

Guideline

# Salmonella Monitoring Pigs



Version: 01.01.2024



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**Note:** *The Guideline Salmonella Monitoring Pigs is written in German and translated into English. In case of discrepancies between the translation and the German version, the German original is valid.*

# 1 Fundamentals

The aim of salmonella monitoring is to identify pig production businesses whose pigs frequently come into contact with salmonella. These businesses have an increased risk of introducing salmonella into the meat production chain. As a result, businesses with fattening pig stocks are classified based on the risk of salmonella transmission into three categories: low risk – category I, medium risk – category II and high risk - category III. Businesses in category II or III must initiate and implement corrective actions to improve hygiene or to eliminate Salmonella entry pathways.

The data from salmonella monitoring can be used - also together with other data - for evaluations as part of quality assurance, in particular for the purpose of continuous improvement, risk assessment and crisis prevention. These evaluations are used in the QS scheme by QS and by the service providers working in the QS scheme for the purpose of quality assurance.

## 1.1 Scope

This guideline serves as a binding guide for the implementation of the salmonella monitoring in pigs. The Guideline Salmonella Monitoring - Pigs outlines stipulations for:

- livestock owners who deliver fattening pigs for slaughter
- coordinators
- abattoirs
- laboratories
- sample takers/Veterinarians
- deliverers
- third parties

Businesses that keep **rearing pigs** or rear **gilts** and supply discarded animals for slaughtering as fattening pigs must also register with the QS scheme for the "pig fattening" scope and must also participate in salmonella monitoring so that these animals can be marketed within the QS scheme.

Pig production businesses that are involved in pre-fattening only and that do not supply any animals for slaughter do not have to participate in salmonella monitoring and be listed in the database as pre-fattening businesses.

## 1.2 Responsibilities

Livestock owners, coordinators and abattoirs must comply at all times with the requirements of the QS scheme and always be in a position to demonstrate compliance with said QS requirements. The QS criteria are based on the requirements of good professional practice. The livestock owners, coordinators and abattoirs must ensure that, in addition to the requirements of this guideline and the other applicable QS requirements (e.g. General Regulations Guideline, Guideline Certification), the applicable legal provisions (foreign legal provisions comparable outside Germany) are fulfilled.

### Livestock Owners

Livestock owners are responsible for:

- participating in salmonella monitoring
- complete and evenly distributed sampling of fattening pigs
- taking of blood samples from the animal stocks if no adequate sampling is performed in the abattoir
- timely registration of the slaughter consignment with the abattoir, stating the VVO livestock transport number and marking stamp (time and form of registration are to be coordinated with the abattoir)

The obligation to participate in salmonella monitoring begins at the time the business is registered in the QS database for the "pig fattening" scope.

Livestock owners cannot prevent the taking of samples (meat juice or blood samples) in the abattoir and solely take their own samples from their stocks.

### Coordinators

Coordinators are responsible for:

- maintaining the master data of the livestock owners in the QS database
- maintaining the master data in the salmonella database (e.g., annual production of fattening pigs or number of fattening places)
- notification of access data to the salmonella database (on request)

- information for all pig production businesses at least once a quarter regarding the status of implementation of Salmonella monitoring and the results for the business (salmonella testing and salmonella category) if the business in question does not have access to the salmonella database. Coordinators must actively inform businesses with access to the database of the new calculation (quarterly classification). The information must contain at least the following details:
  - result of classification
  - observation period
  - itemized sample list with date, result pos./neg. and calculated result value in OD%
  - details of the abattoir/sample taker
  - history of the last 12 quarterly classifications
  - reference to hygiene checklists for businesses in category II
  - reference to corrective actions for businesses in category III
  - diagram showing average result values (in OD%) for all samples for each delivery during the last 12 months

**Note:** a corresponding information letter can be compiled via the central salmonella database.

### Abattoirs

The abattoirs are responsible for:

- sampling of all deliveries of pigs for slaughter from QS businesses in line with the sampling plan from the salmonella database
- immediate dispatch of the samples to a laboratory recognized for testing of the samples

## 2 Central Salmonella database

The central salmonella database is incorporated in the QS database. It contains the master data of the livestock owner livestock owners, abattoirs, veterinarians and laboratories participating in salmonella monitoring. The central salmonella database reviews the continuity and completeness of sampling, calculates the sampling plan for each delivery of animals for slaughter on a daily basis, manages the sample related data and test results, and calculates the risk classification of the pig production businesses. The data in the salmonella database are only available to authorized users. Specific access regulations exist. All users have access to the data only after registration in the salmonella database. Each authorized user receives a username and password via the database administration.

