



Qualitätssicherung. Vom Landwirt bis zur Ladentheke.

Guideline **Salmonella Monitoring and Reduction Program for Poultry Production**



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Contents

1	Fundamentals.....	3
1.1	Area of Application	3
1.2	Participation of Farms	3
2	Monitoring program	3
2.1	Sampling	4
2.1.1	Entry control of chicks.....	4
2.1.2	Exit control (sock swab)	4
2.2	Delivery approval for QS meat poultry.....	5
2.3	Requirements for laboratories.....	5
3	Reduction program.....	5
3.1	Measures for the gradual reduction of salmonella exposure.....	5
3.1.1	Agricultural level.....	6
3.1.2	Slaughter/deboning level	9
4	Definitions.....	10
4.1	Explanation of Symbols	10
4.2	Abbreviations	10
4.3	Terms and Definitions.....	11



1 Fundamentals

Basic information on the QS scheme such as organisation, participation conditions, use of the QS certification mark and sanction procedures can be read in the **Guideline "General Regulations"**.

Salmonella monitoring serves the purpose of reducing the risk of introducing salmonella to the meat production chain through infected and/or contaminated fattened poultry and recognizing and removing input sources at the fattening farms that participate in the QS system. Sampling is done on farms by

- Examining chicks prior to transfer to the fattening barn or young fattening turkeys (after rearing)
- Performing a sock swab test before the poultry leaves the farm

This guideline serves as binding instructions for the systematic implementation of a programme for the continuous recording (monitoring) and reduction of the salmonella input risks during meat production from fattened poultry (salmonella monitoring).

1.1 Area of Application

This guideline is applicable to the following QS system partners:

- Poultry fattening farms (chicken, turkey and Peking duck) and coordinators
- Slaughtering/deboning and processing businesses
- Laboratories

as well as: samplers, attendant veterinarians, suppliers

1.2 Participation of Farms

All poultry fattening farms that participate in the QS system must implement salmonella monitoring, irrespective of the size of the business.

The rules for participation in the QS scheme are described in the **Guideline General Regulations**.

2 Monitoring program

This chapter describes sampling in the agriculture poultry level. Sampling is divided into an entry control of the delivered day-old chicks or young fattening turkeys (after rearing) as well as the barn exit control of the animals for fattening. At the slaughter/deboning level, sampling takes place as per legal requirements. Table 1 shows an overview of the sampling systematic in the agricultural level.



Tab. 1: Sampling systematics

Time of sampling	Test procedures	Sampling	Testing scope	Sample
<p><u>Entry control</u> A) Alternatively, dust examinations from the hatchery can serve as checks. For young fattening turkeys Investigation results (socks test) can be used from the rearing barn. Sampling in rearing barn must be made within two weeks prior to the placing of young rearing turkeys (rehousing in the fattening farm). b) Result of the inspection must be submitted after 10 days following move to the barn at the latest.</p> <p><u>Exit control</u> from three weeks prior to slaughter (sock swab)</p>	<p>Bacteriological test (in accordance with DIN EN ISO 6579) or PCR test (in accordance with ASU L00.00.98)</p>	<p>At the fattening barn</p>	<p><u>Entry control</u> per delivery of day-old chicks/ young turkeys (after rearing)</p> <p><u>Exit control</u> Each run. Inclusion of all barns/pens</p>	<p>Farmer, veterinary surgeon, fattener</p>

2.1 Sampling

Farmers ensure the following when sampling:

2.1.1 Entry control of chicks

- Each day-old chick or young fattening turkey delivery must be included in sampling.
- The samples must be sent on the day of sampling to a laboratory.

Note: *The absorptive paper used in the transport containers to improve hygiene can be used as sample material if excrement from the chicks has adhered to it.*

As an alternative to the incoming examination of the day-old chicks, dust examinations or meconium tests from or the hatchery can serve as evidence of a receiving inspection.


Results of salmonella testing

2.1.2 Exit control (sock swab)

- Each fattening run must be included in sampling, in which for each barn resp. each pen two sock swabs are used (sample pooling is allowed for Peking ducks, i.e. one sock swab may cover max. 10 barns/pens).
- Sampling must take place within a period of three weeks prior to the scheduled slaughter date. Results have to be available at the slaughterhouse as written or digital document, before poultry leaving the farm for slaughtering.
- The samples must be sent on the day of sampling to a laboratory.



