re-testing, if so required by the client /feed business operator. After the latter is officially packed (in a sealed packaging), it is kept by the feed business operator. The deadline for requesting repeated analysis is eight days following the date of delivery of analytical results for the first sample to the client /feed business operator.

The client /feed business operator must be informed that the sample should be kept under appropriate storage conditions, which should be identical to those for that specific type of the raw material or the product.

This second sample is sent to the reference laboratory or to the accredited official laboratory for re-testing (this may be the same laboratory which carried out the first analysis). The results of this analysis are final and relevant.

Microbiological criteria control

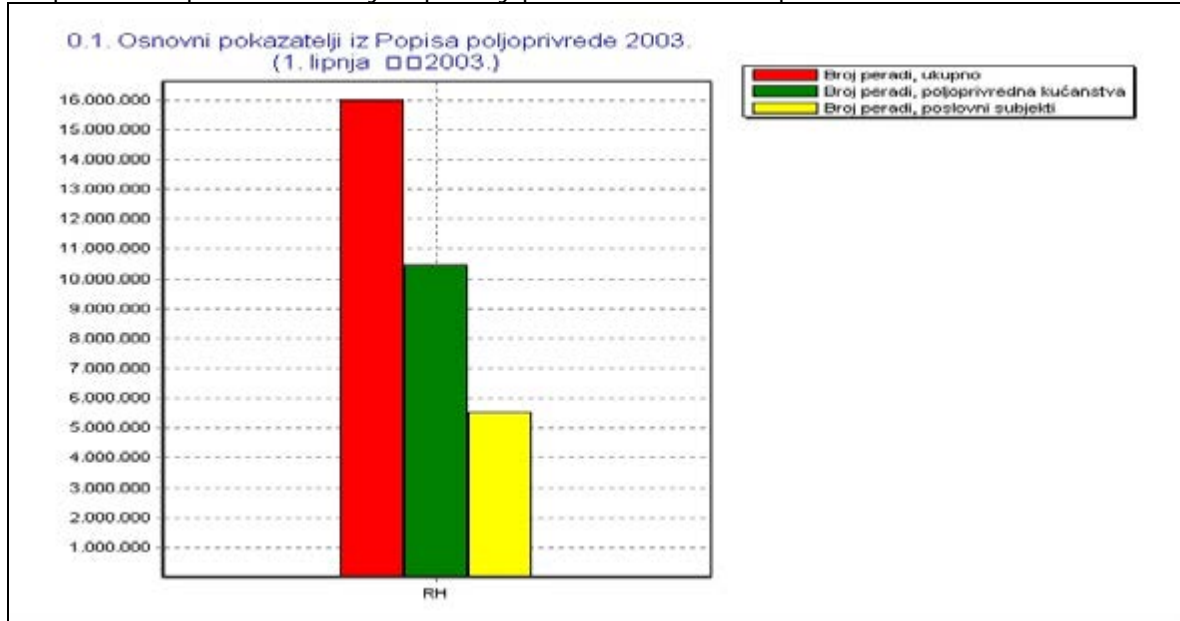
Ordinance on microbiological criteria for foodstuffs (Official Gazette 74/08,156/08, 89/10 i 153/11) requires that samples be taken in slaughterhouses and poultry meat processing plants for bacteriological testing for *Salmonella* spp..

2. Food and business covered by the programme

2.1 The structure of the production of the given species and products thereof

Organisation of and method for poultry production

Graph 1: Comparative survey of poultry production in the Republic of Croatia



O.1 Basic indicators in Agricultural Census 2003 (1 June 2003)

(red) Number of poultry, total

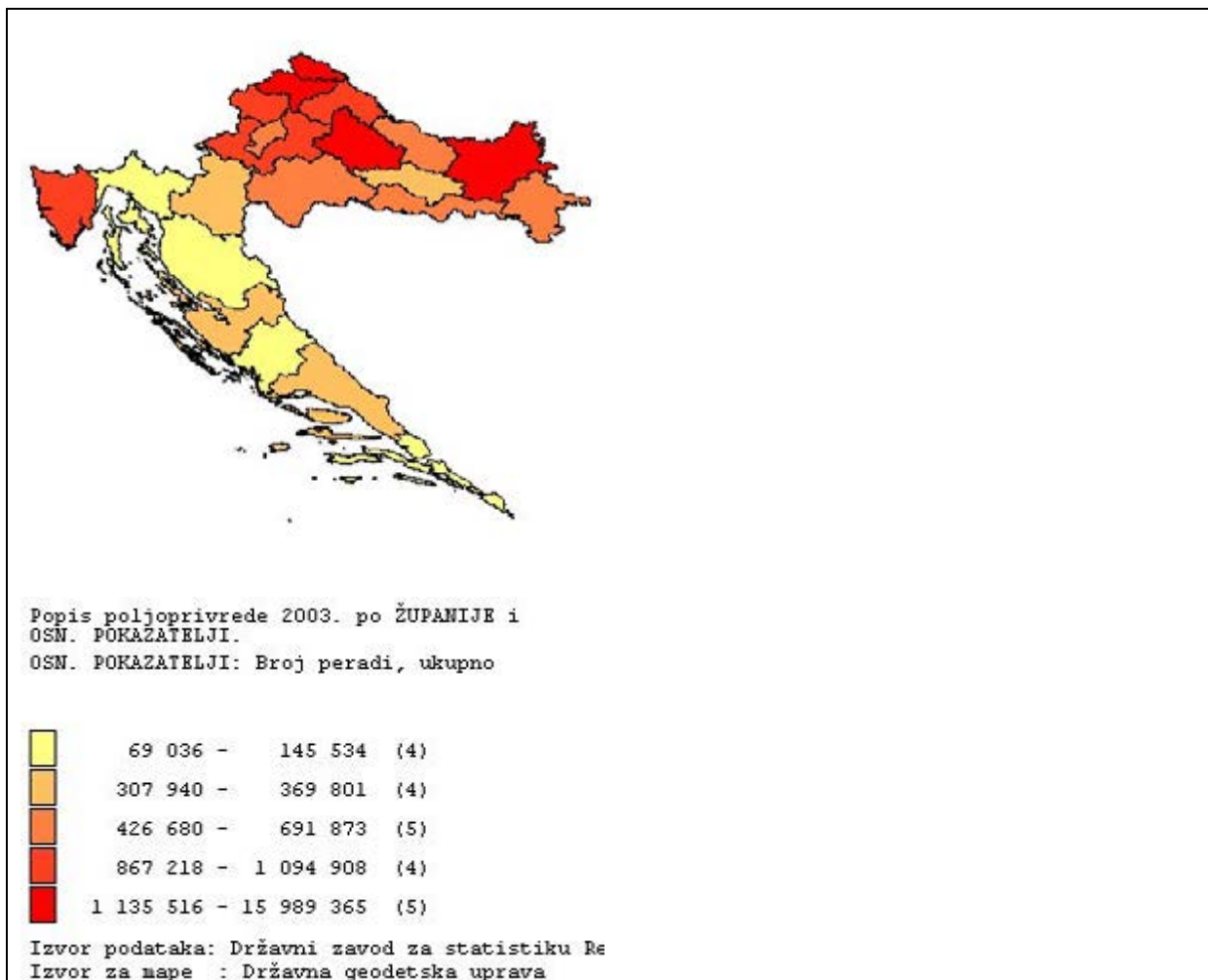
(green) Number of poultry, agricultural holdings

(yellow) Number of poultry, business entities

County	By number of poultry, total	By number of poultry, 1 – 50	By number of poultry, 51 – 100	By number of poultry, 101 – 500	By number of poultry, 501 – 1 000	By number of poultry, 1 001 – 3 000	By number of poultry, 3 001 – 5 000
Total Republic of Croatia	498	204	70	41	15	39	20
Zagreb County	28	14	4	2	0	3	1
Krapina-Zagorje County	17	0	1	1	0	0	1
Sisak-Moslavina County	16	4	3	2	1	1	1
Karlovac County	6	2	0	1	1	1	1
Varaždin County	28	2	3	0	1	1	2
Koprivnica-Križevci County	8	3	1	2	0	1	0
Bjelovar-Bilogora County	45	30	6	2	2	3	0
Primorje-Gorski Kotar County	13	1	2	5	1	3	0
Lika-Senj County	0	0	0	0	0	0	0
Virovitica-Podravina County	26	19	3	3	0	1	0
Požega-Slavonia County	10	5	1	0	0	1	1

Brod-Posavina County	57	25	6	5	0	2	3
Zadar County	5	0	0	0	1	2	0
Osijek-Baranja County	77	37	19	8	2	3	2
Šibenik-Knin County	4	1	0	0	1	2	0
Vukovar-Srijem County	48	25	14	2	2	0	3
Split-Dalmatia County	12	2	0	2	2	4	0
Istra County	24	8	2	1	0	6	1
Dubrovnik-Neretva County	3	0	0	0	1	1	1
Međimurje County	60	25	4	4	0	3	3
The City of Zagreb	11	1	1	1	0	1	0

