EUROPEAN POULTRYMEAT
INDUSTRY GUIDE [EPIG]

Guide of Good Hygiene Practice for the
Prevention and Control of Microbiological
Infections focussed on Salmonella control of
Chickens reared for meat

- at slaughterhouses
PREFACE

This document has been developed jointly by a.v.e.c. and COPA-COGECA. a.v.e.c. is the association of poultry processors and poultry trade in the EU and COPA-COGECA are the Committee of Professional Agricultural Organisations in the European Union and the General Confederation of Agricultural Co-operatives in the European Union.

This document provides a voluntary Guide of practice for poultry farmers keeping chickens for meat production, the operators involved in catching and transport of chickens and slaughterhouse operators.

It is aimed at providing guidance and assisting them in implementing hygiene measures in order to manage the microbiological quality of the live poultry and the poultry meat. Particular emphasis has been put on preventing the introduction, spread and persistence of Salmonella in chickens reared for meat production and in poultry meat.

This guide may be used as such or as a starting point to develop national or regional guides which might be more detailed but should not be in contradiction with this Community guide.

It is recommended to discuss the Guide with your veterinary surgeon and all operators involved in the production chain to consider how it may be best implemented taking into account the local specific conditions.
CONTENT

Introduction

A. On the farm
1. Biosecurity
2. Management
3. Monitoring and Sampling
4. Cleaning and disinfection

B. Catching Loading and Transport of live animals
1. Depopulation: instructions for hygiene during catching and loading
2. Transport of live animals: instructions for hygiene during transport

C. At the slaughterhouse
1. Hygiene
2. Management
3. Monitoring and surveillance

D. Record keeping, data transfer and communication
1. Records
2. Record keeping
3. External Communication

Annexes
1. Reference to legislation, quality schemes and other sources.
2. Licensed Laboratories
3. Definitions
4. Checklist
INTRODUCTION

Protecting poultry flocks from micro-organism contamination is an extremely important component of commercial poultry production. The introduction of a highly pathogenic, contagious disease organism into poultry flocks could result in serious economic consequences for the whole society. Developing and practicing daily biosecurity procedures as best management practices on poultry farms will reduce the possibility of introducing zoonotic microbiological infections like Salmonella and Campylobacter as well as infectious diseases such as Avian Influenza and Exotic Newcastle. Poultry farmers and operators of slaughterhouses should understand the importance and be familiar with the specifics of the biosecurity protocols and work closely to implement those programs to accomplish a consistent and compatible policy.

The effectiveness of a biosecurity program can be optimized if all poultry producers utilize best management practices.

Salmonella organisms are widespread in the environment and each link in the food chain has a part to play in reducing the risk of human infections caused by Salmonella. These bacteria normally do not cause clinical disease in poultry. Salmonella are intestinal bacteria that can be transmitted by all animals, including humans and the possibility of vertical transmission of infection exists.

There are approximately 2,500 different Serotypes of Salmonella. Currently only about 200 Salmonella serotypes are associated with food-borne infections in humans in the EU. The vertical transmission from breeding flocks to commercial flocks of two of the most significant serotypes, *Salmonella enteritidis* and *Salmonella typhimurium* has been substantially reduced through strict biosecurity including vaccination.

Horizontal transmission, that is introduction of infection from the environment, including feed, hatchery equipment, staff movements and contaminated farm equipment, however, remains a key route for infection.

If Salmonella is present in chickens reared for meat it increases the risk that the poultry meat produced from these chickens will be contaminated with these bacteria. It is important to reduce this potential risk at all steps in the production chain from stable to table.

Salmonella are widespread and their complete elimination from the environment in all but the primary breeder sector (i.e. at the level of grand parent or pedigree) is unlikely to be economically feasible and possible.

Good management and biosecurity can reduce the risk of introduction and persistence of infection to minimal levels, particularly since improved Salmonella control in the breeder sector and in feed production has greatly reduced the risk from these sources, although contaminated feed is still the main route of introduction of new Salmonella infections onto a farm, along with resident hatchery contamination. The effective Salmonella control program may have beneficial effects on Campylobacter control, as some elements of the epidemiology and biological qualities of Campylobacter are similar to those of salmonella bacteria.

