

EUWEP

European Union of wholesale with eggs, egg products, poultry and game

Community guide for good hygiene practices in pullet rearing and egg laying flocks



PREFACE

In accordance with article 9 of Regulation (EC) 852/2004 of the European Parliament and of the Council on the hygiene of foodstuff, COPA-COGECA and EUWEP¹ welcome the opportunity to issue this voluntary *Community guide for good hygiene practices in pullet rearing and egg laying flocks*.

This document is mainly directed at pullet rearing and egg laying flocks and it aims at providing guidance to effective application of Regulation (EC) 2160/2003 of the European Parliament and of the Council on the control of *Salmonella* and other specified food-borne zoonotic agents. Eggs are primary products in the sense of Regulation (EC) No. 852/2004 on the hygiene of foodstuffs.All provisions of the relevant EC hygiene legislation, especially Regulation (EC) No. 852/2004 apply correspondingly.

This Code complements other Codes of Practice that are in operation in the member states and the recommendations set out in the OIE. It is intended as a general guide to suitable standards and should not replace stricter local requirements for the control of *Salmonella*.

¹ COPA-COGECA is the Committee of Professional Agricultural Organisations and the General Confederation of Agricultural Cooperatives in the European Union (EU) <u>www.copa-cogeca.eu</u>; EUWEP is the EU trade association for egg packers, egg traders and egg processors <u>http://www.euwep.info</u>.

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INTRODUCTION

Purpose

Following the adoption of Regulation (EC) No 2160/2003 aimed at reducing the prevalence of *Salmonella* serotypes of public health significance in flocks of domestic fowl *Gallus gallus* on holdings in the EU producing eggs for human consumption, this Community Guide aims to assist pullet rearing and laying flock owners in preventing the introduction, spread and persistence of diseases and contamination that can affect the safety of the eggs destined for human consumption.

Although the guide is a voluntary instrument, it enables pullet rearing and laying flock owners to understand and comply with the legal requirements that are expressed in the Regulation.

Owners of pullet and commercial laying flocks are therefore strongly encouraged to include the Community Guide as part of their standard management practice. If Member States and/or operators have implemented higher standards and are applying them, this Community guide should never be used to lower the level of these standards.

Scope

For the purpose of this guide, the production and collection of eggs at the producer's premises are considered, but not egg packaging operations. Besides, "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 birds sharing the same airspace, as referred in Article 2 of Reg. 2160/2006.

This Community Guide has been drawn up taking into account the fact that most pullets are reared and commercial eggs are produced in controlled environment housing systems; not all parts of the Community Guide can be applied to free range or small-scale systems. Nevertheless, many of the basic principles are applicable and should be followed as far as possible.

Discuss the Community Guide with your veterinary surgeon and consider how it may be best implemented in your premises taking into account any factors such as location, housing and management, which are specific to your business.

Community guides are subject to periodical review.

I. ON THE FARM

1. RISK MANAGEMENT MEASURES

1.1 Location

New build poultry farms should ideally be located isolated from other livestock enterprises and possible sources of contamination, including sewerage treatment plants and landfill sites.

Farms located close to such sites will need to ensure a higher level of protection against the risk of introduction of contamination.

1.2 The site

A site plan should be available.

Good biosecurity² is extremely important to prevent the introduction of a wide range of microorganisms into poultry farms. Site and building design and management practices should be planned to facilitate good biosecurity.

The perimeter of the site should be clearly identified and, if possible, fenced. Access to the site should be allowed only through specified entry points and an easy means of attracting attention without having to enter the site should be provided.

Staff and visitor parking should ideally be located adjacent to the specified site entrance where there should be a hard standing for parking.

On-farm roadways should ideally have a hard surface, which can be cleaned effectively. Roadways should be kept clear of faecal soiling to prevent vehicles becoming contaminated.

The site should be kept clean and tidy to discourage wild birds, rodents and flies.

Avoid storing materials such as feed bags, litter and moveable equipment around the outside of poultry houses for the same reason.

1.3 The buildings

Ideally, there should be a hard surface/gravel around the perimeter of houses that is designed to avoid standing water and possibly help to discourage rodents. Such areas should be kept clear of vegetation.

Buildings should be constructed of durable material that can be easily and effectively cleansed and disinfected. The buildings should be maintained to prevent access by wild birds and vermin.

Buildings should have a minimal number of entry points and these should be kept closed and locked to prevent unauthorized entry.

There should be the provision to wash or sanitize and dry hands and to change into overalls and boots prior to entering and after leaving the poultry house.

Ancillary buildings such as storage rooms, rest rooms, toilets etc. should be constructed and maintained to a similar standard as the poultry houses.

1.4 Equipment

Equipment used on site should be constructed of a durable material and be capable of being cleansed and disinfected. Ideally it is best to avoid sharing equipment between sites. However, any shared equipment should be thoroughly cleansed and disinfected before being moved between poultry sites.

The ventilation system used in the house should be well maintained to minimize the build up of dust in the atmosphere and on surfaces and equipment.

Feeding systems and egg collection systems should be well maintained to minimise feed spillages and broken eggs.

² Biosecurity is the term for all measures that may be taken to prevent the introduction or spread of disease into a flock.

1.5 Vermin, feral animals and insect control

All buildings should be proofed against entry by wild birds, rodents, litter beetles and feral animals. Their presence in the vicinity should be discouraged by general tidiness, clearing vegetation and other perching places, and cleaning up feed spillages promptly.

Rodent habitats should be eliminated by maintaining the premises in a tidy state. A planned programme of control in and around the buildings and around the site perimeter should be undertaken.

A properly trained operative with knowledge of pesticides and their placement should undertake pest control. An accurate pest control plan should be established for the unit and full records kept of the pesticide usage in accordance with legislation.

The pest control programme should be closely monitored and intensified if there are any signs of rodent infestation and during periods when houses are empty. Active trapping of rodents and red mites and regular fly larval counts should be encouraged.

Proofing and control measures should be reviewed regularly to assess their effectiveness. Specialist advice should be sought if control measures are not working.