Scheme 2: Density of poultry per counties *



Agricultural Census 2003 per COUNTIES and BASIC INDICATORS

BASIC INDICATORS: Number of poultry, total

*Source of data: Central Bureau of Statistics of the Republic of Croatia, Croatian Agricultural Agency

Source of maps: State Geodetic Administration

Table 4: Food and Agricultural commodities production*

Commodity	Year										
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Hen Eggs, in shell	46,47	47,21	45,70	52,38	48,05	45,70	50,73	48,20	47,24	40,05	34,27
Indigenous Chicken Meat	24,70	25,60	34,54	41,38	38,50	30,26	29,20	30,86	30,80	43.12	33,09
Indigenous Turkey Meat	6,60	6,64	7,06	7,51	11,36	8,77	8,12	-	8,86	-	-

*Source of data: FAOSTAT

Table 5: Total No of turkeys (breeding and fattening flocks) in Croatia in 2011

Year	Total no poultry
2011	609 000
2011	726 000

2.2 Structure of the production of feed

Organisation of and method for feed production

Feed business operators are authorised and registered pursuant to the Veterinary Act (Official Gazette 46/07, 55/11) and the Food Act (Official Gazette 46/07, 55/11). Veterinary Public Health Sector within Veterinary Directorate is responsible for drafting legislation in the area of feedingstuffs, approval and registration of the establishments dealing with feed, maintaining the registers of all approved and registered establishments dealing with feed and publishing registers on the website of MA.

Current situation regarding approved/registered feed business establishments in Croatia is as follows:

- 130 approved establishments dealing with feed
- 1197 registered establishments dealing with feed
- 148 registered establishments for production dealing with feed
- 291 registered family agricultural holdings dealing with feed

Data available at <http://www.mps.hr/default.aspx?id=5905>.

Table 6: Data on feed production in 2009

Premixes	13.092 t
Pigs	186.637 t
Cattle	99.268 t
Poultry	281.797 t
Other Animals	9.784 t

Source – Croatian Chamber of Economy (CCE)
Croatian Feed Industry Association (CFIA) – associate member FEFAC-a

Table 7: Data on import & export compound feed and premixes in 2009

Import compound feed from EU	23.757 t
Import compound feed from third countries	1.363 t
Export compound feed and premixes in EU	468t
Export compound feed and premixes in third countries	15.936 t

Source – Croatian Chamber of Economy (CCE)

2.3 Relevant guidelines for good animal husbandry practices or other guidelines mandatory or voluntary) on biosecurity measures

Guidelines of good manufacturing practice

The guidelines of good manufacturing practice are stipulated by the Veterinary Act, the Food Act and the implementing secondary regulations. Continuous education of veterinarians, producers and animal holders is conducted through the Croatian Veterinary Chamber, the Croatian Chamber of Economy and the Advisory Services of the Ministry of Agriculture. The guidelines are elaborated in accordance with the recommendations of the European Commission, the World Organisation for Animal Health (OIE) and the latest scientific developments.

Primary production establishments and food and feed business operators must ensure the following:

- implementation of hygienic measures on holdings, in establishments and during transport in a regulated manner,
- implementation of measures for the prevention of disease introduction,
- disposal of biological waste,
- respect of animal welfare.

Croatian Chamber of Economy (CCE)-Croatian Feed Industry Association (CFIA) is associate member FEFAC-a. They developed and published guidelines on GMP in animal feed sector on their website:

http://www.hgk.hr/wps/portal!/ut/p/_s.7_0_A/7_0_P5?legacyWcmClippingUrl=http%3A%2F%2Fhgk.biznet.hr%2Fhgk%2Ftekst3.php%3Fa%3Db%26page%3Dtekst%26id%3D2152%26kid%3D1605%26skid%3D2339

2.4 Routine veterinary supervision of farms

The animal holder is responsible for the care of poultry health and welfare on the holding. Approved veterinarians are conducting supervision on holdings and establishments on a daily basis. The Veterinary Act and the Order on measures to protect animals from infectious and parasitic diseases and the financing thereof in 2011 and 2012 regulates the obligations of authorised veterinary organisations relating to regular control of holdings regarding animal diseases and reporting to county veterinary inspectors.

Approved veterinarians and veterinary inspectors also conduct regular supervision regarding control of animal welfare on farms and sampling within the national residue monitoring programme.

Veterinary inspectors conduct their regular controls in accordance with the Annual Plan of Activities through out planned are the controls of:

- establishments for breeding, keeping and production of animals;
- veterinary organisations, private practices and veterinary services;
- establishments for slaughter, treatment, processing and storage;
- markets, livestock markets and trade of animals and products of animal origin;
- quarantine facilities;
- implementation of measures for the control of infectious and parasitic diseases of animals;

- trade, use and storage of veterinary medicinal products and veterinary medical devices;
- facilities for hatching of domestic poultry and wild feathered game.

2.5 Registration of farms

Pursuant to the provisions of Article 38, paragraph 1 of Veterinary Act, farms of ungulates and equidae exceeding 20 conditional animal units, poultry and rabbit farms exceeding 10 conditional animal units, hatcheries, wild game breeding farms, establishments for farming of fish and molluscs and other facilities of aquaculture must comply with the stipulated veterinary-health and zoohygiene conditions.

Pursuant to the provisions of Article 38, paragraph 3 of the Veterinary Act, all farms are to be registered in the Farms Register, which is an integral part of the Central Register of Domestic Animals, the responsibility for which lies with the MA's Veterinary Directorate. The Directorate has entered into contract with the Croatian Agricultural Agency, delegating to it the maintenance of the Central Register of Domestic Animals.

In Croatia all breeding farms of *Gallus gallus* are registered. Updates on this are kept in the Croatian Agricultural Agency.

2.6 Record keeping at farm

The animal holder must keep and regularly update stipulated records and registers on all movements of animals/flocks onto and off the holding, deaths, medical treatments including vaccinations and made them available at the request of an authorised person. Laboratory results of sampling for *Salmonella* should be kept on the holding. All documents must be kept for 5 years. All documents must be available for inspection.

Hatcheries and keepers of breeding flocks are obliged to keep the records on all movements of poultry or hatching eggs onto and/or out of the premises. The records must contain the information on the number of eggs/chickens, date and origin of the final destination. Hatcheries are obliged to keep the evidences prescribed by the Ordinance on conditions to be met by facilities for hatching domestic poultry and game birds (OG 36/95). The evidence contains data on number of eggs intended for incubation, number and percentage of hatched eggs, dates of hatching, hygienic control, hatchery waste etc.

2.7 Documents to accompany animals when dispatched

Certificates accompanying animals when placed on the market

Conditions for placing on the market of animals, products of animal origin and feed are stipulated by the Veterinary Act. Animals, their products and feed must come from holdings or establishments in which stipulated veterinary checks have been conducted.

Internal trade

For internal trade, the animal holder must obtain the certificate of health and place of origin of the animal (hereinafter: internal certificate). The internal certificate is issued by an approved veterinarian who keeps official records on the issued internal certificates. The trade in animals and products of animal origin is permitted only if a country, a region or the holding from which the animal originates has no trade restrictions, that is no protective measures due to animal diseases have been introduced. The internal certificate may not be issued if, in the place of origin of the animals, the existence of an infectious or parasitic disease which can be transmitted by this species of animal is confirmed.

The internal certificate is a public document and it contains data on the animal holder, the identity of the animal (obligatory identification), its origin and health condition. The certificate guarantees that the animals are included in the implementation of imposed measures, that the animals for slaughter are included in the residue monitoring programme, that the animals are not medically treated and, if treated, that the stipulated withdrawal period for permitted veterinary medicinal products has expired, and that they are not treated with prohibited veterinary medicinal products and hormone preparations. The certificate confirms that in the place of origin of the animals or of their keeping, the existence of infectious diseases which can be transmitted by this species of animals has not been confirmed.

International trade

Consignments of animals, products of animal origin and feed must be checked and certified before dispatching to other country in the manner laid down in the legislation of the country of destination.

Ordinance on issuing the certificates for live animals and products of animal origin in international trade (OG 137/08, 97/09) which is aligned with Council Directive 96/93/EC lays down the rules to be observed in issuing the certificates required by veterinary legislation. Ministry of agriculture is in charge of issuing the original certificates, with serial number and water stamp, and for the distribution to the veterinary organisations whose veterinarians are authorised as certifying officers. Copies of the issued certificates must be kept for three years. During the check at the place of dispatch it is controlled whether the consignment fulfils the stipulated conditions for dispatch to the country of destination. In the certification procedure it is checked whether the stipulated checks or tests have been carried out and whether the consignments of animals or products fulfil the stipulated conditions.

