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HEALTH AND CONSUMERS DIRECTORATE-GENERAL

Unit G5 Veterinary programmes

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**REPORT OF THE
FOODBORNE ZONOSSES –SALMONELLOSIS
SUB-GROUP TASK FORCE**

Meeting of the Task Force for monitoring disease eradication in the Member States:

Cyprus

6-7 October 2011

**Report of the meeting of *Salmonella* sub-group of the Commission's Task Force for
Monitoring animal disease eradication held in Nicosia, Cyprus
6-7 October 2011**

Participants: see Annex I

Agenda: see Annex II

Introduction

This report is a short summary of the various informative presentations given during the 6th meeting of the subgroup of the Commission's Task Force for monitoring *Salmonella* control. The main aim of the meeting was to exchange views on presentations and open subsequent subgroup discussions on the details of execution of the *Salmonella* control programmes in breeding flocks and in laying hens of *Gallus gallus* implemented in Cyprus, as well as to give floor for presentations and subgroup discussions on the impact of biosecurity measures in the successful implementation of *Salmonella* control programmes in general.

Scope

The expert group meeting in Cyprus was the sixth of a planned series of meetings with the scope of initiating discussions on the details of implementation of the national *Salmonella* control programs in poultry populations run in the Member States with the aim to share experiences, identify common obstacles as regards the implementation of programmes, and to identify areas where further work and solutions may be sought.

The meeting encompassed the following subject presentations:

- Experiences and challenges of the implementation of the *Salmonella* control programme in breeding flocks of *Gallus gallus* in Cyprus
- Implementation of the *Salmonella* control programme in laying flocks , broilers *Gallus gallus* and in turkeys in Cyprus
- The role of biosecurity in the implementation of the *Salmonella* control programmes in flocks of breeding and laying hens
- National Reference Laboratory for Salmonellosis

Discussion sessions took place after each presentation, and resulted in a final discussion with common conclusions and recommendations, see Annex II Agenda.

Points discussed

Breeding Flocks

The present *Salmonella* control programme in breeding flocks, implementing EU regulations, has been in operation since 2007.

Holdings must be authorised by the competent authority. Farmers are compensated for the removal of infected flocks. Details of the roles and responsibilities of central and regional authorities and operators under EU and national regulations were discussed in detail. There are 4 breeding companies which between them own 4 hatcheries and 13 breeding farms, comprising a total of 43 flocks in production at any one time. The small scale of the industry means that the farm owners and holdings are well known to the Animal Health and Welfare Division (AHWD) team so it should be possible to oversee monitoring and control programmes in a very precise way, subject to staff resource availability. In 2011 there had been 4 *S. Enteritidis* (SE) positive flocks and 2 flocks positive with other serovars up to October, which is similar to results at the start of the programme. All of these were broiler breeder flocks. Breeding flocks are culled if any of the 5 specified serovars are identified. There is however some doubt about the accuracy of operator testing for all poultry sectors in private laboratories since there is a significant discrepancy between the prevalence obtained from official and operator samples, with the latter normally being negative. The sampling programme for routine testing of breeding flocks has not always been completely in line with legislative requirements, therefore amendments have been made to the testing protocol and newspaper-based hatcher basket liners are tested rather than meconium samples taken from chicks. Protocols regarding testing of hatcher basket liners were supplied after the meeting, although testing on the holding was recommended as being the most reliable and relevant method for enhanced control of dissemination in hatcheries. Vaccination is currently carried out using 2 doses of live SE vaccine and one dose of killed SE vaccine. It is very important to ensure that vaccines are administered properly if they may have limited effectiveness.

Laying Hens

The present *Salmonella* control programme in layers, implementing EU regulations, has been in operation since 2008.

Holdings have to be registered. There are 40 registered and laying hen holdings, mostly in Nicosia and Larnaka areas. A complex network of authorities is responsible for overseeing statutory requirements on the farms.

Strong points are the slaughter of SE or ST positive flocks and official sampling of disinfected houses. Additional official testing is carried out twice a year in order to renew the licence for egg production, which considerably enhances the degree of confidence in the test results from laying farms. Eggs from positive flocks are also withdrawn from the market. In 2010, 60 flocks on 33 of the holdings were officially tested with 12 positive results, 3 relating to regulated serovars. Vaccination for SE is normally used but is not compulsory. As above, the main issue is ensuring that all flocks are properly sampled according to statutory protocols and that the samples are effectively tested, since most flocks are only subject to operator testing. Issues relating to testing for vaccine strains and additional voluntary testing of 4000 eggs were discussed and protocols for this were supplied after the meeting.