### 2.1 Coordinators/sub-coordinator (for agricultural businesses) and livestock owners

The QS database and the salmonella database regularly compare the master data/address data of the livestock owners. In addition to the master data, the QS identification number (GLN number) and the date of the salmonella monitoring obligation are also transferred to the salmonella database.

Livestock owners receive a username and a password from their coordinator to access the QS database for their business at all times.

The livestock owner and the assigned coordinator have access to:

- master data
- sampling plan/Sampling overview of an individual business
- salmonella status of the business (category)
- individual results of the laboratory tests (result, result value, sampling date, sample-taker/abattoir)
- evaluations/Statistics

If a sub-coordinator is engaged by a coordinator to seize the coordinators tasks, the sub coordinator receives the coordinator's access rights. The coordinator remains responsible as contract partner for QS for the implementation of the criteria.

### 2.2 Deliverers (livestock trade)

Deliverers are producer associations, cooperatives and livestock traders. They can use the database to file a slaughter request for a batch of pigs to be delivered to an abattoir, thereby enabling the abattoir to make salmonella sampling plans at an early point in time.

The slaughter request includes the following information:

- livestock transport number in Germany (VVVO number) of the pig fattening business
- delivery date
- number of pigs to be slaughtered
- identification of pigs (sender mark).

Access for deliverers is authorized by the coordinators.

Deliverers have access to:

- slaughter request
- salmonella status of the business (category)

## 2.3 Abattoirs

After taking samples on their premises, the abattoirs submit the following sample related data:

- registration number (VVVO number)/Business unit
- date of slaughtering
- recipient (laboratory ID)
- sender (abattoir ID)
- sample number

Structure of sample number:

AA	two letters for internal information (optional)
BB	two letters for German state ("Land"), if part of the ES no.
1234	4 digits for ES number
123456	6 digits for sample number

The sample number must remain unique for at least one year.

Abattoirs commissioned by a QS scheme participant to slaughter their pigs are authorized to access the following central salmonella database system data:

- slaughter request
- sampling plan/sampling overview
- sample related data
- salmonella status of the business (category)
- individual results of the laboratory tests (for the sample tests the abattoir is commissioned to perform)

## 2.4 Veterinarians

Veterinarians who take blood samples for the salmonella monitoring program in pig production businesses must be registered in the salmonella database. They must sign a declaration in which they accept the specifications outlined in the "Guideline Salmonella Monitoring". Veterinarians enter the sample related data into the salmonella database when taking blood samples in the pig fattening business. In individual cases, they can delegate the entry of sample related data to the responsible salmonella laboratory, using either a standard (QS) sampling report or one agreed with the laboratory in question.

The entry of the sample related data comprises the following details:

- registration number/Business unit
- sampling date
- sample number (see 2.1.3 or by arrangement with the laboratory)
- recipient (laboratory ID)
- sender (veterinary ID)

The veterinarian entrusted with taking samples in the agricultural business is authorized to access the following information in the central salmonella database:

- sampling overview
- sample related data
- salmonella status of the business (category)
- individual results of the laboratory tests
- evaluations and statistics

## 2.5 Laboratories

Only test systems recognized by QS may be used:

- pigtype Salmonella Ab from the company Indical Bioscience
- Herd Check from the IDEXX company
- PrioCheck Salmonella 2.0 ELISA from the Prionics AG company in Schlieren

When it receives the testing order, the laboratory is authorized and entitled to access the sample related data in the central salmonella database and to enter the test results.

Samples that have thawed in transit must be analyzed immediately. They must not be refrozen.