The international health certificate or public health certificate for the consignment (hereinafter: certificate) confirms that at the consignment's place of origin the stipulated veterinary checks were conducted and that all guarantees listed in the certificate have been fulfilled. The certification procedure is conducted and the certificate is confirmed by the official veterinarian. In individual cases, in regions where an official veterinarian has not been appointed or where a sufficient number of official veterinarians have not been appointed, the certificate may be confirmed by an approved veterinarian. In the certification procedure an authorised/official veterinarian verifies whether the stipulated checks or tests have been carried out and whether the consignments of animals or products fulfil the stipulated conditions.

The certification procedure is same for commodities of products of animal origin as for commodities of live animals.

An approved veterinarian is a veterinarian designated to conduct activities that are to be performed by authorized veterinary organizations, except activities of veterinary examinations and checks for the purposes of the veterinary organization in which he is employed. The person eligible for the position of an approved veterinarian can be a veterinarian with at least two years of work experience in the profession, holding a license and having passed the state occupational examination for an approved veterinarian. An approved veterinarian is designated by the Director of VD at the proposal of an authorized veterinary organization. VD keeps and updates a register of approved veterinarians.

An official veterinarian is appointed by the minister. An official veterinarian must have three years of experience in positions requiring the qualification of a veterinarian and requiring a valid license as well as completed practical training during the probationary period in the duration of at least 200 hours, under the supervision of other official veterinarians. An official veterinarian must complete training, on an annual basis, designed according to the curriculum drawn up by the VD.

The traceability of the confirmed certificate must be ensured in a manner which enables a connection between the certificate and the official veterinarian who confirmed it. From 1st January 2010 the Ordinance on TRACES (Official Gazette 5/10) setting out an obligation for official bodies and economical operators to use TRACES for certification and CVED procedures has been in force.

2.8 Other relevant measures to ensure the traceability of animals

Hatcheries and keepers of breeding flocks are obliged to keep the records on all movements of poultry or hatching eggs onto and/or out of the premises. The records must contain the information on the number of eggs/chickens, date and origin of the final destination. Hatcheries are obliged to keep the evidences prescribed by the Ordinance on conditions to be met by facilities for hatching domestic poultry and game birds (OG 36/95). The evidence contains data on number of eggs intended for incubation, number and percentage of hatched eggs, dates of hatching, hygienic control, hatchery waste etc.

ANNEX II - PART B

1. Identification of the programme

Disease: Zoonotic Salmonella

Animal population: Fattening turkey flocks

Request of Community co-financing for year of implementation: 2013

1.1 Contact

Name : IVANA LOHMAN JANKOVIĆ, Ministry of Agriculture-veterinary Directorate

Phone :00385 1 610 9650

Fax. :00385 1 610 9207

Email : ivana.lohman@mps.hr

2. Historical data on the epidemiological evolution of the disease

Salmonellosis and Salmonella infections in poultry

Salmonellosis and Salmonella infections in poultry have been systematically monitored in the Republic of Croatia in the diagnostic laboratory of the Croatian Veterinary Institute since the seventies of the last century. Due to the implementation of strict measures under the National Programme for the Control and Eradication of Fowl Typhoid, Salmonella-specific serotypes *S. gallinarum* and *S. pullorum* have become economically insignificant and limited to individual rare cases in extensive production systems (the last case was recorded in 1993).

The development of intensive poultry farming and ever-increasing production and consumption of meat, eggs and related products have facilitated the spread of Salmonella infections caused by non-host-specific invasive serotypes – paratyphoid Salmonellas, which can not only cause severe infections in poultry, but can also spread through food and cause disease in humans.

Thanks to the systematic and years-long implementation of disease monitoring and control measures prescribed by the annual Order on measures to protect animals from infectious and parasitic diseases and the financing thereof, the total number of isolated Salmonellas has significantly decreased.

According to monitoring programme for 2011 all fattening turkey flocks the products of which (fresh meat and/or meat products) were intended for public consumption had to be tested on Salmonella spp. presence. Only poultry originating from a flock that has been tested for the presence of salmonella and that were free from *S. Enteritidis* and *S. Typhimurium* and for which the owner had a health certificate not more than 6 weeks old issued by an official laboratory, could be placed on the market.

The baseline study has not been carried out but the prevalence is calculated based on data collected throughout regular monitoring programme. The prevalence of Salmonella spp. and *S. Enteritidis* and *S. Typhimurium* in fattening turkey flocks sampled within six weeks of leaving the selected holding for slaughter for 2011 was as follows:

Table 1. Results of salmonella monitoring programme for poultry in 2009 - 2011

Year	Type of Gallus gallus poultry	Total No of tested flocks	Total No of Salmonella spp. positive flocks	Total No S. Enteritidis positive flocks	Total No S. Typhimurium positive flocks	Total No other Salmonella spp. positive flocks
2009	Breeding flocks of Gallus gallus	192	0	0	0	0
200	Laying hens	318	49	47	2	0

9						
2009	Broilers	777	169	36	4	129
2010	Breeding flocks of Gallus gallus	123	2	2	0	0
2010	Laying hens	308	19	12	0	7
2010	Broilers	2093	58	14	0	44
2011	Breeding flocks of Gallus gallus	147	1	1	0	0
2011	Laying hens	317	58	14	0	44
2011	Broilers	3004	76	38	3	35
2011	Fattening turkey flocks	169	1	0	1	0
2011	Breeding turkey flocks	14	1	1	0	0

In 2011 as the first year of the programme implementation, 169 fattening turkey flocks were tested on Salmonella spp. and out of them 1 flock was positive on Salmonella spp.. The prevalence of ST in fattening turkey flocks was 0,6%.

In 2011 as the first year of the programme implementation, 14 breeding turkey flocks were tested on Salmonella spp.. The prevalence of SE in breeding turkey flocks was 7,14%.

Salmonellosis and Salmonella infections in humans

Salmonellosis are the most significant zoonoses in Croatia. On average, about 3500 positive cases of human salmonellosis are reported annually. These are most often the outbreaks caused by S. Enteritidis.

In Croatia, most outbreaks are so-called family outbreaks, whereas only a small number of outbreaks are associated with public catering premises and, as a rule, are not linked to industrially produced food and products.

Year	Number of diseased	Number of deaths
1998	4288	-
1999	4121	3
2000	5134	3
2001	5620	-
2002	6570	1
2003	5755	4
2004	4940	3
2005	5619	1
2006	4734	1
2007	3331	-
2008	3664	-
2009	3158	1
2010	2098	1

The level of salmonellosis in humans has the lowest figure in 2010 (2098) owing to complex preventive measures aimed to control all possible sources in humans and animals (zoonosis). The most common isolated strains of Salmonella spp. from samples of diseased humans are Salmonella Enteritidis (84% of all isolates), Salmonella senftenberg (2% of all isolates),

Salmonella typhimurium (1% of all isolates), Salmonella infantis (1% of all isolates), Salmonella virchow(1% of all isolates), Salmonella thompson (1% of all isolates), Salmonella derby (1% of all isolates), Salmonella coeln (1% of all isolates). Data on human salmonellosis are provided by Croatian national institute of public health.

3. Description of the submitted programme

A concise description of the programme is given with the main objective(s) (monitoring, control, eradication, qualification of herds and/or regions, reducing prevalence and incidence), the main measures (testing, testing and slaughter, testing and killing, qualification of herds and animals, vaccination), the target animal population and the area(s) of implementation and the definition of a positive case.

1. Introduction

The National Programme was elaborated in compliance with the requirements laid down in the Veterinary Act (Official Gazette 41/07, 55/11), the Ordinance on the control of salmonella and other specified food-borne zoonotic agents (Official Gazette 85/12), the Ordinance on the reduction of prevalence of Salmonella Enteritidis and Salmonella Typhimurium in turkeys (Official Gazette 34/10), the Ordinance on specific control methods in the framework of the national programmes for the control of salmonella in poultry (Official Gazette 72/08), and the Ordinance on harmonised monitoring of antimicrobial resistance in salmonella in poultry and pigs (Official Gazette 75/09).

2. Aim of the Programme

To reduce or maintain the low prevalence of Salmonella significant for public health in fattening turkey flocks intended for slaughtering for production of meat and meat products intended for human consumption in a manner that the maximum percentage of fattening turkey flocks remaining positive to S. Enteritidis and S. Typhimurium is reduced to 1 % or less until 31 December 2012.

3. Duration and the geographical area in which the Programme will be implemented

The 2013 National Programme for the Control of Salmonella in Fattening turkey flocks shall be implemented throughout the Republic of Croatia from 1 January to 31 December of the calendar year.

4. Animal population covered by the Programme

The programme covers all fattening turkey flocks reared for the purpose of producing meat and/or meat products for human consumption.

"Flock" means all poultry of the same health status kept on the same premises or in the same enclosure and constituting a single epidemiological unit; in the case of housed poultry; this includes all birds sharing the same airspace.

5. Laboratories

5.1. Laboratory testing of samples taken from poultry

5.1.1. National reference laboratories

- a) The national reference laboratory for Salmonella in poultry is the Croatian Veterinary Institute – Poultry Centre, Heinzelova 55, Zagreb.