Each barn resp. each pen must be sampled twice each time with a pair of shoe covers. The sampling must be taken in equal measure from the entire barn. The surface of the shoe covers must be moistened before putting them on. After sampling, carefully remove the shoe covers to avoid losing any material sticking on the covers. The sock swabs should reveal traces of bedding. After removing the shoe covers, they must be turned inside out and deposited in a labelled sample container.

 Results of the salmonella test

2.2 Delivery approval for QS meat poultry

A requirement for the delivery of QS meat poultry is the presence of the results of the salmonella testing (receiving and shipping inspections) at the time of slaughter. If no results are provided at this time, the untested herds are to be regarded as positive herds. Positive herds, resp. untested herds must be slaughtered at the end of the slaughter day.

2.3 Requirements for laboratories

The laboratory must be accredited in line with EN ISO/IEC 17025 (as per the most recent version). Testing must be performed in line with DIN EN ISO 6579 (Microbiology of food and animal feeding stuffs - Horizontal method for the detection of Salmonella spp. ISO 6579:2002) resp. the pertinent EC method, if respective export regulations have been decreed on the basis of REG 2160/2003. A PCR test (as per ASU) can be implemented as an alternative application.

The testing method approved as per REG 2160/2003 must be established at the time of accreditation and belong to the accredited scope of the operation.

3 Reduction program

The successful reduction of the prevalence of salmonella in meat poultry farms can only be maintained on the basis of a targeted (risk-oriented) analysis of the weak points along the production chain.

Agricultural level

Agricultural operations with a positive salmonella result must directly ensure that

- suitable testing is performed in order to determine the cause of the salmonella entry
- and plausible measures are implemented suited to minimize the risk of salmonella. Qualified external support is recommended. The implemented measures must be documented (for this purpose the checklist to determine salmonella entry sources in meat poultry stock can be used as a work tool).

Note: *The result of the sock swab is relevant for the introduction of plausible measures to minimize the risk of salmonella. A positive salmonella result in entry control should be a cause to initiate talks with the hatchery concerning potential salmonella entry sources.*

Slaughter/deboning and processing stage

Positive herds according Regulation (EC) No. 2073/2005, resp. untested herds must be slaughtered at the end of the slaughter day (logistical slaughter). Generally, good hygiene practices as well as legal requirements for the slaughter, deboning and processing stage must be adhered to.

3.1 Measures for the gradual reduction of salmonella exposure

The identified entry sources and the factors responsible for the spread and maintenance of salmonella infections must be eliminated resp. reduced.



3.1.1 Agricultural level

Approaches:

The following activities for the analysis of salmonella entry (occurrence of cases of infection) as well as the gradual reduction of salmonella exposure in livestock are to be regarded as recommendations and serve as an orientation for potential courses of action if they themselves are not QS requirements that have been documented in the QS documentation. Concrete steps are to be determined for each operation individually.

General farm structure

- The presence of further livestock
 - Sufficient distance and spatial separation from poultry
- Housing of different poultry age and utilization groups.
 - Sufficient distance between the various age groups as well as spatial separation of farm departments
- Barn environment
 - Cleaning and disinfection options
 - Construction of paths and areaways
 - Fencing of barn facilities
 - Hygiene sluice per barn system
 - Restriction of natural cover around barn surroundings
- Straw storage
 - Full coverage of straw store for outdoor storage
 - Prevent pests and wild birds from nesting in the straw store
 - Non-use of dark outer and central parts of the bales of straw
- Storage of feed, litter, manure, liquid effluent
 - The storage of this must take place so that the retransfer of undesired germs in the barn area is ruled out.

Broiler and turkey

In the case of suspected or infection with *S. Enteritidis* and *S. Typhimurium* are feed materials and litter, which could be the carriers of Salmonella, can burn or be burned or together with the manure storage. Feed material which have been stored outside the stable in closed containers may be fed, if any sampling and analysis of the feed by the rules of feed-sampling and regulation of analysis no infection with *S. enteritidis* and *S. Typhimurium* is detected.

Hygiene measures

- Barn area
 - Between the removal from the barn and re-introduction, the empty barn / pen including any available facilities and equipment must be properly cleaned and disinfected. Cleaning and disinfection measures must be documented. Cleaning and disinfection agents must be used and stored properly (Criterion: Cleaning and disinfection measures), see also the **Guideline Agriculture, Poultry Fattening**




- Records on cleaning and disinfection measured, e.g. barn card, cleaning plans, process specifications
- The barns as well as the respective adjoining rooms must be in a sound structural condition. The structural condition of the barns and adjoining rooms must allow for proper cleaning and disinfection (**Criterion: Cleaning and disinfection measures**).