The accessed sample related data are supplemented with the following details:

- test system (test kit ID)
- result value (OD%, OD = optical density, the OD% value correlates with the concentration of Salmonella antibodies detected in the sample)
- result (positive / negative or non-analyzable); If the OD% value is  $\geq 40$ , then the sample is assessed as "positive".
- testing date

If commissioned to do so by the veterinarian, the laboratory can upload the entire record of blood sample test results (including the sample related data) to the central salmonella database.

- Samples must be tested within 10 days of receipt by the laboratory.
- The results are to be entered into the central salmonella database immediately after they have been determined.
- Samples yielding no test result must be entered into the database as "non-analyzable" together with the testing date.
- Samples that it was not possible to test are to be entered into the database as "non-analyzable" but without the testing date.

If a result for a sample is not entered into the database within three months after the sample was taken, the sample will automatically be excluded from the sampling plan. However, it is possible to add the result at a later date.

The laboratory has access to:

- sample related data
- individual results of the laboratory tests

Further requirements for laboratories are outlined in  Section 6 Requirements for laboratories.

## 2.6 Third parties

Livestock owners can permit other persons/groups of people (so-called third parties) to access their data in the salmonella database. For this purpose, the livestock owner authorizes the coordinator to transmit information to this third party or to permit this third party to access this information in the salmonella database. During this process, QS can provide support as a coordinating body.

The third party has access to:

- sampling plan/sampling overview
- sample related data
- salmonella status of the business (category)
- individual results of the laboratory tests
- evaluations and statistics

## 2.7 QS Qualität und Sicherheit GmbH

As scheme owner, QS has access to all data and evaluation results in the salmonella database. Access to the data is restricted to individual authorized employees of QS.

QS will provide the operating company of the animal welfare initiative "Initiative Tierwohl" access to information that is defined for the implementation of the Animal Welfare Initiative in this respect.

The data in the salmonella database can be made available to research establishments (e.g., universities, colleges, and Federal Institute for Risk Assessment (BfR)) for research projects and scientific evaluations in the field of animal welfare/animal health after pseudonymization while ensuring appropriate data protection.

## 2.8 Management of bar codes for identification of samples

The central salmonella database can also manage the bar codes required for identification of sample containers. Defined number ranges (ES number, sample ID) can be managed for the use of the bar codes.

The following have access to bar code management:

- abattoir/veterinarian/supplier of sample containers

## 3 Sampling

Sampling takes place in the abattoir at the carcass. Meat samples are taken from the diaphragm, preferably from the diaphragm pillar. If jointly agreed upon with QS in advance, it is possible to take blood samples in the abattoir. Parallel taking of both meat and blood samples in the abattoir is not possible.

Alternatively, sampling can take place in the agricultural business by taking blood samples. Samples may be taken from pig for slaughter at the earliest 14 days before slaughtering. Blood samples taken in the pig production business can be used to supplement the samples in the abattoir or to close sampling gaps. They are not taken into account in the calculation of the sampling plan. Livestock owners can not prevent the taking of samples in the abattoir and solely take their own samples from their stocks.

### 3.1 Abattoirs

The abattoir must ensure the following for every delivery of pigs from QS businesses:

- correct sampling according to the sampling plan for the business in question as contained in the central salmonella database (see Table 1)
- correct sampling location. Samples must be taken from the diaphragm, preferably from the diaphragm pillar; they must be generally free of blood residues
- immediate freezing of the meat juice samples
- correct storage of the samples
- correct handling of the blood samples that are taken; if the blood samples are processed and not immediately sent to a laboratory, correct processing and storage of the samples must be ensured
- availability of suitable sample containers
- exclusive use of numbers from the assigned ranges for labelling of samples
- uniqueness of the sample number of the bar code for at least one year
- secure (deep freeze-ready label, waterproof, deep freeze-ready ink) and unique bar code identification (code 128) of containers and their unique allocation to the VVVO registration number of the fattening business or business unit in question
- compilation of the sample related data
- entry of these sample related data into the central salmonella database – always before the dispatch of samples (necessary to ensure the sampling overview is always up to date)
- immediate dispatch of samples (within 14 days at the latest) completed with a testing order for salmonella antibody testing by a QS-recognized laboratory (necessary for correct quarterly reclassification).

If a result for a sample is not entered into the database within three months after the sample was taken, the sample will no longer be included in the sampling plan.