- b) The national reference laboratory for antimicrobial resistance in animals is the Croatian Veterinary Institute Zagreb, Department for Bacteriology and Parasitology, Laboratory for General Bacteriology and Microbiology, Savska cesta 143, Zagreb

5.1.2. Official laboratories

Other official laboratories involved in the implementation of this Programme are these:

- Croatian Veterinary Institute Zagreb, Savska cesta 143, Zagreb;
- Croatian Veterinary Institute, Regional Branch Split, Poljička cesta 33, Split;
- Croatian Veterinary Institute, Regional Branch Križevci, Zakmardijeva 10, Križevci;
- Croatian Veterinary Institute, Regional Branch Vinkovci, J. Kozarca 24, Vinkovci;
- Croatian Veterinary Institute, Regional Branch Rijeka, Podmurvice 29, Rijeka;
- Bioinstitut d.o.o., R. Steinera 7, Čakovec.

5.1.3. Laboratory testing of samples

Samples are prepared and tested in a laboratory in accordance with the requirements set forth in the Ordinance on the reduction of prevalence of Salmonella Enteritidis and Salmonella Typhimurium in turkeys (Official Gazette 34/10) and the Ordinance on harmonised monitoring of antimicrobial resistance in Salmonella in poultry and pigs (Official Gazette 75/09).

The detection of the relevant Salmonella serotypes shall be carried out according to Amendment 1 of HRN EN/ISO 6579: 2003/Amd1:2007. 'Microbiology of food and animal feeding stuffs – Horizontal method for the detection of Salmonella spp. — Amendment 1: annex D: Detection of Salmonella spp. in animal faeces and in environmental samples from the primary production stage. At least one isolate is serotyped according to the Kaufmann-White scheme.

5.1.4. Testing results

In accordance with Ordinance on the reduction of prevalence of Salmonella Enteritidis and Salmonella Typhimurium in turkeys (Official Gazette 34/10), a flock of fattening turkey shall be considered positive:

- where the presence of *S. enteritidis* and/or *S. typhimurium* (other than vaccine strains) is detected in the tested sample;
- where the presence of *S. enteritidis* or *S. typhimurium* is not detected but antimicrobials or bacterial growth inhibitory effect are detected, and there is no appropriate proof of treatment of other diseases.

5.2. Laboratory testing of samples of animal feedingstuffs for the presence Salmonella spp bacteria.

The official laboratories for the testing of samples of animal feedingstuffs are approved according to the provisions of the Ordinance on accreditation of the official and reference laboratory for food and feed (Official Gazette 86/10).

6. Sampling and official controls

6.1. Sampling at the primary production stage

A fattening turkey flock intended for slaughter means poultry of the same species and age kept on the same premises and reared for the production of meat and/or meat products intended for human consumption. All flocks the products of which (fresh meat and/or meat products)

are intended for public consumption must be tested for the presence of *S. enteritidis* and *S. typhimurium* on official samples submitted to an approved laboratory. A laboratory report shall be issued on the basis of an officially submitted sample.

Only poultry originating from a flock that has been tested for the presence of *S. enteritidis* and *S. typhimurium* and for which the owner has a health certificate not more than six weeks old, issued by an official laboratory, may be placed on the market.

Within the framework of national control programme (routine active monitoring) all samples are taken by authorized veterinarians. FBO are not allowed to take samples within national monitoring programme (for the purpose of the routine active monitoring).

Fattening turkeys will be sampled within three weeks before they are moved to the slaughterhouse by taking the boot swab samples inside the house.

The sampling shall be carried out in accordance with the requirements set out in Annex II, Part B of the Ordinance on the control of Salmonella and other specified food-borne zoonotic agents (Official Gazette 85/12).

Monitoring for antimicrobial resistance

Salmonella isolates collected through this program must be subject to monitoring on antimicrobial resistance in accordance with item 2 of Annex to the Ordinance on harmonised monitoring of antimicrobial resistance in Salmonella in poultry and pigs (Official Gazette 75/09).

One isolate of Salmonella serovar from the same epidemiological unit per year will be included for the monitoring purpose (epidemiological unit is flock).

During 2013 at least 170 isolates of Salmonella should be included in the monitoring of antimicrobial resistance. If a small number of isolates of the target sample size will be available, all isolates will be tested for the monitoring purpose.

Official laboratories are required to conduct testing of isolates on Salmonella resistance to antimicrobials. If an official laboratory is unable to carry out specified testing, isolates must be submitted to the National Reference Laboratory for antimicrobial resistance of animals specified in Article 2 of the Ordinance on harmonised monitoring of antimicrobial resistance in Salmonella in poultry and pigs (Official Gazette 75/09).

The use of antimicrobials is done according to Ordinance on specific control methods in the framework of the national programmes for the control of salmonella in poultry (Official Gazette 72/08) which is fully aligned with the Regulation 1177/2006. Antimicrobials are not used routinely; the application of the same is under strict control of authorised veterinarians and competent veterinary inspectors. Only authorized antimicrobials are allowed to be used in the and only veterinarian may use antimicrobials.

Each treatment of a flock must be recorded in the official document called *Records on Animal Treatment and Waiting Period*. A competent veterinary inspector or official veterinarian is caring out controls on the use of antimicrobials on farms regularly.

Antimicrobials may be used only after authorisation by and under supervision of the veterinary inspector and they may be applied only in poultry showing clinical signs of the disease suggesting that an excessive suffering of birds could occur. Results of bacteriological examination and antimicrobial susceptibility test must be available prior to the treatment. In the exceptional cases, antimicrobials may be applied prior to the results of bacteriological examination and anti-microbial susceptibility test are available, provided that samples are taken by the authorised veterinarian and under the supervision of veterinary inspector prior the application. If sampling has not been performed prior the application of antimicrobials, flocks shall be considered infected by *Salmonella*.

The antimicrobials specified in Table 2. of Decision 2007/407 must be tested using the cut-off values given and the appropriate concentration range to determine the susceptibility of

Salmonella. Dilution method is used as described by EUCAST and CLSI. The results on MR monitoring are collected according to Directive 2003/99.

The following antimicrobials and the cut-off values are used to determine susceptibility and included for Salmonella testing:

	Antimicrobial	Cut-off value (mg/L) R >
Salmonella	Cefotaxime	0,5
	Nalidixic acid	16
	Ciprofloxacin	0,06
	Ampicillin	4
	Tetracycline	8
	Chloramphenicol	16
	Gentamicin	2
	Streptomycin	32
	Trimethoprim	2
	Sulphonamidws	256

Dilution methods is performed according to the methods described by the European Committee on Antimicrobial Susceptibility Testing (EUCAST) and the Clinical and Laboratory Standards Institute (CLSI), accepted as international reference method (ISO standard 20776-1:2006). It is also recommended that the selected isolates of S. Enteritidis and S. Typhimurium are phage typed.

6.2. Official controls at the primary production stage

Official control at the level of primary production must be conducted in compliance with item 1, subitem (b), paragraph (iii) of the Ordinance on the reduction of prevalence of Salmonella Enteritidis and Salmonella Typhimurium in turkeys (Official Gazette 34/10) aligned with Regulation 584/2008.

Particular attention will be given to holdings where S. Enteritidis and/or S. Typhimurium were detected in the previous fattening cycle. Sampling must also be done on a risk basis each time the responsible veterinary inspector or the body responsible for the implementation of this Programme considers it necessary. Holdings in which sampling will be carried out for the purpose of the official control must be selected at random, taking into consideration the size of the holding and geographical location of the holding. Fattening turkey flocks must be sampled for the purpose of official control within three weeks before delivery for slaughter.

Samples collected within the official control must be examined for antimicrobials pursuant to the Ordinance on harmonised monitoring of antimicrobial resistance in salmonella in poultry and pigs (Official Gazette 75/09). Samples must be submitted for testing to the National Reference Laboratory for salmonellosis in poultry.

Samples for the purposes of official control at the primary production stage shall be taken by official veterinarians.

7. Measures to be taken in the event of a confirmed case of salmonellosis

If laboratory analysis confirms the presence of S. Enteritidis and/or S. Typhimurium, the flock will be considered infected and the responsible veterinary inspector must order the owner to implement the following measures:

- prohibition on the use of antimicrobials for the treatment of birds infected with S. enteritidis and/or S. typhimurium;

- prohibition on the placing on the market of fresh turkey meat originating from the positive flock;
 - Products originating from this poultry may only be placed on the market for human consumption if they meet the requirements set out in Annex II, Part E of the Ordinance (Official Gazette 85/12) and comply with the provisions of the Ordinance on microbiological criteria for foodstuffs (Official Gazette 74/08,156/08, 89/10 i 153/11).
- appropriate cleaning, washing and disinfection of buildings, instruments and utensils at places where poultry feed is produced and stored;
- cleaning, washing and disinfection of vehicles using appropriate disinfectants;
- disinfection, disinfestation and deratisation of infected poultry premises; upon completion of disinfection, its efficiency must be bacteriologically tested;
- removal and sanitary treatment of manure in a prescribed way;
- Re-stocking may not take place until negative results have been obtained from disinfection efficiency control;
- When sending positive fattening turkey flocks for slaughter all measures must be taken to minimise the risk of possible spread of disease.