Appliances for cleaning and disinfecting equipment and tools as well as the wheels of vehicles must be kept available and ready for use at all times **(Criterion: Cleaning and disinfection measures)**.

The barn floor must be a fixed floor which can be effectively wet cleaned and disinfected. Cleaning and disinfection of the barn floor must be documented on a regular basis **(Criterion: Requirements for barn floors)**.

 Records on cleaning and disinfection measured, e.g. barn card, cleaning plans, process specifications

The barn and any other locations in which animals are housed may only be accessed by external persons with the consent of the animal keeper. Access to the barn facilities is only permitted if the visitors are wearing protective clothing, access is under supervision and direct contact with the animals is avoided **(Criterion: Farm hygiene)**.

 Visitor log

During the delivery and loading of animals, external drivers should be given as little access as possible to the farmyard, barns and loading ramps (black and white principle). Unauthorized persons may not enter the driver's cab and vehicle loading surfaces.

If transport vehicles or equipment are used by more than one farm, they must be cleaned and disinfected if necessary at the point of shipment.

Screening of the implemented cleaning and disinfection measures via adhesive-film test and swabs (only in the case of a positive sock swab). If necessary and if possible, cleaning and disinfection measures must be repeated.

Barn cleaning involves dry cleaning followed by wet cleaning and disinfection.

■ Staff hygiene

Outside persons shall be provided with sufficient disposable clothing or protective clothing provided by the farm. The entry area of the poultry pens must be equipped with a hygiene sluice which effectively separates the outdoor areas from the place where the animals are kept and in which one can change into protective clothing and boots. The sluice must be washed out regularly. A visitor log must be kept. **(Criterion: Farm hygiene)**.

 Visitor log

A functional wash hand basin with hot and cold water is required. Soap, disinfectant and disposable towels should be used for cleaning hands.

Salmonella control of attending staff

Access to animals only with protective clothing (incl. change of shoes)

■ Treatment of perished animals

Carcass storage should preferably be outside the barn area. A cooled, lockable, easily cleaned and disinfected container is available to store perished or eliminated animals **(Criterion: Organic safeguarding measures)**.

Carcass storage as well as carcass containers must be cleaned and disinfected on a regular basis.

The content of the closed carcass containers must not be accessible to pests (such as rodents), unauthorized persons and household pets.



It must be seen to that the carcass vehicle cannot access areas in the vicinity of the barns. **(Criterion: Organic safeguarding measures).**

Any animals found dead must be removed from the barn without delay and stored in the proper manner **(Criterion: Monitoring and care of animals).**

Feed and drinking water (cf. also guideline Poultry Production)

Feed storage

Feed must be stored with care (clean, dry unobjectionable building materials and paints), contamination must be avoided (protective measures against pests, rodents, birds) **(Criterion: Feed storage).**

Before entering feed into storage, the storage facility must be cleaned and disinfected if necessary **(Criterion: Feed storage).**

Feed storage facilities and stored feed must be subject to regular inspection (e.g. in terms cleanliness, mold build-up, temperature, sensory properties of feed) **(Criterion: Feed storage).**

The storage facility must be secured against weather influences with lockable gates and functional windows. A constant means of pest control to combat rodents must be implemented **(Criterion: Feed storage).**

Feed storage in sealed containers

- Where applicable bacteriological testing of feed resp. feed residues (e.g. from feed silos, feed screws) for salmonella
- Filling of silos from the outside only
- During feed deliveries, it must be seen to that the driver has no access to the barn area.

Drinker systems

- Regular cleaning and disinfection of drinker system
- Bacteriological testing of drinking water (particularly in the case of own wells)
- Additive feed from sealed containers if possible
- Water supply containers are covered and cleaned regularly

Living vectors

- The entrance of potential salmonella carriers (pets such as birds, rodents, household pets, etc.) must be prevented.
 - Pets – especially migrating wild birds - can be prevented by installing mesh wire
 - Entries through the roof area must be sealed
- Regular pest monitoring
- Increase of the pest control
 - Pets are to be subject to constant prevention measures. It is recommended to use an officially recognized pest controller to control pests. **(Criterion: Organic safeguarding measures).**

Documentation of monitoring and pest control measures

- Remain observant of bait efficacy. Regular change of bait as well as random inspection of perished rodents.
- Removal of escape, hiding and nesting spaces for rodents (unused corners waste, etc.)
- Special pest control: insects

For the prevention of bugs (e.g. lesser mealworm):

- Use of insecticide in the service period
- Infestation log for employment at external company



Self-audit

- The self-audit checklist must be checked on a regular basis.
- Regular controls of implemented measures as well as the inspection of self-made documentation.