Broilers

The present *Salmonella* control programme in layers, implementing EU regulations, has been in operation since 2009.

Holdings have to be registered and there are 105 registered holdings, mainly in Nicosia and Larnaka areas. No SE or ST has been found in official samples in 2009 and 2010 and results of operator sampling suggested a similar prevalence. One SE – positive flock has been identified in 2011. Samples are also taken at slaughter according to requirements for microbiological criteria and process hygiene criteria. Most of the serovars found are likely to be related to feed contamination, with or without subsequent persistence on holdings

Turkeys

The present *Salmonella* control programme in layers, implementing EU regulations, has been in operation since 2010.

Holdings have to be registered. There are only 9 holdings with fattening flocks but not all flocks were tested in 2010. Four positive results (non SE/ST) were obtained from 11 flocks tested. It is expected that testing in 2011 will be more complete.

Biosecurity

Farm hygiene and farm management is an important part of any *Salmonella* control programme. Preventive measures outlining structural and management requirements for poultry farms were introduced in detail. Breeding farms are operated on an all-in/all-out basis, with cleaning and disinfection between flocks. After a *Salmonella*-positive flock there is a prolonged down-time and some testing of disinfected houses is carried out, but it is recognised that this might not be sufficiently sensitive to detect low levels of non-uniform contamination.,. Protocols for biosecurity and sampling after cleaning and disinfection were supplied to the NRL Cyprus after the meeting. Some buildings and hatcheries are old and subject to some structural deterioration. Concern was expressed about the close proximity or urban location of some holdings or hatcheries, but this can be effectively managed with good biosecurity procedures

National Reference Laboratory

A short tour of the facility for food testing and serotyping was carried out. The laboratory is very well organised with knowledgeable management and staff. Procedures are carried out according to specification and the laboratory has ISO17025 accreditation. It was not possible to observe procedures for reception, preparation and pre-enrichment of samples from primary production at this visit. The NRL participates in ring trials on detection and serotyping organised by the EU-RL, and has demonstrated satisfactory performance in these trials.

Conclusions and recommendations of the subgroup

During the meeting a number of issues of common interest were raised and discussed, as regards potential obstacles to successful implementation of *Salmonella* control programmes in poultry.

- Sampling and laboratory network: *The validity of surveillance data is crucial, and some efforts should be directed into an investigation of possible differences in Salmonella prevalence data between official samples and samples taken by the food business operators. Reporting of data on sampling carried out by operators should be facilitated via the network of private laboratories on behalf of the farmers. The Competent Authority should inspect and designate laboratories analysing Salmonella samples under the national control programme, which should be accredited to perform the specific tests performed according to ISO17025. A database of flocks with their placement dates, expected depopulation dates and required sampling dates, together with results would help facilitate tracking of compliance with testing schedules. This should be possible to maintain centrally in view of the small number of flocks involved in the surveillance programme. It would be advisable to include some training and supervision of operators in sampling and a programme of checks for antimicrobial use in the case of confirmatory samples at least.*
- NRL: *NRL has a leading role to play in co-ordination of ring trials and regular proficiency testing, exchange of information and coordinating analysis of Salmonella samples carried out by laboratories. In cases where there is suspicion of poor performance of private laboratories, naturally contaminated samples which are dispatched under routine sampling procedures to different laboratories can often give a more realistic assessment than formal ring trials.*
- Stakeholder cooperation: *In general, it was felt that there is an improving cooperation among stakeholders along the food chain, i.e. amongst the veterinary, public health and poultry industry sectors. The number of human salmonellosis cases has also been falling in recent years. Regular stakeholder meetings with industry and their veterinary representatives can be helpful to enhance co-operation, particularly during the introduction of new control programmes. Training programme updates for all involved in Salmonella control programmes are valuable to maintain awareness.*
- Feed: *Introduction of Salmonella via poultry feed is still an important risk factor. Interventions possibilities that can be enforced locally need to be further explored in the absence of harmonised EU requirements. It is the recommendation of the subgroup that in feed production, any process control based on HACCP principles implemented would contribute to improvement. Especially the introduction of monitoring programmes for Salmonella in feed production based on testing process dust samples (e.g. from ingredient sieves, coolers, pellet shakers, dispatch areas and serotyping the resulting isolates to identify patterns of contamination for further investigation would facilitate identification of sources of contaminated ingredients and the occurrence of resident process contamination.*