1.6 Domestic animals on site

Pets and other animals, including livestock, must be kept away from poultry houses and service buildings. However, it is noted that on free range sites, co-grazing of the range area with other livestock may take place but as this could increase the risk of Salmonella infection, suitable precautions to minimise risk should be taken, particularly in the case of co-grazing with cattle, sometimes which may carry Salmonella Typhimurium without showing any clinical signs. Co-grazing should also be avoided if Salmonella Enteritidis or Salmonella Typhimurium has been identified in a laying flock, because co-grazed animals will be then a risk for subsequent flocks, or other premises to which the co-grazed animals

are moved. Co-grazing is not allowed in some member states according to Commission Regulation (EC) No 589/2008, annex II.1.b.

The entry of dogs, cats and other livestock to poultry buildings (including feed or equipment stores) should be prevented at all times.

1.7 Feed

Finished feed or ingredients, including those for home mixing, should be obtained from a mill or supplier who operates in accordance with the legal requirements/relevant codes of practice for the control of *Salmonella* and who should make available the results of *Salmonella* monitoring on request.

The responsible veterinary surgeon for the flock may be consulted to assist with interpretation of these results.

Finished feed should ideally be delivered in vehicles that are dedicated to that purpose and that are not back-loaded with ingredients or other feeds.

Back-loading of raw ingredients should be managed on the basis of the risk category of the raw ingredients concerned and there should not be a risk to subsequent loads from any processed feed. There should be a documented hygiene programme for all vehicles. Samples of each delivery of feed should be retained for 12 weeks.

Moving feed from one farm to another can be associated with increased disease risk.

On-farm feed should be stored in closed bulk storage bins or hoppers or sealed bags. Storage areas and slave hoppers etc. should be kept free of birds and rodents.

Any feed spillages should be promptly cleaned up to discourage vermin and wild birds. Spillages and residues from feed augers and slave hoppers etc. should not be stored and reused for the following flock or moved to other farms.

Equipment should be properly maintained and attention should be paid to regular cleaning of bulk storage bins, augers, hoppers, and chain feeders. Bulk feed bins must not be refilled when still wet after cleaning, and dry cleaning without entering the bin is often preferable.

Particular attention should be paid to health and safety requirements when cleaning bulk storage bins as these pose a significant safety hazard.

1.8 Water

Water should be from either a municipal/mains or another source, which is regularly tested for bacteriological quality. Where necessary, appropriate treatment measures should be implemented.

The delivery system, including any header tank, should be enclosed and hygienically managed to prevent contamination.

Regular monitoring for leaks should be undertaken.

A turnaround cleaning programme for the water system should be implemented.

On free range sites access to streams and surface water should be avoided.

1.9 Litter supply (for non-cage systems only)

A variety of litter types may be used to bed the poultry, but it should be free from contamination by livestock, wild birds and rodents. New litter can be treated with proprietary organic/blends of acids/acid products or other antibacterial products such as formaldehyde or certain disinfectants to reduce the risk of bacterial contamination. Antibacterial substances should not be applied to litter and other surfaces to be sampled during a 48 hour period prior to sampling for *Salmonella* using boot-swabs.

Litter should be transported on vehicles that have been cleaned and disinfected prior to the loading of the litter.

Litter stored in the open either on pallets or in bulk must at all times be covered with clean water/bird/vermin-proof protection. Damaged bales must not be used. Litter and related items stored in the house should be protected from rodents and other pests.

1.10 Veterinary products

Only feed additives and veterinary treatments authorized under national or EU legislation are permitted. Their use must fully comply with the provisions of the feed hygiene regulation or, if it is the case, in the veterinary prescription. Specifically, withdrawal periods have to be strictly respected and antimicrobials shall not be used as a specific method to control *Salmonella* except for the limited derogations foreseen in EU legislation, e.g. where the welfare of the birds is compromised and only after authorisation and under direct supervision by the competent authority.

If veterinary medicines are required to be administered, their use will be documented in the medicines book, which will be available for inspection according to national legislation.

Veterinary medicines are to be stored at the correct temperature in a locked store, away from animals and unauthorised persons.

Used containers, packaging etc., must be disposed of according to national legislation, avoiding possible contamination of feed, water, soil etc.

1.11 Record keeping

Record keeping requirements are specified in annex 1.

1.12 Routine hygiene and husbandry

Each farm should have its own operating procedures, preferably as a simple manual of working instructions, which contains a checklist of routine hygiene and husbandry tasks.

Training and compliance with the hygiene and pest control programme should be monitored regularly by management.

2. MANAGEMENT

2.1 Personnel and visitors

• Personnel

All farm staff should be trained in the importance of avoiding zoonoses infections, correct hygiene, including personal hygiene, and biosecurity protocols for minimizing infection on the site.

A barrier biosecurity system or, at least, a disinfectant footbath and brush should be placed at the entrance to the site and/or near the vehicle parking area.

Adequate toilet and washing facilities (including a bactericidal soap and/or an alcohol-based hand sanitiser) should be available.

All personnel and visitors must have the provision to wash or sanitise and dry hands prior to entering poultry houses and after leaving poultry houses. Hands must also be washed after dead bird handling, before and after meals and after visits to the toilet.

Staff should wear work boots, overalls and, when needed, disposable plastic gloves provided for use only on the site. It is preferable for a complete change of footwear or double disposal plastic protective footwear to be worn on top of clean boots and, if possible, a change of other protective clothing for each house. Separate waterproof boots for each house, combined with effective boot disinfection procedures, are particularly important for barn and free-range systems.

Staff should not keep or have contact with any other poultry and should avoid working with other livestock. Where this is not possible, separate protective clothing, equipment and cleaning and disinfection on entry and on leaving the poultry unit is especially important.

• Visitors

Non-essential visitors to the farm should be

discouraged, as visitors are a potential means of introducing infection, especially if they visit other poultry, pigs or cattle farms. These include catching/cleaning gangs, vaccinators etc. This would minimize the potential for spread of infections.

Visitors entering the poultry buildings should wear disposable overalls or clean overalls provided by the farm, that are capable of being laundered and boots which can be cleaned and disinfected. All visitors must use the same high hygiene standards as farm staff e.g. hand washing on entering and leaving the poultry house. Visitors should sign a visitors' book³.