Measures to be taken with regard to a flock positive for other Salmonellas of public health significance

In the event of a confirmed case of any other Salmonella of public health significance, other than *S. Enteritidis* or *S. Typhimurium*, the responsible veterinary inspector is obliged to carry out an epidemiological investigation in order to identify the source of infection, paying particular attention to the implementation of biosecurity measures. It will be recommended to the owner to draw up a plan of necessary measures to prevent the introduction and spread of

The use of vaccines against Salmonella is not mandatory. Vaccination of poultry as a prophylactic measure to control salmonellosis must be carried out in accordance with the provisions of the Ordinance on specific control methods in the framework of the national programmes for the control of Salmonella in poultry (Official Gazette 72/2008);

If live vaccines against Salmonella are used, the vaccine manufacturer must provide an appropriate method for bacteriological differentiation between field and vaccine strains. The vaccine manufacturer must send the necessary laboratory diagnostic material to all laboratories approved for the testing of Salmonella in poultry.

The procedure for the registration and approval of vaccines is conducted in accordance with the Veterinary Act (Official Gazette 41/07, 55/11) and the Act on Veterinary Medicinal Products and Veterinary Medical Devices (Official Gazette 84/08).

Article 71 of the Ordinance on the quality of animal feed (Official Gazette 26/98, 120/98, 55/99, 76/2003 and 22/06) provides that feed materials and compound feedingstuffs must not contain Salmonella spp. in 50 g (zero tolerance). Any feed which tested positive for Salmonella must be sent for safe disposal in accordance with the Ordinance on animal by-products not intended for human consumption (Official Gazette 87/2009).

It is not permitted to use antimicrobials as a specific method to control any salmonella in flocks. In case treatment must be carried out, the same must be done in accordance with the provisions of the Ordinance on specific control methods in the framework of the national programmes for the control of Salmonella in poultry (Official Gazette 72/08) and the provisions of the Ordinance on harmonised monitoring of antimicrobial resistance in Salmonella in poultry and pigs (Official Gazette 75/09).

The treatment of flocks may be conducted only by an approved veterinary organisation or an approved veterinary service.

Each treatment of a flock must be recorded in the Records on animal treatments and withdrawal periods.

4. Measures of the submitted programme

4.1 Summary of measures under the programme

Year of implementation of the Programme: 2013

Measures:

X Control

X Testing

X Slaughter of animals tested positive

X Killing of animals tested positive

Vaccination

Treatment of animal products

X Disposal of products

Monitoring or surveillance

4.2 Designation of the central authority in charge of supervising and coordinating the departments responsible for implementing the programme

Describe the authorities in charge of supervising and coordinating the departments responsible for implementing the programme and the different operators involved. Describe the responsibilities of all involved

Competent authorities and organisations included in the Programme implementation

The competent body for the implementation of this Programme, in compliance with Article 3, paragraphs 1 and 2, items (a) and (b) of the Ordinance on the control of salmonella and other specified food-borne zoonotic agents (Official Gazette 85/12) is the Ministry of Agriculture– the Veterinary Directorate.

The competent body for supervision and control of the Programme implementation in the field is the Ministry of Agriculture– Veterinary Directorate - Veterinary Inspection Sector.

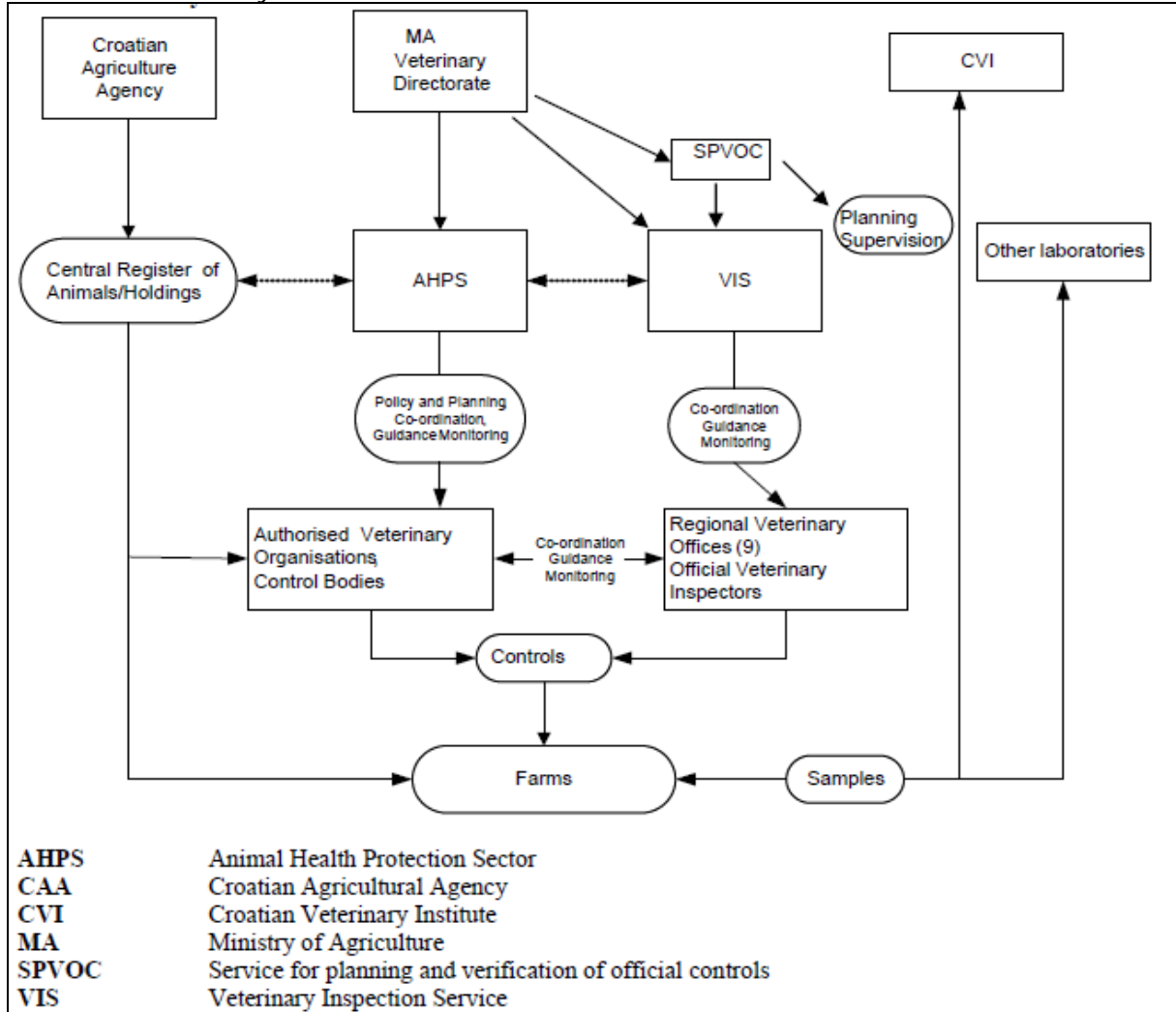
Taking and submitting of samples to the laboratory is conducted by approved veterinarians.

Treatment of flocks may be conducted by approved veterinary organisations or an approved veterinary service in compliance with the provisions of Article 2, paragraph 2, subitem (c) of the Ordinance on specific control methods in the framework of the national programmes for the control of salmonella in poultry (Official Gazette 72/08).

Laboratory diagnostic is done in NRL for salmonella and NRL for AMR as well as in the official laboratories. In August 2010, Croatia issued the "Ordinance on designation of official and reference laboratories in the implementation of veterinary activities" (OG No 102/10), which provides that all laboratories which perform official control in the field of veterinary medicine including feed and some parts of food of animal origin should be accredited by the Croatian Accreditation Agency to EN ISO 17025:2007.

Information on flow between bodies involved in the implementation of the programme is described in the Scheme 2: Control system for animal health in Croatia:

Scheme 2: Control system for animal health in Croatia

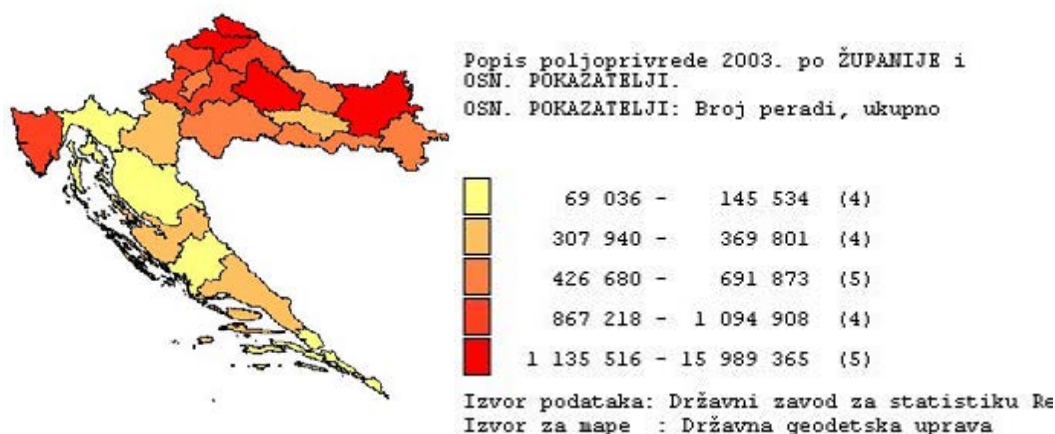


4.3 Description and delimitation of the geographical and administrative areas in which the programme is to be implemented

Describe the name and denomination, the administrative boundaries, and the surface of the administrative and geographical areas in which the programme is to be applied. Illustrate with maps.