Flock owners and slaughterhouse operators are strongly encouraged to include this Guide as part of their standard management practice. This Guide has been drawn up taking into account the fact that most chickens reared for meat are produced in controlled environment housing systems. The measures outlined in the Guide should form the cornerstone of Salmonella control and, if rigorously applied, they may substantially
contribute to preventing and controlling other infections or diseases in flocks of chickens reared for meat production.

The guide does not cover specific measures for free range chicken. Nevertheless, many of the basic principles are applicable and should be followed as far as possible. Part of the Guide may be applied to free range or small scale rearing systems.
C. AT THE SLAUGHTERHOUSE

The slaughterhouse should carry out all measures to avoid cross contamination between flocks during the slaughter process. The process flow should reduce the risk of contamination of meat with faeces. The following measures are important:

1. Hygiene
   1.1. Cleaned equipment must be kept separated from dirty equipment and areas.
   1.2. Slaughter equipment especially stunning equipment, killer blade, scalding tanks, pluckers must be visual and microbiological clean at the start of the production.
   1.3. Slaughter equipment especially the equipment mentioned at point b must be cleaned and disinfected at the end of each day. For an efficient cleaning the following points are important.
      • A detailed cleaning plan has to be implemented for the whole equipment.
      • All dirt has to be removed first.
      • The equipment has to be foamed and rinsed.
      • After foaming and rinsing the equipment has to be disinfected.
      • The recommended concentrations and times for detergents and disinfectant have to be followed.
   1.4. Vehicles and transport crates must be cleaned and disinfected directly after unloading before going to the next broiler farm and before leaving the slaughterhouse.
   1.5. Detergents and disinfectants have to be approved and used at a concentration which is effective for Salmonella before going to the next broiler farm and before leaving the slaughterhouse.
   1.6. Detergents and disinfectants have to be approved by the food safety authority.
   1.7. Cleaning effectiveness should be checked by daily visual inspection before onset of slaughter.
      • Hygiene monitoring through weekly contact plates for the microbiological status including swabs for Salmonella testing.
   1.8. If the visual checks show an unsatisfactory status the related areas have to be cleaned once again before onset of slaughter.
   1.9. If the hygiene monitoring shows bad microbiological values cleaning staff have to be informed. The cleaning procedure has to be analysed. Possible corrective actions are:
      • Checks of pre cleaning and improvement (no dirt before disinfection)
      • Checks of the cleaning procedure (times and concentration of detergents and disinfectants)
      • Checks whether the detergents and disinfectants are the right substances for the cleaning.
      • Structural changes in building and equipment to allow easy cleaning.
      • Training of cleaning staff.

2. Management
   2.1. A permanent procedure or procedures based on the HACCP principles (Hazard Analysis of Critical Control Points) has to be in place, implemented
and maintained to minimize the risk of cross contamination during the slaughter process.

2.2. The seven HACCP steps have to be in place:
- Determination of hazards, which can be avoided, eliminated or reduced to an acceptable quantity.
- Determination of critical control points
- Determination of limits
- Implementation of monitoring procedures to control the critical points
- Determination of corrective actions in case of critical control points are out of limits.
- Determination of verification procedures
- Documentation

2.3. The hazard analysis should include the following steps:
- Lairage (storage condition of life birds)
- Handling of life birds
- Stunning
- Scalding and scalding temperature (Scald tanks should be operated at as high a temperature as possible, although it is acknowledged that this may be limited by the effect on the appearance of the carcases, and the scald water should be kept as clean as possible.
- Plucking
- Evisceration
- Hygiene standards

2.4. Limits for the determined control points can be:
- Visual dirt on equipment
- Bad microbiological results
- Contamination of a flock slaughtered after a positive flock (on the next day)

2.5. The slaughterhouse management should organize that the determined control points are monitored on a regular basis according to HACCP principles:
- by visual control
- by swabs taking samples (contact plates) for microbiological control
- by swabs for salmonella testing
- by neck skin samples

2.6. Salmonella positive flocks (irrespective of what serotype) should be slaughtered at the end of the day and after the Salmonella negative flocks.