Visitors from outside the Country should not enter the farm during the first 48 hours after their arrival.

• Vehicles

Vehicle visits to the poultry site should be minimized. Provision to spray disinfect wheels etc. of vehicles at the point of entry to the site is also advisable.

2.2 Livestock management

• Poultry

The site should not house any other poultry, including ornamental or domestic poultry.

• Rearing farms

Day old chicks should be obtained from breeding flocks and hatcheries which comply with the relevant legislation on the monitoring of *Salmonella* and other poultry diseases. The results of previous *Salmonella* testing should be made available according to the National Control Programme (as a minimum).

The rearing site should be managed on an all-in all-out basis.

³ For suggested headings, see Annex Ib.

Vaccination of pullets against *Salmonella* should be encouraged, according to the epidemiologic situation and national legislation in each Country and in compliance with Regulation (EC) 1177/2006, noting that vaccination is prohibited in some Member States. A vaccination plan should be discussed and implemented after consultation with the farm veterinary advisor.

All vaccines should be stored and administered with care, according to the manufacturer's instructions.

• Laying farms

Farm managers should understand the importance of proper application of hygiene and pest control procedures and take responsibility for ensuring that farm staff or contractors carry out such procedures effectively.

Where possible the laying site should be managed on an all-in all-out basis. Where laying farms are occupied on a continuous basis, hygiene precautions to avoid transfer of infection between houses and effective rodent and pest control are even more important.

Laying farms receiving pullets should obtain these from a reliable source and ensure that the results of previous *Salmonella* testing are satisfactory according to the National Control Programme (as a minimum).

• Disposal of dead and culled birds

Flocks should be checked on a daily basis and any dead birds and culled birds should be removed and disposed of. If necessary, they shall be stored in closed leak-proof and vermin-proof containers to prevent vermin and feral animal access.

Carcasses must be disposed of in accordance with relevant EU legislation and in particular Regulation (EC) No 1774/2002.

Vehicles used to remove dead birds should not enter the site, but ideally collect carcasses from the site entry or perimeter. The storage facility and storage rooms for dead birds should be thoroughly cleaned and disinfected prior to introducing new birds.

After handling dead birds, hands must be washed and sanitized and equipment cleaned and disinfected.

Equipment used for the storage and disposal of dead birds should be subject to a documented hygiene protocol.

2.3 Egg management

Equipment used for the collection, handling and storage of eggs should be kept clean and properly maintained.

Personnel involved in egg handling should not smoke, eat or drink during this operation, and in any case not in the rooms where eggs are handled or stored.

• Egg collection equipment

Egg belts, belt brushes and other egg handling equipment should be cleaned regularly, ideally at the end of each working day. Any disinfectant used should be compatible with food production use (e.g. a chlorine or peroxygen based product at suitable concentration).

The ends of the egg belts should be fitted with brushes which remove dust as the belts are run. Dust collection trays should be provided beneath the brushes to catch this material for disposal.

Egg conveyors that run between houses or from houses to the packing area should be regularly cleaned and disinfected. Material falling beneath conveyors should be vacuumed or swept up and disposed of.

Cardboard (Keyes) egg trays or plastic trays should be visibly clean – free from faeces, broken eggs and feathers. Dirty cardboard egg trays should be discarded. All trays should be stored in a clean, dry environment that is free from contaminants and dust, wild birds, rodents and significant arthropod populations.

• Egg collection and handling

Facilities for hand washing and sanitisation for egg collecting staff should be readily available and maintained in a clean condition.

Staff should wash or sanitize and dry their hands before and after handling eggs. In case of manual egg collection, staff must pay particular attention to ensure hand hygiene.

Eggs should be collected as frequently as possible and moved to a cool, ideally temperature regulated storeroom, as soon as possible after collection.

Where possible, eggs should be packed in new cardboard or disinfected plastic trays rather than recycled cardboard trays.

Dirty, cracked or broken eggs should be removed from the collection system as early as possible and handled separately, as higher risk items thereafter.

Ideally, eggs which are not considered to be first quality should be collected and handled at the farm after those eggs which are considered to be first quality. They should be identified as soon as possible to ensure that they are diverted to their correct destination.

• Eggs from Salmonella positive flocks and eggs not fit for human consumption

Eggs produced by a flock positive (or suspected to be positive) for *Salmonella* serotypes for which there are restrictions prohibiting them from being placed on the market as table eggs must be marked as class B and delivered to an establishment processing eggs approved according to article 4 of Regulation (EC) No. 853/2004 for heat treatment.

Such eggs will only enter the egg packing centre when the competent authority agrees on the measures taken to avoid any cross-contamination.

Broken eggs, eggs with residues and/or contaminants above the authorized limits and eggs obtained during the withdrawal period following a veterinary treatment, should be collected separately and sent for disposal.

3. CLEANING AND DISINFECTION⁴

3.1 Forward planning

The planning of depopulation and restocking and organization of cleaning and disinfection should allow for the maximum possible empty time.

Planning will include booking contract workers in advance and arranging for minimal feed and other supplies to remain after depopulation.

A list of items needing maintenance, repair or replacement once the buildings are empty should be made.

All repairs, which are likely to dislodge hidden litter or dust, should be completed preferably before washing but certainly before disinfection. If this is not possible, the area worked on should be cleaned and re-disinfected.

Rodent, arthropod and wild bird control should be part of the normal routine. If rodent infestations have built up, intensive baiting and trapping will be necessary at depopulation to reduce their dispersal into the surrounding environment and subsequent re-entry to buildings after restocking.

If disinfectant footbaths or a barrier biosecurity system are present these should be maintained at the entrances to the houses throughout the cleaning and disinfection procedure. Clean footbaths should be put in place immediately after washing is completed.

3.2 Removal of equipment and dry cleaning

Dead birds, rubbish and surplus feed should be removed from the site.

Ideally, surplus feed should not be returned to the supplier or used on another farm. If *Salmonella* Enteritidis or *Salmonella* Typhimurium has been detected in the flock, this practice should in any

⁴ For cleaning and disinfection procedures checklist, see Annex 4.

case be avoided.