3.1.2 Slaughter/deboning level

Cross-contamination with salmonella in the slaughter process must be excluded as far as possible.

- This is why slaughterhouses must implement a concept for the reduction of salmonella in the slaughtering process (salmonella reduction plan) in line with HACCP principles.
- Salmonella-positive herds for which no salmonella monitoring results are available (receiving and shipping inspection) must be slaughtered after the salmonella-negative herds.

The following list contains activities for the reduction of cross-contamination with salmonella in the slaughter process and is to be regarded as **recommendations**. The implementation of measures is done farm specifically.

Live animal shipment

When shipping live animals it must be seen to that the animals are empty stomached.

Unloading and hanging

Stress can cause a change in the intestinal flora composition which could prove favourable for the spread of salmonella. This is why the unloading and hanging of the animals is to be done gently.

Cleaning and disinfection (live animal shipment)

Objects (e.g. livestock containers), vehicles (e.g. trucks, forklifts) resp. equipment that comes into direct or indirect contact with the delivered poultry should be thoroughly cleaned and disinfected after use to prevent the following herd becoming infected with salmonella.

Slaughter process

- Boiling
During boiling there is a risk of the boiling water becoming contaminated with salmonella. Withdrawal of feed 8 to 12 hours prior to slaughter reduces the entry of pollutants into the boiling vessel which in turn reduces the risk of cross-contamination. The proper cleaning and boiling of the boiling vessel during a slaughter-free phase can achieve a salmonella-free start on the next day of slaughter.
- Plucking
Plucking poses a constant risk of cross-contamination with the skin of the slaughtered poultry. The plucker should be subject to frequent interim cleaning as well as the regular inspection of the plucking fingers.
- Head removers/craw driller
Salmonella contamination cannot be ruled out in the event of damage to the craw. The removal of the head should be performed without any damage. The head remover/craw driller must receive professional maintenance.
- Evisceration
During an evisceration, salmonella contamination can be caused by bowel contents. Proper maintenance and adjustment of the cloacae, belly skin cutter and cleaner should be performed in a thorough and professional manner.
- Harvesting offal
During the process of removing offal, salmonella contamination can be considerably reduced by cooling and washing the offal. The cooling process must be monitored.



Internal/external washer

A malfunction of the internal/external washer can pose a risk of salmonella contamination. It should be seen to that the professional adjustment of the internal and external washer is ensured.

Neck skin cutter

Neck lobes are very perishable. Contamination with salmonella can be very high. In this respect, careful attention should be paid to the proper removal of the neck lobes through proper maintenance and adjustment of the neck skin cutter.

Air conditioning

Insufficient ventilation of the carcass can promote the growth of salmonella. Regular maintenance and subsequent inspection of the air conditioning in connection with chest temperature measurements of the carcass are required.

Note: *The slaughterhouse should randomly compare the results of the sock swabs from the agricultural level to the salmonella tests (neck skin samples) from the slaughter process. The scope of the random sampling should correspond to the requirements of REG 2073.*

The comparison of the results may be used as indicators to evaluate samples of the agricultural resp. slaughter/deboning level.

4 Definitions

4.1 Explanation of Symbols

References to related documents are highlighted by the use of **bold text**.



This symbol means: A written confirmation must be provided. Next to this symbol also documents are listed that can be used as evidence. All (also digital) control - and documentation systems, which prove that the requirements are fulfilled, can be used.

References to other sections of the Guideline are indicated by ⇒.

Notes are marked with a term **Note** and highlighted *in italics*.

4.2 Abbreviations

DIN EN ISO/IEC	Deutsches Institut für Normung e.V., European Norms (European Committee for Standardization), International Standards Organization, International Electrotechnical Commission
HACCP	Hazard Analysis and Critical Control Points
K.O.	Knock out
PCR	Polymerase Chain Reaction
spp	several species belonging to one genus
Tab.	Table
REG	Regulation



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4.3 Terms and Definitions

- HACCP (Hazard Analysis and Critical Control Point)
A system which identifies, evaluates and controls risks that are significant to food safety.
- HACCP Concept
Documentation that complies with the principles of HACCP to ensure that risks to food safety are controlled.
- QS Animals
QS animals are regarded as animals which are produced or marketed at a QS certified farm in accordance with QS scheme requirements.

You can find a list of general terms and definitions in the **Guideline "General Requirements"** (Annex 5.1 to the Guideline "General Requirements").



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