- Vaccination: It is the recommendation of the subgroup that vaccination against *Salmonella* Typhimurium (as well as *Salmonella* Enteritidis) should be promoted under certain circumstances e.g. outdoor housing of birds on conditions necessary resources are available. In general good vaccination administration practice should be promoted in order to ensure comprehensive and efficient vaccination coverage against major zoonotic serovars.
- Disinfection: Further development of competencies for epidemiological investigations and decontamination measures should be encouraged. This is particularly important for the persistently infected holdings that are hindering progress, but also on the more general level of combining and analysing information from various points along the food chain, in order to identify and eliminate sources of *Saimonella* contamination. Protocols concerning biosecurity in chicken breeding and production were supplied after the meeting.

Summary of the presentations

1) Introduction,

George Christofi, Head of Animal Health and Welfare Division

The Department of Veterinary Services operates at central and regional levels. The central level is organized into two Divisions, the Animal Health and Welfare Division, and the Veterinary Public Health Division, and two main sections, State Veterinary Laboratories and Veterinary Medicinal Products. At regional level there are five District Veterinary Offices. In addition, six Regional Veterinary Stations, under the District Veterinary Offices, operate local offices in the more remote areas.

All divisions and sections, as well as the District Veterinary Officers operate under the Director of Veterinary Services.

The Animal Health and Welfare Division, the Veterinary Public Health Division, the State Veterinary Laboratories Section and the District Veterinary Offices are involved in the implementation of the Salmonella control programmes.

The Animal Health and Welfare Division is generally responsible for controls on: animal diseases; epidemiological surveillance programmes; eradication programmes; contingency plans for contagious diseases; animal identification; animal welfare, border inspection posts; intra EU trade of live animals; and semen collection and storage centres.

The Veterinary Public Health Division is generally responsible for the approval, registration and control of establishments producing food of animal origin and animal by products, the control of food of animal origin (with the exception of ice-cream and honey), the control of production, transportation, storing and placing in the market of products of animal of origin, the control of intra-community trade of products of animal origin, the preparation and implementation of the National Residues Monitoring Programme, and the RASFF system.

The State Veterinary Laboratories Section comprises the Laboratory for Animal Health and the Laboratory for the control of foods of animal origin.

The Laboratory for Animal Health performs analyses for the investigation and diagnosis of animal diseases. It is subdivided into laboratories for: virology, bacteriology serology, pathology (bacteriology and parasitology), histopathology, and TSE. The Pathology Laboratory is implementing the detection of Salmonella and the differentiation of the vaccine/field strain for the needs of the national control programmes.

The Laboratory for the control of foods of animal origin performs tests on food of animal origin, water and feedingstuffs, microbiological and physicochemical examinations, and tests for residues of veterinary medicines. The Laboratory for the control of foods of animal origin is the Salmonella National Reference Laboratory and performs the Salmonella serotyping for the needs of the national control programmes.

The total staff of the Veterinary Services is composed of 333 operators. This includes 73 Veterinary Officers, 12 Veterinary Pharmacists, 79 Veterinary Inspectors, 8 Veterinary assistants 24 accounting and clerical staff, 113 auxiliary staff. Furthermore 24 private Veterinarians are engaged on yearly contract.

2) Implementation of the Salmonella control programme in breeding flocks of *Gallus gallus* in Cyprus

Antonios Demetriou, Veterinary Officer, Nicosia District Veterinary Office

The Animal Health and Welfare Division is responsible for the coordination and supervision of the Salmonella control programmes. The District Veterinary Offices are responsible for the collection and transport of samples to the Pathology laboratory and for informing the owners of the holdings for Salmonella test results. Test results from official samples are sent by the laboratory to the Animal Health and Welfare Division and to the District Veterinary Offices where the sampling took place. Tests results from own-check samples are collected by District Veterinary Offices officials and sent annually to the Animal Health and Welfare Division. In case of positive flocks the Veterinary Public Health Division is notified.

Breeding farms are registered by the Veterinary Services under EU and National Law. All breeding farms are located in Nicosia District. There are 16 registered farms which currently accommodate 43 adult flocks. These farms belong to four companies which own one hatchery each. The Salmonella control programme started in breeding flocks in 1/1/2007. Official samplings are performed at the hatchery and positive cases are confirmed at the farm. Positive flocks for the relevant serotypes and their eggs are destroyed.