All moveable equipment should be taken to a hard standing for cleaning and disinfection or after cleaning returned to the house for disinfection, ensuring that floor surfaces are still accessible for treatment. Care should be taken to avoid recontamination of disinfected surfaces.

Buildings should be treated for pests immediately after removing the birds and rodent control measures intensified as necessary. Rodent baiting points should only be removed immediately before the washing and disinfection process and replaced whenever there is a gap in the operation so no baiting opportunities are wasted. New or disinfected baiting equipment and new bait should be placed after completion of disinfection or fogging/fumigation.

Dust should be blown down or preferably vacuumed from high fittings before removing litter/manure for disposal off the site.

In cage or slatted houses manure should be removed from pits or other storage areas for disposal off the site. It is recommended that the pit of deep pit systems should always be included in the cleaning and disinfection of the house. Manure in the pit can be used to soak up wash water and then removed before the whole house is disinfected.

Floors should be swept clean of remaining litter.

Buildings, including passages, feed and equipment stores, rest rooms and other ancillary buildings should be dusted or vacuumed and swept and disinfected. The external surfaces and fittings of the house and the entrances and pathways should be well cleaned.

3.3 Used litter/Manure

Used litter/manure should be stacked as far away as possible from the poultry house. Precautions to prevent establishment of populations of rodents, flies and wild birds around manure heaps should be taken. Composting of manure/litter may also be practiced.

Vehicles carrying litter/manure should be sheeted

to avoid dissemination of material during transit.

Vehicles and equipment should be cleaned and disinfected after being used for removal of litter. They should not be used for carrying feedstuffs but if this is unavoidable, for example on small farms, they should be cleaned and disinfected immediately after litter removal, left to dry completely then re-disinfected and dried before use for feedstuffs.

Old litter must be removed from the site promptly and disposed of appropriately.

Records of litter/manure deliveries or disposal must be retained.

3.4 Water system

Water lines should be cleaned by flushing through, followed by internal disinfection using a water system sanitiser such as a peroxygen compound. The header tank and surrounding platforms, beams etc., should be thoroughly cleaned and disinfected. Lime scale aggregate on bell or cup drinkers should be removed using acid products before thorough disinfection of all nipples and cups. Spillage channels and cups beneath nipples in cages are a particular hazard and these should be well cleaned and dried before disinfection or replaced. Water can also be acidified during the final 2 week period of lay / before depopulation to reduce contamination of drinkers and spillage cups/troughs.

The following measures should be taken:

Drain the header tank and check that it is free from debris. Clean as required;

Fill the tank with that volume of water required to fill the entire drinking system and add disinfectant to achieve the dilution indicated;

Allow disinfectant solution to fill the drinking system. Follow the instructions of the manufacturer;

Drain the system and fill with fresh water.

3.5 Washing

Pre-washing by the use of a detergent/sanitiser applied through a pressure washer will assist with loosening adherent dirt.

Steam cleaning may be useful for cleaning difficult equipment, such as cages. The shell of the building, ancillary rooms and equipment should then be cleaned by power washing, paying particular attention to litter trapped in cracks and holes in floors and dwarf walls at bird level, drinkers, feeders, egg belts, droppings belts/boards/scrapers and floor surfaces around and beneath cages. Care must be taken to avoid recontamination of washed surfaces by material splashed up by power washing.

Safety precautions should be followed particularly when cleaning electrical equipment. Small fittings, which cannot be power washed, may be wiped with a cloth soaked in disinfectant after dry cleaning.

The inside and outside of the house should reach the same stage of cleaning before disinfection to avoid recontamination.

After washing, surfaces should be allowed to dry as fully as possible before disinfection.

3.6 Disinfection

Cleaning of buildings and equipment should be followed by disinfection using an approved disinfectant that must be used in accordance with the label instructions at the correct dilution rates for *Salmonella* and general bacteria.

In difficult to clean houses, incompletely dry houses or recurrently infected houses, appropriate concentrations should be used.

In general formaldehyde based disinfectants are the most effective when residual organic matter is present or in cage systems; however, other disinfectants can be used e.g. FGQs, aldehydes etc, based on expert advice. Due care must be paid to operators' health and safety.

All surfaces should be thoroughly sprayed to saturation point with disinfectant and special attention should be given to slave feed hoppers and reservoirs, feed and water troughs, channels or cups, cages and floors beneath, egg belts and lifts, droppings boards, scrapers and belts, ventilation ducting and high beams, platforms and pipes. Ancillary rooms and the outside areas surrounding doors and ventilation ducts should also be disinfected.

Free-range houses should be cleaned and disinfected to the same standard as enclosed housing since the greatest risk of carry-over of infection relates to the interior of the house.

If manure or contaminated washings from the house has accumulated in the immediate surroundings of the house this should be removed and the area disinfected. Concrete and wooden ramps out of the house should be included in the disinfection and a careful check made for rodent activity, which should be dealt with by careful hole baiting and protected baiting points.

3.7 Assembly and check of equipment

After it has been cleaned and disinfected moveable equipment should be reassembled and replaced in the buildings.

It is advisable to also include as much equipment as possible in the house disinfection to avoid recontamination (e.g. by wild bird droppings, splashes from pressure washing etc.).

Drinkers and feeding systems should remain empty until after fogging or fumigation/ completion of disinfection.

3.8 Microbiological monitoring of cleaning and disinfection

To ensure that the cleaning and disinfection procedures have been effective it is recommended to take samples to detect the presence of *Salmonella*. These should be taken after surfaces have dried to avoid false-negative results. A thorough check should be made to identify any potential recontamination by rodent faeces or arthropods.

Bacteriological testing to verify the effectiveness of cleansing and disinfection is recommended in

all cases following depopulation of the flock. If the test is found to be positive, disinfection should be preferably repeated and its effectiveness re-tested

Samples should be tested as soon as possible after collection, ideally on the same day. A sensitive *Salmonella* culture method, suitable for environmental samples, should be used. Laboratories to which samples are sent for testing should ideally hold an accreditation relevant to the test being carried out.

Additional 'hygienogram' tests determine to enteric surface counts of bacteria (enterobacteriaceae) may also be useful to assess the effectiveness of cleaning and disinfection where Salmonella is not present. If the test is found to be positive, disinfection should be preferably repeated and the general effectiveness of the disinfection programme should be investigated.