### 3.2 Agricultural businesses/Veterinarians

Veterinarians taking blood samples for salmonella antibody testing must ensure the following:

- sampling of animals at the earliest 14 days before slaughtering only
- Correct handling of taken blood samples; if the blood samples are processed and not immediately sent to a laboratory, correct processing and storage of the samples must be ensured
- availability of suitable sample containers
- exclusive use of numbers from the assigned ranges for labelling of samples
- secure (deep freeze-ready label, waterproof, deep freeze-ready ink) and unique bar code identification (code 128) of containers and their unique allocation to the VVVO registration number of the fattening business or business unit in question
- compilation of the sample related data
- fast entry of sample related data into the central salmonella database - always before dispatch of samples (necessary to ensure the sampling overview is always up to date)
- immediate dispatch of samples plus analysis request to a laboratory recognized by QS for salmonella antibody assays (required for a correct quarterly reclassification update)



### 3.3 Random sampling scheme

Table 1: Random sampling scheme for fattening businesses with more than 50 fattening places based on predicted annual production. (the random sampling scheme refers to a business or a part of a business identified with a VVVO no.)

Number of animals delivered per year	Minimum number of samples per year	Initial classification after
< 45	26	26 results (12 months at the latest)
45 – 100	38	38 results (12 months at the latest)
101 – 200	47	47 results (12 months at the latest)
>200	60	60 results (12 months at the latest)

Table 2: Random sampling scheme for fattening businesses with 50 or less fattening places

Number of animals delivered per year	Minimum number of samples per year	Initial classification after
≤ 50	10	10 results (12 months at the latest)
51– 100	20	20 results (12 months at the latest)
101 – 200	47	47 results (12 months at the latest)
>200	60	60 results (12 months at the latest)

The **sampling plan** stored in the central salmonella database suggests that **no more than a quarter of the set minimum annual number of samples is taken** per delivery. Businesses with fewer than four deliveries a year must sign a separate agreement with the abattoir. In the case of businesses with just one fattening cycle a year, the coordinator must enter this piece of information into the master data of the fattening business in order to ensure correct sampling and classification of the business.

In individual cases, a business cannot be classified due to its special production conditions and related production-free periods. In these cases, the review of the even distribution of sampling can be dispensed with and a classification defined where applicable. Fulfilment of the sampling target remains an obligation. A note to this effect is made in the master data at the request of the coordinator and after a thorough examination by QS.

**Sampling is evenly distributed** across a period of twelve months based on the delivery cycles. While sampling is linked to a twelve-month period, this period does not coincide with the calendar year. The twelve-month period does not have to begin with the first day of a quarter or a month. The twelve-month period is a continuous, uninterrupted period of one year (= 365 days) – based on the last day of sampling. The set target number of samples should have been taken at any time of sampling with respect to the preceding twelve months.

Sample takers have to check the sampling plan stored in the central salmonella database to determine the **number of samples to be taken**. A separate sampling plan is calculated for each business based on the updated figures. The precondition for accurate sample planning is that the sample related data are entered into the salmonella database without delay. Calculation of the sampling plan for the abattoir takes account of the samples taken in the abattoir. If the sampling plan is implemented by all sample takers on an ongoing basis, this ensures that the sample target is met. If more samples are taken during a sampling session than proposed, the sample proposal is not "downsized" for the following sampling sessions to ensure that the sample target is also met in future. If fewer samples than proposed are taken, the number of samples is increased during the next round of sampling in order to ensure that the sample target is reached.

## 4 Evaluation of results

### 4.1 Initial classification

**Initial classification** of a business is performed at the latest one year after registration of the pig production business in the QS database – as soon as the sample target for the business has been reached (in line with Tab.1 or Tab.2 of the random sample scheme) and the test results have been entered in the salmonella database. The category is valid with immediate effect and not only from day 8. Classification of the businesses is based on the number of positive samples in line with the evaluation criteria in Table 3.

If the business has not been given initial classification in category I, II or III after a period of 12 months, it loses its eligibility to deliver fattening pigs into the QS scheme until initial classification has been achieved. The disqualification of the business is effective with the quarterly classification following initial classification – on 1 February, 1 May, 1 August and 1 November, as applicable.