In 2008 and 2010, during official controls, no Salmonella positive flock was found. In 2007, 7/19 flocks officially tested were found positive, out of which one was positive for Salmonella Enteritidis. In 2009, 1/44 flocks officially tested was found positive for Salmonella Enteritidis. In the first semester of 2011, 6/37 flocks officially tested were found positive for Salmonella, out of which four were positive for Salmonella Enteritidis and two for non relevant serotypes (Salmonella Seftenberg, Salmonella Group E4). All own checks were negative for the targeted serotypes, however detailed data were not presented.

3) Implementation of the Salmonella control programme in laying and broiler flocks of Gallus gallus in Cyprus

Elena Georgiou, Veterinary Officer A, Larnaca District Veterinary Office

The responsibilities within the Veterinary Services for the laying and broiler Salmonella control programmes are as presented for the program in breeding flocks. Moreover, private veterinarians in slaughterhouses are involved.

Laying farms are registered by the Veterinary Services, while the Department of Agriculture is issuing the licenses for egg production, market of eggs and packing centers. Broiler farms are registered by the Veterinary Services. Currently, there are 41 registered laying farms which annually accommodate approximately 96 adult flocks and 105 broiler farms which annually accommodate approximately 1940 flocks.

The control programme in laying hens started on 1/1/2008. Concerning official testing in laying hens, in 2008 5/40 flocks tested were found positive for Salmonella spp (0/5 positive flocks were positive for Salmonella Enteritidis, the serotypes found were Salmonella Anatum, Braenderup, Telaviv, Infantis and Salmonella Group E1- E4- C1). In 2009, 12/82 flocks tested were found positive for Salmonella spp (4/12 positive flocks were positive for Salmonella Enteritidis, the rest serotypes found were Salmonella Infantis, Kendougou, Blockley, Chester, Seftenberg, Braenderup, Anatum and Salmonella Group C2, C3), in 2010 12/60 flocks tested were found positive for Salmonella spp (3/12 positive flocks were positive for Salmonella Enteritidis, the rest serotypes found were Salmonella Seftenberg, Virchow, Infantis, Kendougou, Braenderup, Livingstone, Modevideo, Salmonella Group C and one was untypable). During the first semester of 2011, 7/41 flocks tested were found positive for Salmonella spp (3/7 positive flocks were positive for Salmonella Enteritidis, the rest serotypes found were Salmonella Infantis, Bredeney, Kendougou and Hadar).

Concerning own checks, in 2010, 74 flocks (232 samples) were tested and all were found negative. The control programme in broilers started in 1/1/2009. Concerning official testing, in 2009, 14 farms were tested (one flock in each farm) and one flock was found positive for Salmonella bredeney while in 2010, 9 farms were tested and one was found positive for Salmonella Dessau. In the first semester of 2011, 11 farms were tested and one flock was found positive for Salmonella Enteritidis. Concerning own checks, in 2010, 1132 broiler flocks were tested and 109 were found positive for Salmonella spp (none belonged to the targeted serotypes).

4) National Reference Laboratory for Salmonellosis, Kostas Arsenoglou, Veterinary Officer, Laboratory for the control of food of animal origin (LCFAO)

The Salmonella NRL is the LCFAO which provides services through microbiological, parasitological, presence of residues and physicochemical examinations on foods of animal origin including water and feeding stuffs. The same laboratory is also the NRL for other pathogens such as Listeria, Campylobacter, Trichinella spiralis, Staphylococcus, VTEC. The NRL performs serotyping to the Salmonella isolates of the national control programmes which are isolated by the Pathology Laboratory. The NRL is accredited according to ISO 17025 and has 13 methods accredited including Salmonella detection. Recently the NRL has applied for the accreditation of serotyping. The NRL participates annually to several Ring Tests including Salmonella detection and Salmonella serotyping with satisfactory results.

The NRL, in cooperation with the Animal Health Division and the Pathology laboratory, is under the progress of creating a list of private laboratories under its supervising that fulfill the provisions of Regulation 2160/2003.