3.9 Specific measures after detection of Salmonella

After *Salmonella* is detected, it is fundamental to identify the source of the infection and any risk of further spread by, for example, testing of rodents, flies, equipment and other animals in the holding.

Thorough cleaning, disinfection and control of rodents, arthropod (flies, beetles, red mite, etc.) and wild birds should be part of every poultry farm's routine. The programme used should be capable of reducing as much as possible (or ideally eliminating) *Salmonella* from the environment and should ideally be implemented even if infection has not been identified during the life of the previous flock, as some infections will always evade detection.

If *Salmonella* has become persistent in a house, it is advisable to allow sufficient time after depopulation for both cleaning and disinfection to be carried out thoroughly, for its effectiveness to be checked by bacteriological examination and for the process to be repeated if necessary.

On multi-age sites precautions should be taken during cleaning to reduce the chances of transmitting infection by aerosols, movement of rodent and pests, or effluent to buildings that are still occupied. Likewise, care should be taken to avoid transferring infection from older birds to cleaned houses or newly introduced birds.

A checklist detailing each step of the cleaning and disinfection process is recommended to ensure that all aspects are dealt with. Full compliance with biosecurity and hygiene measures should also be monitored by fieldsmen and/or farmers and farm management as part of their work objectives.

In infected flocks, a specific strategy for rodent control should be elaborated and additional measures for the next flock should be considered such as the use of vaccinated pullets of breeding and laying hens, acidification of feed or the application of competitive exclusion.

II. DEPOPULATION AND TRANSPORT OF HENS

1. CATCHING AND LOADING OF HENS

The role of biosecurity during catching and loading is paramount. All efforts should be made to ensure that no cross-contamination can occur during these activities.

The following measures should be taken:

Catching activities will either be performed by farm personnel or outside contractors who are properly trained or with enough experience demonstrable in this task. A record of training must be maintained;

Suitable, clean protective clothing and footwear should be worn at the commencement of catching at each farm;

Personnel involved in the actual catching and loading should exercise appropriate personal hygiene (sanitise hands) prior to catching;

All vehicles, transport crates and other equipment used for catching and loading must be properly cleaned and disinfected before entry to the farm;

A loading area must be available for the loading of birds for transport to the processing plant and must be clean, tidy and hygienically managed;

Dirty and clean equipment must be kept separated to avoid cross contamination;

The equipment used for catching and loading should be properly cleaned and disinfected before leaving the farm premises;

A nominated member of the catching team must be made responsible for the operation.

TRANSPORT OF HENS

2.

2.1 Hygiene during transport

All poultry should be transported by authorised or licensed transporters.

The truck wheels and wheel arches should be spray disinfected at the point of entry before entering the site and before leaving it. If vehicles are visibly contaminated with manure they should be fully cleaned and disinfected before entry to the farm. Swabs of wheel arches and footwells of vehicles can be taken as a check.

Truck drivers should be correctly trained and/or informed in such a manner that they understand the importance of personal hygiene and are aware of the means by which infection can be spread on hands, clothing and equipment. They should ideally wear protective clothing provided by the farm whilst on the holding.

Appropriate records and official documents must be fully completed and accompany the hens to their destination. This is essential to maintain the traceability system along the food chain.

2.2 Vehicles

Vehicles used for transporting birds should have been cleaned and disinfected. Following a journey, vehicles should be cleaned and disinfected as soon as reasonably practicable and before they are used again to transport livestock.

Vehicles used for the removal of manure and feed during the cleaning process should be cleaned and disinfected before use on another site.

Farm vehicles, crates, trolleys and other equipment used for serving poultry houses or handling wastes should be cleaned and disinfected as part of the routine site programme before repopulating. When necessary, other vehicles used on the farm, including the inside floor/footwell and boot of private cars, should be cleaned.

ANNEXES

ANNEX 1:

a. - Records

Operators responsible for farms where laying hens are kept and eggs are produced for human consumption will record and retain information on the measures applied to control and prevent infection, and specifically the measures intended to control and prevent the presence of zoonotic *Salmonella*.

Specifically, the records listed below will be kept:

- Records of visits;
- Records of veterinary treatments and prescriptions;
- Certification of the origin of the pullets;
- Results of the controls of *Salmonella* spp on the pullets and layers at day-old, 2 weeks before transfer to the laying accommodation and every 15 weeks during the laying period as a minimum;
- Certification of the origin of the feed/raw materials;

- Results of the control of the feed/raw materials;
- Records of the maintenance of the system for water sanitization (chlorination) and/or the controls of quality, based in the defined protocol;
- Records of the effectiveness of the disinfection protocol;
- Records of the effectiveness of the protocol for insect control;
- Records of the effectiveness of the protocol for rodent control;
- Records of the eggs produced and delivered to packaging stations for human consumption, food and non-food industry (this can be substituted for files of invoices and delivery notes);
- Records of mortality.

For the conservation and maintenance of these records, the operator can be assessed by the veterinary advisor.

These records should be kept for a minimum of 3 years.

b - Example for a Visitors' Book

Date	Name of visitor	Company name/address	Purpose of visit	Date of last contact with poultry/livestock	Time of arrival	Time of departure

c - Example of Veterinary Treatment Book

Date	Flock Identification*	Prescribed Treatment (substance and dosage)	Method of application (water, feed, injection)	Days of treatment	Name and professional identification of the veterinarian	Veterinary Signature

* Flock identification: all of the documents and analysis results should make reference to a unique national site identifier which can be attached to the poultry house door and which must be made known to all operators (hatchery, feed supplier, laboratory, packaging centre, etc.).

ANNEX 2: CONTROL OF *SALMONELLA* - SAMPLING PROCEDURES

A sampling procedure can be formulated with the help of your veterinary advisor, tailored to the risk situation on farm and in accordance with the National Control Programme for *Salmonella* in laying flocks The National Control Programme will be based on Regulation 2160/2003 and Regulation 1168/2006, and any amendments thereafter.

Sampling procedures should be established in accordance with the National Control Programme.