The Programme in breeding flocks is implemented throughout the Republic of Croatia from 1 January to 31 December.

Scheme 3. Area of programme implementation and Distribution of poultry farms density per counties



4.4 Measures implemented under the programme

4.4.1 Measures and applicable legislation as regards the registration of holdings

Pursuant to the provisions of Article 38, paragraph 1 of Veterinary Act, farms of ungulates and equidae exceeding 20 conditional animal units, poultry and rabbit farms exceeding 10 conditional animal units, hatcheries, wild game breeding farms, establishments for farming of fish and molluscs and other facilities of aquaculture must comply with the stipulated veterinary-health and zoohygiene conditions.

Pursuant to the provisions of Article 38, paragraph 3 of the Veterinary Act, all farms are to be registered in the Farms Register, which is an integral part of the Central Register of Domestic Animals, the responsibility for which lies with the MA's Veterinary Directorate. The Directorate has entered into contract with the Croatian Agricultural Agency, delegating to it the maintenance of the Central Register of Domestic Animals.

In Croatia all broiler farms of *Gallus gallus* are registered. Updates on this are kept in the Croatian Agricultural Agency.

Ordinance on animal health conditions governing trade with EU and imports from third countries of poultry and hatching eggs (OG 83/09, 107/11) is alligned with Directive 90/539 and Directive 2009/158.

4.4.2. Measures and applicable legislation as regards the identification of animals

Not applicable to the poultry

4.4.3 Measures and applicable legislation as regards the notification of the disease

A detail disease notification procedure is prescribed by Veterinary Act and Ordinance on the notification of animal diseases (OG 62/11,114/11). For the purpose of timely reactions and undertaking of measures for the prevention and eradication of the disease, disease notification is organised as urgent exchange of information between the Veterinary Directorate, Official Laboratories and veterinary services in the field. Any suspicion and confirmed case of all zoonotic diseases must be reported immediately.

Pursuant to reports on disease occurrence issued by veterinary organisations and laboratory reports, the Veterinary Directorate drafts a monthly report about the occurrence and spread of animal diseases in the Republic of Croatia. All monthly reports are regularly published on the web site of the MA (www.mps.hr).

Regarding the international obligations on disease notification, in accordance to the aforementioned Croatian legislation, Veterinary Directorate regularly notifies European Commission (ADNS), World Organisation for Animal Health (WAHIS-OIE) and competent veterinary authorities of neighbouring countries on primary and secondary disease outbreaks as well as prepare six-monthly and annual reports for OIE.

In order to raise awareness of animal owners on the importance of immediate notification of disease as well as to regain the knowledge of veterinarians and veterinary inspectors on disease notification procedure, a leaflet "Obligatory animal disease notification" has been prepared by Veterinary Directorate and distributed throughout veterinary organisations on all holdings in the country.

4.4.4. Measures and applicable legislation as regards the measures in case of a positive result

Legislation:

- Veterinary Act (Official Gazette 41/07,55/11);
- Ordinance on the control of salmonella and other specified food-borne zoonotic agents (Official Gazette 85/12) aligned with regulation 2160/2003;
- Ordinance on the reduction of prevalence of Salmonella Enteritidis and Salmonella Typhimurium in turkeys (Official Gazette 34/10) aligned with Regulation 584/2008;
- Ordinance on specific control methods in the framework of the national programmes for the control of salmonella in poultry (Official Gazette 72/08) aligned with Regulation 1177/2006;
- Ordinance on harmonised monitoring of antimicrobial resistance in salmonella in poultry and pigs (Official Gazette 75/09) aligned with Decision Decision 2007/407;
- Ordinance on the notification of animal diseases (Official Gazette 64/11,114/11);
- Order on measures to protect animals from infectious and parasitic diseases and the financing thereof in callender year;
- Food Act (Official Gazette 46/07,55/11) aligned with regulation 178/2002;
- Ordinance on animal by-products not intended for human consumption (Official Gazette 87/09) aligned with Regulation 1774/2002;
- Ordinance on the authorisation of official and reference laboratories in the area of conducting veterinary activity (Official Gazette 102/10).

A flock of fattening turkeys is considered positive:

- when presence of S. Enteritidis and/or S. Typhimurium (other than vaccine strains) is detected in the tested sample;
- when presence of S. Enteritidis or S. Typhimurium is not detected, but antimicrobials or bacterial growth inhibitors are detected, and at the same time there is no relevant evidence on treatment of other diseases.

If laboratory analysis confirms the presence of S. Enteritidis and/or S. Typhimurium, the flock will be considered infected and the responsible veterinary inspector must order the owner to implement the following measures:

- prohibition on the use of antimicrobials for the treatment of flocks infected with *S. Enteritidis* and/or *S. Typhimurium*;
- prohibition on the placing on the market of fresh poultry meat originating from the positive flock;
 - Products originating from this poultry may only be placed on the market for human consumption if they meet the requirements set out in Annex II, Part E of the Ordinance (Official Gazette 85/12) and comply with the provisions of the Ordinance on microbiological criteria for foodstuffs (Official Gazette 74/08, 156/08, 89/10 i 153/11).
- appropriate cleaning, washing and disinfection of buildings, instruments and utensils at places where poultry feed is produced and stored;
- cleaning, washing and disinfection of vehicles using appropriate disinfectants;
- disinfection, disinfestation and deratisation of infected poultry premises; upon completion of disinfection, its efficiency must be bacteriologically tested;
- removal and sanitary treatment of manure in a prescribed way;
- Re-stocking may not take place until negative results have been obtained from disinfection efficiency control;
- When sending positive flocks for slaughter all measures must be taken to minimise the risk of possible spread of disease.

It is not permitted to use antimicrobials as a specific method to control any salmonella in fattening turkey flocks. In case treatment must be carried out, the same must be done in accordance with the provisions of the Ordinance on specific control methods in the framework of the national programmes for the control of Salmonella in poultry (Official Gazette 72/08) and the provisions of the Ordinance on harmonised monitoring of antimicrobial resistance in Salmonella in poultry and pigs (Official Gazette 75/09).

The treatment of flocks may be conducted by an approved veterinary organisation or an approved veterinary service.

Each treatment of a flock must be recorded in the Records on animal treatments and withdrawal periods.

The use of vaccines against Salmonella is not mandatory. Vaccination of poultry as a prophylactic measure to control salmonellosis must be carried out in accordance with the provisions of the Ordinance on specific control methods in the framework of the national programmes for the control of Salmonella in poultry (Official Gazette 72/2008). If live vaccines against Salmonella are used, the vaccine manufacturer must provide an appropriate method for bacteriological differentiation between field and vaccine strains. The vaccine manufacturer must send the necessary laboratory diagnostic material to all laboratories approved for the testing of Salmonella in poultry.

The procedure for the registration and approval of vaccines is conducted in accordance with the Veterinary Act (Official Gazette 41/07, 55/11) and the Act on Veterinary Medicinal Products and Veterinary Medical Devices (Official Gazette 84/08).

4.4.5. Measures and applicable legislation as regards the different qualifications of animals and herds

All fattening turkey flocks the products of which (fresh meat and/or meat products) are intended for public consumption must be tested for the presence of *S. Enteritidis* and *S. Typhimurium* on official samples submitted to an approved laboratory.

"Flock" means all poultry of the same health status kept on the same premises or in the same enclosure and constituting a single epidemiological unit; in the case of housed poultry; this includes all birds sharing the same airspace.

4.4.6. Control procedures and in particular rules on the movement of animals liable to be affected or contaminated by a given disease and the regular inspection of the holdings or areas concerned

Within the framework of national control programme (routine active monitoring) all samples are taken by authorized veterinarians. FBO are not allowed to take samples within national monitoring programme (for the purpose of the routine active monitoring).

Official controls of holdings are done according to annual plan of the official controls holdings. Particular attention is given to holdings where one of the relevant Salmonellas was detected in the previous rearing or production cycle. Sampling must also be done on a risk basis each time the responsible veterinary inspector or the body responsible for the implementation of this Programme considers it necessary.