Table 3: Evaluation model

Risk of salmonella in livestock	Category	Percent of positive findings in the random sample
Low	I	≤ 20
Medium	II	> 20 and ≤ 40
High	III	> 40

### 4.2 Calculation of quarterly classification

#### (ongoing classification)

Repeat assessment of the test results and the associated reclassification of the business in one of the categories I, II or III is performed four times a year on 1 February, 1 May, 1 August and 1 November based on the evaluation model outlined in Table 3.

Classification is based on all samples taken during the 5 preceding calendar quarters and for which a test result is available. Assessment is based on all sample testing results available in the database for a retrospective period of one year (exactly 365 days) before the last sampling day (prior to the testing period) but for a maximum of the last five quarters. Category calculation does not take account of samples taken within the last month (testing period) prior to classification, as sample results will not be fully available at that time (due to the time needed by abattoirs to enter the sample related data, dispatch of samples, sample testing, entry of test results, plausibility check and, where applicable, the need to make corrections).

An examination is performed to determine whether the stipulated sample target (in line with Tab. no. 1 or Tab. no. 2 of the random sample scheme) has been achieved. Further there has to be an evenly sampling period of six months and the sampling gap has to be less than six months (even distribution of sampling). Exception: businesses with fewer than 50 slaughtering pigs per year, see □ Section 3.3 Random sample scheme.

The business is only given a **new category** when sampling for the business has been performed correctly. This is possible at any time - even before the next official classification date - if all classification requirements have been met. Samples taken within the last 30 days (testing period) are not taken into account for the purpose of classification. The new category is **valid from** the 8th day after classification. This provides both livestock owners and abattoirs with planning security with regard to the category in the case of deliveries during the days close to the classification date.

### 4.3 Ad hoc classification

Ad hoc classification can be performed for the purpose of immediate granting of eligibility to deliver into the QS scheme. The prerequisite for this is that "ad hoc classification" is specified in the master data of the pig production business in the salmonella database and the demanded number of samples is fulfilled. For the ad hoc classification the database considers the samples of the last six months. The business must not already have been assigned a valid category (category I, II or III) at this point in time.

The category based on ad hoc classification becomes valid immediately – in other words not only on the 8th day after classification.

Following ad hoc classification, samples are taken on a regular basis in line with the sampling plan. The collected samples are then taken into account for the following quarterly classifications. If a "regular" classification has been issued, the specification "ad hoc classification" is automatically deleted in the master data.

#### **4.4 Loss of category and delivery eligibility**

If, in the intervening period, a business fails to meet the requirements of complete and evenly distributed sampling of the fattening stocks, this business may be disqualified on the next classification date. Verification of compliance is performed automatically via the central salmonella database. Disqualification means that the business loses its eligibility to deliver pigs into the QS scheme until renewed classification has been achieved. Reclassification can be performed at any time as soon as the business can prove that all samples have been taken as specified (review via the central salmonella database).

#### **4.5 Unoccupied periods**

If pig production fattening facilities remain temporarily unoccupied (due to conversion work, wide-ranging repairs, financial considerations or similar) or if production is discontinued for one cycle or for an indefinite period of time, this must be taken into account for classification purposes.

An unoccupied period can only be entered once for a twelve-month period. No fattening pigs may be kept at the business or in this business unit (VVVO number) during an unoccupied period. The unoccupied period must last at least 30 days and may not exceed six months in duration. An unoccupied period starts on the day after the last fattening pigs have been removed from the shed of a business and ends on the day before the piglets are moved into the shed for the following fattening cycle.

The livestock owner provides evidence of the unoccupied period by submitting an excerpt/copy of the stock register. The unoccupied period must be entered in the salmonella database by the coordinator.