Any sample taken for *Salmonella* should be collected into a sterile plastic pot or bag with an airspace. Samples should be kept cool and dispatched within 24 hours of collection and tested as soon as possible on arrival at the laboratory. Laboratories to which samples are sent for testing should hold a third party accreditation relevant to the test being carried out.

In addition, as regards animal health, when day-old chicks or ready to lay pullets have been received from another Member State, the establishment of origin must be officially approved for intra-Community trade and testing for *Salmonella Gallinarum*, *Pullorum* and *Mycoplasma gallispticum* according to Directive 90/539/EEC must have been carried out.

Any third countries exporting day-old chicks or ready to lay pullets to the EU must demonstrate equivalence to EU legislative requirements.

a – Chicks

Operators are required to take samples to be tested for *Salmonella* from chicks delivered from each hatchery. At the moment of the reception of the chicks at the farm, a test for *Salmonella* is also recommended.

b - Pullet Rearing Flocks

Sampling and testing is required at day old and two weeks⁵ before pullets are transferred to their laying accommodation (or before commencing lay).

Results of testing must be available in time to take action before birds are transferred to laying farms.

Flock owners who purchase replacement birds should seek assurances regarding their *Salmonella* status and vaccination programme (if applicable) from the supplier.

At the moment of the reception of the pullets at the laying farm, a test for *Salmonella* is also recommended.

c – Monitoring During Lay

The National Control Programme⁶ requires, as a minimum frequency, monitoring every 15 weeks during production, starting at 22-26 weeks. This Programme will define also the sampling method, the laboratories authorized for *Salmonella* detection and the analytical methods to use.

In case of a positive sample, a confirmation test may be carried out by the competent authority in faeces and dust, oviducts and caeca, or eggs⁷.

⁵ According to Regulation (EC) 2160/2003.

⁶ According to Regulation (EC) 2160/2003.

⁷ According to Regulation (EC) 1237/2007.

ANNEX 3: SALMONELLA CONTROL - A SUMMARY

Control point	Keeping Salmonella out	Controlling the spread
Unit	 For new units - locate well away from other farms and landfill sites. Keep clean and tidy. Perimeter fence/information signs. Clean parking for vehicles off-site. Provide washing/disinfection facilities/footbaths. Clean and disinfect houses and surrounding areas regularly, according to a hygiene programme designed specifically for the unit. 	Keep clean and tidy. Provide washing/disinfection facilities/footbaths/protective clothing. Clean and disinfect houses and surrounding areas regularly, according to a hygiene programme designed specifically for the unit. All in/all out system, where possible.
Laying and rearing flocks	Obtain day old chicks from breeding flocks or hatcheries complying with relevant legislation for the monitoring of Salmonella Enteritidis and Salmonella Typhimurium.Introduce an effective Salmonella monitoring programme.Ensure adequate empty time between flocks.Check pullets are from a reliable source.Ensure full compliance with mandatory testing protocols laid down in the National Control Programme.	Use separate protective clothing and/or disinfectant footbaths for each house. Control wild birds and rodents. Step-over barriers. Review positive results with veterinary surgeon. Develop and maintain a site or company specific <i>Salmonella</i> control plan.
Staff	Educate, train and inform. Keep "work clothes" on site and clean and disinfect regularly. Provide written hygiene protocols and monitor for compliance.	Keep "work clothes" on site and clean and disinfect regularly. Provide written hygiene protocols and monitor for compliance. Wash hands before and after handling birds.

Control point	Keeping Salmonella out	Controlling the spread
	Clean rest room, washing and toilet facilities.	
Pest control	Effective control programme. Tidiness/avoid feed spills.	Check controls effective and seek specialist advice if not working. Increase controls at depopulation.
Visitors	Restrict entry. Visitors' book. Provide clean protective clothing.	Provide clean protective clothing. Inform visitors of hygiene rules.
Feed	Ensure adequate procedures in place at feed mill to detect and control <i>Salmonella</i> . Secure, clean storage away from birds.	Avoid re-use of feed from empty houses.
Litter	Clean source, not contaminated.	Dispose of safely.
Water	Mains or tested/chlorinated source.	Enclosed system. Clean and disinfect system before/after each flock.
Animal waste	Careful disposal of litter/manure away from site.	Clean up spillages of litter/manure around houses after mucking out and do not allow wash water to flow into adjacent occupied houses or stores. Dispose of dead birds safely.
Equipment	Do not share equipment. Clean and disinfect regularly.	Clean and disinfect equipment when shared between different houses on the farm. Clean and disinfect regularly.
Depopulation/Repopulation	Clean personnel. Clean vehicles. Clean crates.	Implement cleaning and disinfection programme. Plan ahead. All in/all out.

Control point	Keeping Salmonella out	Controlling the spread
Vaccination	Consult your veterinary advisor on appropriate vaccination schedules and other aids to <i>Salmonella</i> control.	

ANNEX 4: CHECKLIST FOR PREPARATION OF A DETAILED PLAN FOR CLEANING AND DISINFECTION OF LAYER OR PULLET REARING UNITS AT DEPOPULATION

<u>Preparation</u>

- Note depopulation date and prepare a plan;
- Ensure rodent controls are effective;
- List items for repair and maintenance and order replacements;
- Ensure cleaning equipment, disinfectant available;
- Ensure competent staff available;
- Ensure other animals in occupied houses on adjacent land will not be contaminated during cleaning;
- Run down feed supply;
- Remove and store end of crop feed stocks in a manner which avoids contamination.

<u>At depopulation</u>

- Remove all birds from the building;
- Apply control measures for insects, mites, beetles etc. as necessary;
- Remove and dispose of all carcasses;
- Remove residual feed;
- Check rodent control effective/intensify as necessary;
- Carry out repairs to building structure as necessary.

Cleaning and washing

- Clean out manure, bedding, dust, waste, etc.;
- Take all movable equipment outside, clean and wash;
- DANGER disconnect electrical equipment as necessary;
- Drain, flush, clean water system, dismantle as necessary;
- Clean feeding system thoroughly, feed areas, bins, hoppers etc.;
- Clean ancillary rooms, fans, storage areas, rest rooms, farm vehicles and other equipment;
- Clean bins used for waste material, boot dips;
- Clean equipment used for the storage and disposal of dead birds;
- Pressure wash the building, pens, other areas to remove remaining dirt;

- Dispose of all waste safely;
- Ensure that all cleaning equipment is cleaned and disinfected;
- Complete repairs and maintenance.