5) Effective breeder and hatchery biosecurity
Antonios Demetriou, Veterinary Officer, Nicosia District Veterinary Office

The biosecurity measures recommended for breeding farms were presented. Emphasis was given to the weaknesses and strong points of their implementation to Cyprus. Among weak points is the existence of areas where farms are in very close distance to each other, the presence of hatcheries in main streets of the city and the old buildings. Among strong points in Cyprus are the cleaning and disinfection procedures and the control of visitors which are generally followed and the source of breeding poultry stock which is imported from good quality companies.

6) Queries on Interpretation of legislation and technical issues, Maria Liapi, Veterinary Officer A, Animal Health and Welfare Division

Issues concerning the implementation of the legislation were presented for discussion. Legal clarifications were discussed concerning the measures in eggs and the use of the confirmatory test according to Regulation 1237/2007, bulking of samples in own check sampling according to Regulation 517/2011, the supervising of own checks and private laboratories. Technical issues concerning technical protocols for the confirmatory tests in eggs and tissues and the examination of day old chicks in laying flocks (sampling after delivery) and separation of the field/vaccine strains were also discussed.

Finally, the subgroup wishes to thank our colleagues for informative presentations and discussions on sharing experiences relevant to the implementation of Salmonella control programmes in poultry.

ANNEX I

Participants:

Dr. Rob Davies, UK

Dr. Mogens Madsen, DK (apologies)

Dr. Miguel Angel Martin Esteban ES (apologies)

European Commission (DG SANCO-Unit G5):

Dr. Sarolta Idei

European Commission (DG SANCO-Unit G4):

Dr. Klaus Kostenzer

Representatives from Cyprus:

1 George Christofi	Senior Veterinary Officer
2 Ioannis Ioannou	Veterinary Officer A'
3 Maria Liapi	Veterinary Officer A'
4 Nikos Kyriakides	Veterinary Officer A'
5 Elena Georgiou	Veterinary Officer A'
6 Antonis Demetriou	Veterinary Officer
7 Popi Kyriakidou	Veterinary Officer
8 Tatiana Christofidou	Veterinary Officer
9 Agathi Maratheftou	Veterinary Officer
10 Constantinos Arsenoglou	Veterinary Officer
11 Nikos Zavros	Veterinary Officer
12 Demetris Epamedondas	Veterinary Officer
13 Eleni Savva	Veterinary Officer
14 Ioanna Sofroniou	Veterinary Officer
15 Michalis Kostoullos	Veterinary Officer
16 Maria Avraam	Senior Veterinary Inspector
17 Maria Pieri	Veterinary Inspector
18 Ioanna Samptani	Veterinary Inspector
19 Despina Rotsidou	Veterinary Inspector
20 Panayiotis Zaxariou	Veterinary Inspector
21 Alexandros Dionesiou	Veterinary Inspector
22 Avraam Paraskeva	Veterinary Inspector
23 Elias Costa	Veterinary Inspector
24 Elli Christofi	Veterinary Inspector
25 Androula Papadopoulou	Veterinary Inspector
26 Maria Papacharalambous	Vet. Labour
27 Theodoros Demetriou	Vet. Labour

ANNEX II

6-7 October 2011

Time	Item	Speaker
9:00- 9:30	Introduction	George Christofi, Head of Animal Health and Welfare Division
9:30- 10:00	Implementation of the Salmonella control programme in breeding flocks of <i>Gallus gallus</i> in Cyprus	Antonis Demetriou, Veterinary Officer, Nicosia District Veterinary Office
10:00- 10:30	Implementation of the Salmonella control programme in laying and broiler flocks of <i>Gallus gallus</i> in Cyprus	Elena Georgiou, Veterinary Officer A, Larnaca District Veterinary Office
10:30- 11:00	National Reference Laboratory for Salmonellosis	Kostantinos Arsenoglou, Veterinary Officer, NRL Salmonella
11:00- 11:30	Coffee Break	
11:30- 12:30	Effective breeder and hatchery biosecurity and the Cyprus realities	Antonis Demetriou, Veterinary Officer, Nicosia District Veterinary Office
12:30-13:15	Laboratory visit	AHWD small group and Task Force
13:30-15:30	Discussions on challenges	

6 October 2011 - Day 1**7 October 2011 - Day 2**

9:00- 10:00	Queries on Interpretation of legislation and technical issues	M. Liapi, Veterinary Officer A', Animal Health and Welfare Division
10:00- 10:30	Coffee break	
10:30-12:30	Round Table	M. Liapi, A. Marathefti, Task Force Group
12:30- 14:00	Discussions	Recommendations of Task Force group