#### **4.6 Reclassification (ad hoc) for amendment of category III**

Businesses classified in category III can apply for a new salmonella category if the following requirements are met:

- The business is classified in category III or currently has no category and was classified in category III in the previous quarter.
- The business has implemented the following corrective actions with the assistance of the care-providing veterinarian:
  - bacteriological and epidemiological tests for salmonella to determine the entry pathways for salmonella
  - cleaning and disinfection of all sheds/shed compartments including the ancillary rooms belonging to the shed (e.g., anteroom, hygiene sluice, feed room)
  - cleaning and disinfection of all equipment and devices (e.g., bay dividers, feed dispensers, mixing containers, ventilation shafts, scales)
  - cleaning and disinfection of all work tools used and all workwear (e.g., herding boards, shovels, brushes, tools, boots, overalls, protective clothing)
  - intensive pest control
  - monitoring of the feeding regime (e.g., hygiene, feed structure, use of acid)
  - optimization of operating hygiene (e.g., black and white principle)
- The veterinarian is registered in the salmonella database.
- Veterinarian and livestock owner confirm coordination and implementation of the corrective actions (see ⇒ Annex 8.2 Declaration on ad hoc classification of a pig production business following the implementation of remediation measures) and transmit the signed declaration to the coordinator.
- The coordinator stores the information on the performance of "ad hoc classification" in the salmonella database within 14 days following completion of the remediation measures.
- The veterinarian takes blood samples at the earliest two weeks before slaughtering. The sample target (in line with Tab. 1 or Tab. 2 Random sampling scheme) must be met.

Results from previous tests performed before the remedial measures were implemented are not taken into account for the purposes of reclassification. The new category is immediately valid following reclassification and not only on the 8th day after classification.

## 4.7 Eligibility of delivery for pigs in the QS system

Pig fattening locations, which have been scheme participants for at least six months and did not conduct a sampling, will get the status "inactive" and will be excluded from delivering pigs into the QS scheme until a sample was taken, which can be proven in the salmonella database. If the delivered slaughter batch is sampled under the status "inactive", and the sample related data entered immediately into the salmonella database, this batch can also be marketed under QS.

Pig fattening locations, which have not received a category, although this would be possible for the period of scheme participation, will get the status "blocked" and will be excluded from marketing pigs into the QS scheme until a categorization is reached.

## 5 Corrective actions

Agricultural businesses classified in category II or III must take corrective actions to reduce salmonella entry pathways. So that they can implement the required corrective actions in a timely manner, livestock owners and agricultural coordinators must obtain an overview of the status of salmonella monitoring implementation. To do this, they can access information in the central salmonella database at any time.

In addition, the coordinator is regularly informed via the salmonella database about businesses that have been classified in category III. Businesses where more than 30% of the tested samples have been positive during the last six months are also reported. As a means of supporting implementation of corrective actions, the coordinator has the option of automatically including third parties (e.g., consulting firms, veterinarians etc.) in the flow of information (compliance with data protection requirements is to be ensured).

### 5.1 Corrective actions in agricultural stocks with increased salmonella risk

#### Category II businesses

Agricultural businesses with a medium salmonella risk (category II) are obliged to check and document their hygiene status immediately after classification. For this purpose, they can use the  
⇒ Annex 8.3 "Checklist for determining salmonella entry pathways in pig fattening stocks".

 Annex 8.3: checklist for determining salmonella entry pathways in pig fattening stocks

#### Category III businesses

Agricultural businesses with high salmonella entry risk (category III) must, with the support of the veterinarian providing care, ensure that the following steps are taken without delay:

- Performance of bacteriological and epidemiological tests for salmonella to determine the cause of salmonella entry
- taking of corrective actions to reduce salmonella contamination, in particular cleaning and disinfection of the newly vacant bays or compartments as well as pest control.

Suggestions on how to reduce the entry of salmonella into businesses keeping pig stocks are outlined in supporting document "Practical Recommendations to Reduce salmonella".

**Note:** Supporting document "Practical Recommendations to Reduce Salmonella"

### 5.2 Corrective actions in abattoirs

Pigs both in transit to the abattoir and being temporarily kept on abattoir premises may become infected with salmonella. Moreover, salmonella cross contamination is possible during the slaughtering process. Abattoirs must have in place and implement a concept for the reduction of salmonella contamination during the slaughtering process (salmonella reduction plan) in accordance with HACCP principles.

Suggestions on how to reduce the entry of salmonella into pig slaughtering operations are outlined in supporting document: "Corrective Actions for Salmonella Reduction in Pig Slaughtering Operations".