3. Monitoring and surveillance

3.1. Sampling and testing of the transport equipment
   3.1.1. Lorries, curtains and transport crates should be sampled on a regular basis for salmonella. Special attention should be paid to skids of the transport crates, to the curtains and to the floor of the lorry.

3.2. Sampling and testing of the slaughterhouse lines
   3.2.1. Transport belts (carrousel before hanging the birds into the line), stunning devices, scalding tanks, rubber fingers, various CCP’s (Critical Control Points) on the evisceration lines.

3.3. The slaughterhouse should take neck skin samples according to EU regulation 2073/2005.

3.4. The intensity of monitoring and sampling for Salmonella in the slaughterhouse depends on the level of positive flocks slaughtered and on the percentage of positive neck skin samples.
3.4.1. In general the lower the number of S. pos. broiler flocks slaughtered (< 3 %), the more intensive cleaning and disinfection on the slaughterhouse level must be. In this case it can be expected that special cleaning and disinfection actions including microbiological monitoring are undertaken after the slaughter of any Salmonella positive flock.

3.4.2. This special attention to a very intensive cleaning and disinfection procedure including microbiological monitoring becomes of utmost importance for the transport lorries, crates and containers, if the farm practises thinning.

3.4.3. If the number of pos. supplier flocks is high (< 10 %), the emphasis of Salmonella control activity must lay first hand on reduction of positive broiler farms. In this case it cannot be expected that the processing plant does a microbiological monitoring after every S. positive flock.

3.4.4. A very intensive and careful cleaning and disinfection on the slaughterhouse level can be expected under these circumstances at the end of every processing day.

3.4.5 If the number of S. positive broiler flocks is intermediate (between 3 and 10 %), logistic slaughter including very efficient cleaning and disinfection procedures at the end of the every slaughter day, (a) positive flock(s) is processed, becomes of utmost importance.

3.4.6. Instead of a microbiological monitoring every day, neck skin samples from a neg. flock (50 samples pooled by 10) slaughtered first on the next day should be taken and monitored for salmonella. This will indirectly demonstrate the effectiveness of cleaning and disinfection.
D RECORD KEEPING, DATA TRANSFER AND COMMUNICATION

1. Records

Operators responsible for broiler farms 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 and Campylobacter. Specifically, the records listed below will be kept:
• Numbers of poultry per flock/house received
• Daily mortality of poultry per flock/house
• Records of visits
• Records of veterinary treatments and prescriptions (use of veterinary medicinal products, vaccination)
• Certifications or records of the origin of the stock
• Results of the testing for Salmonella spp
• Certifications or records of the origin of the feed/raw materials
• Results of the testing of the feed/raw materials
• Records of the maintenance of the system for water sanitization (chlorination)
• Results of controls of quality, based in the defined protocol
• Records of the accomplishment of the disinfection protocol.
• Records of the accomplishment of the protocol for insect control.
• Records of the accomplishment of the protocol for rodent control.
• Record of the date and number of poultry delivered to the slaughterhouse.

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

2. Record Keeping

• All records required by this guide must be kept for 3 years at least.
• The storage conditions must prevent any deterioration or damage to the records.
• The records must be sorted and filed for complete and easy information and be legible.