<u>Apply disinfectant</u>

- Ensure the building is dry;
- Follow label instructions;
- Apply approved disinfectants at correct dilution (e.g. formaldehyde at 2-5%) to:
 - the building structures;
 - o moveable equipment and reassemble;
 - o all ancillary and common areas;
 - o feed storage areas, bins, hoppers;
 - o flush water system and drinkers with appropriate disinfectant (e.g. a peroxygen product;
 - o equipment used for the storage and disposal of dead birds.

<u>Fogging</u>

- Apply 30-40% formaldehyde solution (neat formalin) or other suitable disinfectant at fogging concentration through a thermal fogger to re-saturate surfaces after spray disinfectant has dried;
- Ensure full compliance with recommended health and safety regulations.

Before restocking

- Replace rodent bait;
- Check no areas overlooked and equipment is functioning;
- Ensure there is no potential for contamination of bedding, feed or replacement stock on entry to the farm.

ANNEX 5: CHECKLIST FOR GOOD HYGIENE PRACTICES IN PULLET REARING AND EGG LAYING FLOCKS

Ι	ON THE FARM	
1	RISK MANAGEMENT MEASURES	
1.1	FARM LOCATION	
	Is the farm located isolated from other livestock and contaminating sources?	
1.0		
1.2	POULTRY SITE	
	Is there a site plan?	
	Is the perimeter of the site clearly indicated?	
	Is the visitor parking easy to clean and maintain?	
	Are farm roads kept clean?	
	Is the site kept clean and tidy?	
1.3	BULDINGS	
	Is the area around the house designed to avoid standing water and is it kept clear of vegetation?	
	Are buildings durably constructed and can they be easily cleaned?	
	Is access by wild birds, rodents, litter beetles and vermin, feral animals, prevented?	
	Are entry points kept closed and locked?	
	Is there a provision to wash and or sanitise hands and change into overalls and boots at the entrance/exit of the poultry house?	
	Is the ancillary room constructed and maintained to the same standard as the poultry house?	
1.4	EQUIPMENT	
	Is equipment cleansed and disinfected?	
	Is the ventilation system well maintained to minimize the build up of dust in the atmosphere and on surfaces and equipment?	
	Are feeding systems well maintained to minimise spillages?	

	Are egg collection systems well maintained to prevent broken eggs?			
1.5	VERMIN, FERAL ANIMAL AND INSECT CONTROL			
	Are buildings proofed against entry of wild birds, rodent, feral animals and beetles?			
	Is there a planned pest control programme in place?			
	Is the pest control programme regularly monitored?			
	Are records kept of pesticides used?			
	Is the operative responsible for pest control properly trained?			
1.6	DOMESTIC ANIMALS ON SITE			
	Are pets and other animals kept away from the poultry houses and service building?			
1.7	FEED			
	Is the feed supplier operating in accordance with relevant codes of practice and/or guides?			
	Is the feed supplier controlling <i>Salmonella</i> and are the results of <i>Salmonella</i> monitoring provided on request?			
	Are dedicated vehicles used to transport the feed?			
	Is there a well documented hygiene programme for the vehicles transporting feed?			
	Are samples collected of each delivery of feed and retained for 12 weeks?			
	Is feed stored in closed bins, hoppers or sealed bags?			
	Are storage areas visibly free of birds and rodents?			
	Are feed spillages and residues cleaned up and discarded?			
	Are storage bins, augers, hoppers and chain feeders regularly cleaned?			
1.8	WATER			
	Is drinking water supplied from a municipal/mains or other source, which is regularly tested for bacteriological quality?			
	Is the water delivery system enclosed and hygienically managed?			
	Is a turnaround cleaning programme for the water system implemented?			
	Are leaks monitored?			

1.9	LITTER SUPPLY AND DISPOSAL	
	Is litter obtained from a reliable source, and which is free from contamination?	
	Is litter stored at all times on pallets and covered with clean water/bird/vermin proof protection?	
	Are damaged bales disposed of appropriately?	
	Is used litter removed and disposed of appropriately?	
1.10	VETERINARY PRODUCTS	
	Are feed additives and veterinary treatments used authorised under national/EU legislation?	
	Is the use of veterinary medicines documented in the medicines book?	
	Are veterinary medicines stored away from animals and unauthorised persons?	
	Are containers, packaging etc. disposed of appropriately?	
1.11	RECORD KEEPING	
	Do you keep records for a minimum of 3 years of:	
	Visits?	
	Veterinary treatments and prescriptions?	
	Certification of the origin of the pullets?	
	Results of controls of <i>Salmonella</i> spp on the pullets and layers at day-old, 2 weeks before transfer to the laying accommodation and every 15 weeks during the laying period, as a minimum?	
	Certification of the origin of the feed /raw materials?	
	Results of the control of the feed/raw materials?	
	Records of the maintenance of the system for water sanitization (chlorination) and/or the controls of quality, based in the defined protocol?	
	Records of the effectiveness of the disinfection protocol?	
	Records of the effectiveness of the protocol for insect control?	
	Records of the effectiveness of the protocol for rodent control?	
	Records of the eggs produced and delivered to packaging stations for human consumption, food and non food industry (it can be substituted for files of invoices and delivery notes)?	
	Records of mortality?	
1.12	ROUTINE HYGIENE AND HUSBANDRY	
	Is there an operating procedure in place which contains a checklist of routine hygiene and	