Samples for the purposes of official control at the primary production stage shall be taken by official veterinarians in accordance with the Ordinance on the reduction of prevalence of Salmonella Enteritidis and Salmonella Typhimurium in turkeys (Official Gazette 34/10), aligned with Regulation 584/2008. All samples taken for the purpose of the official control must be tested in NRL for Salmonella in poultry.

In case of suspicion on Salmonella infection, veterinary inspector will order additional sampling in order to confirm or exclude the suspicion and additional measures have to be done on the holding (movement restrictions for live animals, products, disinfection of the vehicles and equipment etc.). A detailed epidemiological investigation is done in order to determine possible source of the infection. In case diseases is confirmed a detail measures are prescribed for SE/ST positive holding.

4.4.7. Measures and applicable legislation as regards the control (testing, vaccination, ...) of the disease

Testing of fattening turkey flocks is done according to the Ordinance on the reduction of prevalence of Salmonella Enteritidis and Salmonella Typhimurium in turkeys (Official Gazette 34/10) which is aligned with Regulation 584/2008 and Annex II, part B of the Ordinance on the control of Salmonella and other specified food-borne zoonotic agents (OG 85/12) which is aligned with Regulation 2160/2003.

Fattening turkeys will be sampled within three weeks before they are moved to the slaughterhouse by taking the boot swab samples inside the house.

The use of vaccines against Salmonella is not mandatory. Vaccination of poultry as a prophylactic measure to control salmonellosis must be carried out in accordance with the provisions of the Ordinance on specific control methods in the framework of the national programmes for the control of Salmonella in poultry (Official Gazette 72/2008). If live vaccines against Salmonella are used, the vaccine manufacturer must provide an appropriate method for bacteriological differentiation between field and vaccine strains. The vaccine manufacturer must send the necessary laboratory diagnostic material to all laboratories approved for the testing of Salmonella in poultry. The procedure for the registration and approval of vaccines is conducted in accordance with the Veterinary Act (Official Gazette 41/07, 55/11) and the Act on Veterinary Medicinal Products and Veterinary Medical Devices (Official Gazette 84/08).

Vaccination can be done only by authorized veterinary organizations or approved veterinary services. Currently only one vaccine is approved and registered according to the above mentioned legislation – Nobilis Salenvac T (inactivated vaccine), Intervet.

Samples are prepared and tested in a laboratory in accordance with the requirements set forth in the Ordinance on the reduction of prevalence of Salmonella Enteritidis and Salmonella Typhimurium in turkeys (Official Gazette 34/10). The detection of the relevant Salmonella serotypes shall be carried out according to Amendment 1 of HRN EN/ISO 6579: 2003/Amd1:2007. 'Microbiology of food and animal feeding stuffs – Horizontal method for the detection of Salmonella spp. — Amendment 1: annex D: Detection of Salmonella spp. in animal faeces and in environmental samples from the primary production stage. At least one isolate is serotyped according to the Kaufmann-White scheme.

Samples shall be sent by express mail or courier to the official laboratories within 24 hours after collection. If not sent within 24 hours, they must be stored refrigerated. Transportation can be at ambient temperature as long as excessive heat (over 25 °C) and exposure to sunlight are avoided. At the laboratory samples shall be kept refrigerated until examination, which shall be carried out within 48 hours following receipt.

Salmonella isolates collected through this program must be subject to monitoring on antimicrobial resistance in accordance with item 2 of Annex to the Ordinance on harmonised monitoring of antimicrobial resistance in Salmonella in poultry and pigs (Official Gazette 75/09).

It is prohibited to use antimicrobials for the control and treatment of fattening turkey flocks infected by Salmonella spp.

Treatment of the flock must be conducted in compliance with the provisions of the Ordinance on specific control methods in the framework of the national programmes for the control of salmonella in poultry (Official Gazette 72/08) which is alligened with Regulation 1177/2006 and the provisions of the Ordinance on harmonised monitoring of antimicrobial resistance in salmonella in poultry and pigs (Official Gazette 75/09).

Antimicrobials must be used on the basis of results of bacteriological examination and antibiograms. A competent veterinary inspector must conduct regular supervision of the use of antimicrobials and he must submit reports on conducted supervision to the Veterinary Directorate once a month (until the 15th of a month for the previous month).

Treatment of an infected flock, in compliance with the Decision issued by a competent veterinary inspector, is conducted by approved veterinary organisations and approved veterinary services. After conducted treatment, it is necessary to conduct a control of efficacy of the conducted therapy in a manner that control samples are taken from poultry twice, on the 7th and 14th day from the beginning of the therapy, and delivered to a laboratory for analysis. Each treatment of a flock must be recorded in the Records on Animal Treatment and Waiting Period.

4.4.8 Measures and applicable legislation as regards the compensation for owners of slaughtered and killed animals

Any financial assistance provided to food and feed businesses in the context of the programme.

Compensation for owners of slaughtered or killed flocks is prescribed by Articles 26, 27 and 28 of the Veterinary Act (OG 41/07, 55/11).

Measures of killing or in certain cases emergency slaughter of infected animals or of those suspected of infection, and in the cases of animal welfare protection, disposal of the contaminated objects shall be ordered when the infectious disease can not be successfully and without the risk of spread thereof, be suppressed with the implementation of other measures stipulated by the Act or when there is no economic justification for the implementation of other measures for the suppression of the disease.

For animals killed, slaughtered or for animals which have died due to the implementation of the ordered measures, as well as for the objects that were damaged or destroyed in the course of the implementation of the ordered measures referred to in Article 26, the animal holder or the owner of the object are entitled to the compensation in the amount of the market value on the day of the implementation of the measure.

The assessment of the value of the animals and objects is carried out by the commission appointed by the CVO, the composition of which must include the competent veterinary inspector. The decision on the entitlement to the damage compensation and on the amount of damage compensation is passed by the CVO upon the proposal of the commission within 60 days, while payment must ensue not later than 90 days from the day of implementation of the measures.

The animal holder or owner of the object is not entitled to damage compensation referred:

- if he failed to immediately report the appearance of the infectious disease and did not treat the animal in the manner stipulated by the of the implementing legislation.
- if he failed to undertake the stipulated or ordered measures for the prevention and control of infectious or parasitic diseases,

- if he transfers the animal from an uninfected to an infected or endangered area or from the infected or endangered area to the uninfected area,
- if he conducts trade of animal contrary to the provisions of Veterinary Act,
- if the animal disease appeared during import or within the duration of quarantine of the imported animal.

Due to the above mentioned:

- Costs of regular sampling and submission of samples to the laboratory are entirely borne by the bird holder. Costs of laboratory examination of samples (salmonellosis and antimicrobial resistance) prescribed by programme are entirely settled from the State Budget.
- Costs of sampling, submission of samples to the laboratory and laboratory examination for the purpose of the official controls are entirely settled from the State Budget.
- Costs incurred by the implementation of measures in case of suspicion/positive results are settled from the State Budget in accordance with the Veterinary Act (Official Gazette 41/07, 55/11).
- Costs of vaccine procurement and preventive vaccination of poultry are entirely borne by the bird holder.
- Costs incurred by the implementation of measures in regard to monitoring of antimicrobial resistance in Salmonella are entirely settled from the State Budget.

During 2011 only one small fattening turkey flock kept in free-range system was positive on *S. Enteritidis* and all 806 birds were culled and destroyed. Regarding other poultry, only two large companies carried slaughtering of positive poultry flocks (*Gallus gallus*) originating exclusively from their co-operators. All the other flocks from the producers that were not in cooperation with those companies had to be killed and destroyed due to no interest for such flocks on Croatian market.

4.4.9. Information and assessment on bio-security measures management and infrastructure in place

The guidelines of good manufacturing practice are stipulated by the Veterinary Act, the Food Act and the implementing secondary regulations. Continuous education of veterinarians, producers and animal holders is conducted through the Croatian Veterinary Chamber, the Croatian Chamber of Economy and the Advisory Services of the Ministry of Agriculture. The guidelines are elaborated in accordance with the recommendations of the European Commission, the World Organisation for Animal Health (OIE) and the latest scientific developments.

Primary production establishments and food and feed business operators must ensure the following:

- implementation of hygienic measures on holdings, in establishments and during transport in a regulated manner,
- implementation of measures for the prevention of disease introduction,
- disposal of biological waste,
- respect of animal welfare.

5. General description of the costs and benefits of the programme

A description is provided of all costs for the authorities and society and the benefits for farmers and society in general

The programme covers all fattening turkey flocks the meat and/or meat products of which are intended for human consumption. All flocks the products of which (fresh meat and/or meat products) are intended for public consumption must be examined for the presence of *S. Enteritidis* and *S. Typhimurium* by submitting official samples to an official laboratory. From fattening turkeys samples are taken within three weeks before moving the poultry to a slaughterhouse.

Slaughtering of fattening turkeys is mostly carried out when the poultry is 24 weeks old. However, in intensive breeding when turkeys are fattened throughout the year, slaughtering of female turkeys may start earlier when they are 20 weeks old or less (the so-called thinning out

of a flock). In such cases (when 'all in-all out' principle is not applied in slaughtering of a flock), it is important to know the flock status in regard to salmonella before submitting the first delivery of turkeys for slaughter. If a delivery of turkeys for slaughter from the same flock lasts more than 6 weeks, it is necessary to repeat the sampling of the flock for the presence of salmonella. The results of the analysis on the samples must be known before the animals leave for the slaughterhouse.