3. External Communication

• External communication among the different members of the feed and food chain is an essential tool in the production of safe food and food products.
• Therefore, the users of this Guide are encouraged to communicate and share with both suppliers and customers the results of the testing and monitoring undertaken.
• Poultry meat producers must endeavour to ensure that all food safety hazards are not only identified, evaluated and controlled but also communicated to other members of the food chain so that they can be managed to minimise the impact to human and animal health.
Annex 1  Reference to legislation, quality schemes and other sources


- **Regulation 1003/2005** target setting for the reduction of salmonella in breeding stock

- **Regulation (EC) No 646/2007**: target setting for reduction in flocks of broilers

- **Regulation (EC) No 1177/2006**: requirements for use of antimicrobials and vaccines in control programmes for poultry

- **Regulation (EC) No 178/2002** laying down the general principles and requirements of food law, establishing the European Food Safety Authority and laying down procedures in matters of food safety

- **Implementation Guidance Document** of ARTICLES 11, 12, 16, 17, 18, 19 and 20 of Regulation (EC) No 178/2002 on General Food Law


- **Commission Regulation (EC) No 2073/2005** as amended, which sets down microbiological criteria for foodstuffs (see section on Microbiological criteria)

- **Commission Regulation (EC) No 2074/2005** which contains a set of implementing measures such as provisions concerning food chain information, recognised testing methods for detecting marine biotoxins, lists of establishments, model health certificates for certain products of animal origin and a derogation for foods with traditional characteristics

- **Guidelines** for the development of Community guides to good practice have been prepared together with the Member States.

- **Guidance document** on the implementation of certain provisions of Regulation (EC) No 852/2004 on the hygiene of foodstuffs.

- **Guidance document** on the implementation of procedures based on the HACCP principles, and on the facilitation of the implementation of the HACCP principles in certain food businesses.

- Regulation (EC) No 882/2004 on official controls performed to ensure the verification of compliance with feed and food law, animal health and animal welfare rules
- The Assured Chicken Production Scheme (ACP) standards for poultry: (http://www.redtractor.org.uk/site/REDT/Templates/GeneralStandards.aspx?pageid=28)
- QS System (http://www.q-s.info/Fleisch.97.0.html)
- Belplume (http://www.belplume.be)
- Zoonoses: DEFRA Codes of Practice for the control of Salmonella (http://www.defra.gov.uk/animalh/diseases/zoonoses/salmonella-cop.htm)
Annex 11　Laboratory

I. Licensed laboratories

According to Article 12 of regulation 2160/03 laboratories which perform testing for zoonotic agents in the frame of control programs at farm level have to
- be licensed by the Competent Authority of the MS
- use a quality norm according to EN / ISO 17025:2002
- participate in ring tests performed by the national reference laboratory.

Analyses on food (slaughterhouses) should be done in accordance with Article 5 of Regulation (EC) NO 2073/2005 as amended.

Other labs may not perform tests for Salmonellae and Campylobacter.
Annex III - Definitions

1. **biosecurity measures**: are measures set up to implement hygiene standards at all levels of the production in order to manage the animal health including the microbiological condition of the live poultry and the poultry meat. The measures are implemented to prevent the introduction, spread and persistence of Salmonella in chickens reared for meat production and in poultry meat.

2. **isolated**: separated from other houses

3. **poultry site**: can be one or more poultry houses. The poultry site is an entity where the same entrance/exit is used for having exit to one or more poultry houses. A unit is a part of a site that can be isolated from other units (a unit can be one or more houses) by intermediate biosecurity measures.

4. **disinfection, hand washing facilities, chemicals**: The chemicals used for disinfecting hands are approved by the competent authority who also can provide a list of the approved disinfectants.

5. **footdip barrier**: footbaths with approved disinfectants - best when there are 2 one just inside the anteroom and one inside before entering the poultry house. Can be used as only barrier but works best combined with anteroom.

6. **anteroom**: description and place: being designated as “clean” or “part of the house” and the other part being designated “dirty or “outside the house”. These areas are separated by clear demarcation e.g. physical barrier or a line painted on the floor of the house. Separate footwear is at least provided for the clean area. The ante-room must be kept clean and should be disinfected regularly and is used for changing clothes.

7. **carcasses**: dead animals

8. **old litter**: is litter that is no longer fit to be used

9. **intercrop**: between two harvests

10. **concrete aprons**: the platform- floor often made of concrete outside the poultry house.