	husbandry tasks?	
	Are training and compliance with the hygiene and pest control programme monitored regularly by management?	
2		
2	MANAGEMENT	
2.1	PERSONNEL AND VISITORS	
	Is there a barrier biosecurity system or footdip barrier on the entry to the poultry house(s) I.e. is there a clear physical barrier between the clean and dirty area?	
	Are all staff trained in biosecurity and hygiene measures?	
	Are site dedicated and clean protective clothing and footwear supplied for personnel and visitors?	
	Are footbaths used with approved and effective disinfectants?	
	Are hand washing facilities and toilets on site equipped with basin and soap and/or sanitiser and drying facility?	
	Do all personnel and visitors wash and/or sanitise and dry hands prior to entering and after leaving the poultry house?	
	Is there a visitors book for visitors to record date, arrival/departure time, name, company name, purpose and date of last contact with poultry?	
	Is spray disinfection used for visiting vehicles?	
	Is equipment used for the storage and disposal of dead birds subject to a documented hygiene protocol?	
2.2	LIVESTOCK MANAGEMENT	
	Are other poultry housed on the site?	
	Are day-old chicks obtained from breeding flocks and hatcheries complying with the relevant legislation on the monitoring of <i>Salmonella</i> and other poultry deseases?	
	Is the site managed on an "all-in all-out" basis?	
	Are flocks checked on a daily basis?	
	Are dead or culled birds removed and placed in a closed leak-proof and pest-proof container?	
	Are carcasses disposed of according to Regulation EC 1774/2002 and national legislation?	
	Are storage rooms/facility for dead birds thoroughly cleaned and disinfected on a regular basis?	
	Are hands sanitised and is equipment disinfected after handling dead birds?	
	Are vehicles used to remove dead birds forbidden to enter the site?	
2.3	EGG MANAGEMENT	
	Are egg belts, belt brushes and other egg handling equipment cleaned regularly?	

	Are trays clean from faeces, broken eggs and feathers?
	Are eggs collected and moved to a cool storeroom as frequently as possible?
	Are dirty, cracked or broken eggs removed from the collection system as early as possible and handled separately?
	Are eggs produced by a flock (suspected to be) positive for <i>Salmonella</i> serotypes for which there are restrictions prohibiting them being placed on the market as table eggs delivered for heat treatment?
3	CLEANING AND DISINFECTION
3.1	FORWARD PLANNING
	Is there a plan for depopulation, restocking and organisation of cleaning and disinfection?
	Has a list of items needing maintenance, repairs or replacement been prepared?
	Has a plan of rodent, arthropod and wild bird control been prepared?
	Has a plan been prepared for the maintenance of disinfectant footbaths/barrier biosecurity systems?
3.2	REMOVAL OF EQUIPMENT AND DRY CLEANING
5.2	Are all dead birds, rubbish and surplus feed removed from the site?
	Are buildings treated for pests immediately after removing the birds?
3.3	USED LITTER/MANURE
	Is all litter disposed of appropriately?
	Are vehicles and equipment cleaned and disinfected after being used for removal of litter?
3.4	WATER SYSTEM
	Are water lines, the header tank and surrounding platforms, beams etc. thoroughly cleaned and disinfected?
	Is the water system sanitized?
3.5	WASHING
	Are all surfaces, inlets, drinkers and other equipment including ancillary buildings sanitised?

3.6	DISINFECTION	
	Are all surfaces thoroughly sprayed to saturation point with disinfectant?	
	Are ancillary rooms and the outside areas surrounding doors and ventilation ducts also disinfected?	
	Does the disinfection also cover the feed system?	
	Are only approved disinfectants used and at the concentration prescribed by the manufacturer?	
	Is disinfected equipment moved to a clean house before the house is disinfected?	
	Is a thorough wetting by disinfectant obtained?	
	Are disinfectants used according to prescriptions (surfaces, apex, walls)	
	Are doors closed after disinfection and footdips placed at entrances?	
	Are insecticides used after disinfection if a problem has been identified?	
	Are vermin, flies and other anthropods controlled adequately?	
3.7	ASSEMBLY AND CHECK OF THE EQUIPMENT	
	Are feeders and drinkers empty until disinfection is completed?	
3.8	MICROBIOLOGICAL MONITORING OF CLEANING AND DISINFECTION	
	Is the site properly sampled after the cleaning and disinfection?	
3.9	SPECIFIC MEASURES AFTER DETECTION OF SALMONELLA	
	Is the site thoroughly cleaned and disinfected after a Salmonella positive flock?	
	Is the effectiveness of cleaning and disinfection checked by bacteriological examination?	
	Is the source of infection identified?	
II	DEPOPULATION AND TRANSPORT OF HENS	
1	CATCHING AND LOADING OF HENS	
	Is the loading area clean, tidy and hygienically managed?	
	Is dirty and clean equipment kept separated to avoid cross contamination?	
	Are personnel catching and loading properly trained and training records kept?	
	Are all vehicles, transport crates and other equipment used properly cleaned and disinfected before arriving at the site?	

	Is disinfectant available?
	Are personnel involved sanitising hands prior to catching and loading activities?
	Is it ensured that other birds in occupied houses on adjacent land will not be contaminated during cleaning?
	Are clean clothing and other biosecurity measures (2.1) observed?
	Has the feed supply been run down?
	Have end of flock feed stocks been removed and stored in a manner which avoids contamination?
	Has the equipment used for catching and loading been properly cleaned before leaving the farm?
2	TRANSPORT OF HENS
2.1	HYGIENE DURING TRANSPORT
	Are poultry transported by authorised/licensed transporters?
	Are transport crates and containers cleaned and disinfected before catching and loading?
	Have truck drivers received basic information on personal hygiene and been made aware of the importance of reducing the spread of infection from e.g. hands?
2.2	VEHICLES
	Are vehicles cleaned and disinfected before they are used again to transport livestock?
Annex 2	CONTROL OF SALMONELLA
	SAMPLING PROCEDURES
	Is the sampling procedure tailored to the risk situation on the farm?
	Are national and EU rules for Salmonella presence followed?
	Are samples collected into a sterile plastic pot or bag with an airspace?
	Are samples collected kept cool, dispatched within 24 hours of collection and tested as soon as possible?
	SAMPLING OF DAY OLD CHICKS - MANDATORY
	Are samples of all day-old chicks delivered from the hatchery taken?
	SAMPLING DURING THE REARING PERIOD
	And hinds compled 2 meshs hefers transfer to the laving house (or hefers commencing lav)
	Are birds sampled 2 weeks before transfer to the laying house (or before commencing lay)?
	MONITORING DURING LAY

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