In the year 2011 a total number of 1124 samples from fattening turkey flocks were tested in the framework of official sampling. This number includes routine sampling of flocks prior slaughtering.

Laboratory testing -total fattening turkey flocks Gallus gallus 2011						
Type of test	No of tests	Type of test	price/per sample	total price (withouth VAT)	VAT	Total + VAT
Bacteriology testing-isolation Salmonella spp.	1124	Bacteriology testing-isolation Salmonella spp.	13,35 €	15.005,40 €	3.451,24 €	18.456,64 €
Biokemical characterisation API line	11	Biokemical characterisation API	18,41 €	202,51 €	46,58 €	249,09 €
Serotyping Salmonella spp.	11	Serotyping Salmonella spp.	32,01 €	352,11 €	80,99 €	433,10 €
Total				15.560,02 €	3.578,80 €	19.138,82 €

Within the framework of national control programme (routine active monitoring) all samples are taken by authorized veterinarians and are therefore considered as official samples. FBO are not allowed to take samples within national monitoring programme (for the purpose of the routine active monitoring). Sampling performed by FBO is used only for their self-control purpose.

The number of bacteriological tests planned for the year 2013 represents the estimates of the data of previous years.

In the year 2011, 1124 samples from 169 fattening turkey flocks were sampled and tested in the framework of programme. Out of that number and based on data from the official laboratories 16 samples were serotyped and Salmonella spp was in only 1 sample.

According to data on number of tested fattening turkey flocks in 2011, it is assumed that in 2013, no increase of production could be expected and no increase of the costs accordingly.

If we make allowance for this trend, we can establish that in 2013 approximately 1125 bacteriological tests and 15 serotyping tests will be performed in the framework of official sampling.

6. Data on the epidemiological evolution during the last five years: data available only for:2011

Data already submitted via the online system for the years 2007 - 2010: NO

6.1 Evolution of the zoonotic salmonellosis

6.1.1 Data on evolution of zoonotic salmonellosis for:

Year 2011

Type of flock	Total Number of flocks	Total number of animals	Total number of flocks under the programme	Total number of animals under the programme	Number of flocks checked	Number of positive flocks		Number of flocks depopulated		Total number of animals slaughtered or destroyed		Quantity of eggs destroyed (number or kg)		Quantity of eggs channeled to egg products (number or kg)	
						Serotypes targeted in control programme	Other serotypes	Serotypes targeted in control programme	Other serotypes	Serotypes targeted in control programme	Other serotypes	Serotypes targeted in control programme	Other serotypes	Serotypes targeted in control programme	Other serotypes
Fattening turkey flock	169	no data available	169	No data available	169	1	0	1	0	806	0	0	0	0	0

6.2 Stratified data on surveillance and laboratory tests

6.2.1 Stratified data on surveillance and laboratory tests for year: 2011

Animal species (a): Turkey Category(b): Fattening

Description of the used serological tests: Not applicable

Description of the used microbiological or virological tests: Current version of Annex D of HRN EN/ISO 6579: 2003: „Detection of Salmonella spp. in animal faeces and in samples of the primary production stage“.

Description of the other used tests:

Region(c)	Serological tests		Microbiological or virological tests		Other tests	
	Number of samples tested(d)	Number of positive samples(e)	Number of samples tested(d)	Number of positive samples(e)	Number of samples tested(d)	Number of positive samples(e)
CROATIA	0	0	1124	11(Salmonella spp.)	Biokemical characterisation API line	11
					Serotyping Salmonella spp	11
Total						

(a) Animal species if necessary.

(b) Category/further specifications such as breeders, laying hens, broilers, breeding turkeys, broiler turkeys, breeding pigs, slaughter pigs, etc, when appropriate.

(c) Region as defined in the programme of the Member State.

(d) Number of samples tested.

(e) Number of positive samples.

6.3 Data on infection for year: 2011

Animal species: Broiles of Gallus gallus

Region(c)	Number of infected herds	Number of infected animals
CROATIA 2011	1 x S. Enteritidis	806
Total	1	806

6.4 Data on vaccination or treatment programmes for year 2011

Not applicable-vaccination of fattening turkey flocks has not been carried out.

7. Targets

7.1. Targets related to testing (one table for each year of implementation)

7.1.1. Targets on diagnostic tests: Sampling 2013

Animal species: (a): Fattening turkey

Region ^(b)	Type of the test ^(c)	Target population ^(d)	Type of sample ^(e)	Objective ^(f)	Number of planned tests
Croatia	Bacteriology testing-isolation Salmonella spp.	Fattening turkey flocks	Faeces	Surveillance, monitoring	1125
	Biokemical characterisation API	Fattening turkey flocks	Faeces	Surveillance, monitoring	15
	Serotyping Salmonella spp.	Fattening turkey flocks	Faeces	Surveillance, monitoring	15
Total					1155

- (a) Animal species if necessary.
- (b) Region as defined in the approved control and eradication programme of the Member State.
- (c) Description of the test.
- (d) Specification of the targeted species and the categories of targeted animals if necessary.
- (e) Description of the sample (for instance faeces).
- (f) Description of the objective (for instance surveillance, monitoring, , control of vaccination).

7.1.2. Targets on testing of flocks¹

Year: 2013

Situation on date: 2011

Animal species: turkey-fattening flock Infection^(a): SE/ST

Region (a1)	Type of flock ^(b)	Total number of flocks ^(c)	Total number of animals	Total number of flocks under the programme	Total number of animals under the programme	Expected number of flocks to be checked ^(d)	Number of flocks expected to be positive ^(e)			Number of flocks expected to be depopulated ^(a)		Total number of animals expected to be slaughtered or destroyed ^(a)		Expected quantity of eggs to be destroyed (number or kg) ^(a)		Expected quantity of eggs channelled to egg products (number or kg) ^(a)	
							(a1)	(a2)	(a3)	(a4)	(a3)	(a4)	(a3)	(a4)	(a3)	(a4)	(a3)
Croatia	Fattening turkey	169	-	169	-	169	1	1	8	2	0	15.000	0	0	0	0	0
Total																	

- (a) For zoonotic salmonellosis indicate the serotypes covered by the control programmes: (a1) for Salmonella Enteritidis, (a2) for Salmonella Typhimurium, (a3) for other serotypes-specify as appropriate, (a4) for Salmonella Enteritidis or Salmonella Typhimurium.
- (a1) Region as defined in the approved control and eradication programme of the Member State.
- (b) For example, breeding flocks (rearing, adult flocks), production flocks, laying hen flocks, breeding turkeys, broiler turkeys, breeding pigs, slaughter pigs, etc. Flocks or herds or as appropriate.
- (c) Total number of flocks existing in the region including eligible flocks and non-eligible flocks for the programme.
- (d) Check means to perform a flock level test under the programme for the presence of salmonella. In this column a flock must not be counted twice even if it has been checked more than once.
- (e) If a flock has been checked, in accordance with footnote (d), more than once, a positive sample must be taken into account only once

¹ Specify types of flocks if appropriate (breeders, layers, broilers).

7.2. Targets on vaccination (one table for each year of implementation) – not applicable on fattening turkey flocks

8. Detailed analysis of the cost of the programme (one table per year of implementation)

Costs related to	Specification	Number of units	Unitary cost in EUR	Total amount in EUR	Union funding requested (yes/no)
1. Testing					
1.1. Cost of the sampling		0			No
	Domestic animals	0			No
1.2. Cost of the analysis	Bacteriological tests (cultivation) in the framework of official sampling	1125	13,35	15.018,75	Yes
	Serotyping of relevant isolates	15	35,00	525,00	Yes
	Bacteriological test to verify the efficiency of disinfection of poultry houses after depopulation of a salmonella-positive flock	15	13,35	200,25	Yes
	Test for the detection of antimicrobials or bacterial growth inhibitory effect in tissues from birds from flocks tested for salmonella	15	100,00	1.500,00	Yes
	Other (please specify)	-			

2. Vaccination	(If you ask for co-financing for the purchase of vaccins, you should also fill in points 6.4 and 7.2 as vaccination policy should be part of your programme)	0			No
2.1. Purchase of vaccine doses	Number of vaccine doses	0			No
3. Slaughter and destruction					
3.1. Compensation of animals	Compensation of animals slaughtered or killed positive on SE/ST	30.000,00	4,00	120.000,00	Yes
3.2. Transport costs					No

3.3. Destruction costs					No
3.4. Loss in case of slaughtering					No
3.5 Costs from treatment of animal products (milk, eggs, hatching eggs, etc)					No
4. Cleaning and disinfection					No
5. Salaries (staff contracted for the programme only)					No
6. Consumables and specific equipment					No
7. Other costs					No
Total				137.244,00	