**Note:** Supporting document "Corrective Actions for Salmonella Reduction in Pig Slaughtering Operations"

## 6 Requirements for laboratories

### Criteria for QS recognition

The application for QS recognition for salmonella monitoring in pigs must be filed directly with QS Qualität und Sicherheit GmbH. Each application is individually reviewed by QS.

⇒ Annex 8.1: Record Sheet for Testing Bodies when Applying for QS Recognition

The list of recognized laboratories is published at [www.q-s.de](http://www.q-s.de)

### 6.1 Accreditation

The laboratory must be accredited in line with **EN ISO/IEC 17025** (in its most recent version). The ELISA test procedure must be established at the time of accreditation and be part of the accredited scope of activities of the company.

Laboratories that have implemented the test procedure, have successfully begun method accreditation and are at an advanced stage in the preparation process may be eligible for preliminary recognition. Proof of accreditation of the test method must then be provided within the next twelve months.

### 6.2 Experience with antibody testing using ELISA and participation in laboratory performance assessments

The laboratory must have relevant practical experience with one of the approved ELISA salmonella tests and participate in laboratory performance assessments to detect antibodies against salmonella in pigs at least once a year. Laboratories that have not taken part in a laboratory performance assessment are obliged to participate in laboratory performance assessments at the next opportunity. Proof is to be provided to QS unrequested.

Laboratories undergoing the recognition procedure must provide proof of their competence in a laboratory performance assessment organized by QS in order to obtain QS recognition. QS reserves the right to issue a 24-month suspension for laboratories that have failed the laboratory performance assessment twice in a row. Only after this period has expired is the laboratory entitled to resume the recognition process.

All QS-recognized laboratories are required to participate in the laboratory performance assessments organized by QS Qualität und Sicherheit GmbH. Successful participation is one of the requirements for the continued QS recognition. If a laboratory does not pass the laboratory performance assessment twice in a row, it loses its recognition. A renewed application (i.e., for renewed granting of recognition) is only possible if the laboratory has successfully participated in a QS laboratory performance assessment.

### 6.3 QS-recognized test kits

Only the following test kits may be used for testing of samples for Salmonella antibodies:

- pigtype Salmonella Ab from the company Indical Bioscience
- Herd Check IDEXX from the IDEXX company
- PrioCheck Salmonella 2.0 ELISA from the Prionics AG company in Schlieren

### 6.4 Entry of test results into the central QS Salmonella database

The laboratory must enter the test results into the central salmonella database without delay, at the latest 14 days after the samples were received by the laboratory. The entered data must comprise at least the following information:

- result value (OD%, OD = optical density. The OD% value correlates with the concentration of salmonella antibodies found in the sample) Result (positive / negative or non-analyzable); If the OD% value is  $\geq 40$ , the sample is to be considered "positive".
- test system (test kit ID)
- testing date

### 6.5 Database Usage Agreement with Qualitytype

Every laboratory enters into an agreement with Qualitytype GmbH in Dresden, Germany, on the use of the central salmonella database.


## 6.6 Database usage agreement with qualitype

Every laboratory enters into an agreement with qualitype GmbH in Dresden, Germany, on the use of the central salmonella database.

## 7 Definitions

### 7.1 Explanation of symbols

The Guideline uses symbols with the following meanings:

- References to related documents are highlighted by the use of **bold text**.
-  This symbol precedes documents that have to be submitted.
- References to other sections of the Guideline are indicated by  $\Rightarrow$ .
- Notes are identified by **Note:** *in italics*.

### 7.2 Abbreviations

VVVO	Vieh-Verkehrs-Verordnung (livestock transport number)
ES number	Registration number for an approved abattoir in the European Community
ID	Identification number
IDEXX	Company name – producer of test kits for testing for salmonella antibodies

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

## 8 Annexes

Annexes 8.1 to 8.3 are published as extracts.

- 8.1 Record Sheet for Testing Bodies when Applying for QS Recognition**
- 8.2 Declaration on ad hoc classification of a pig production business following the implementation of remediation measures**
- 8.3 Checklist for Determining salmonella Entry Pathways in Pig Fattening Stocks**

## Revision Information Version 01.01.2024

Criterion	Changes	Date of change
1 Fundamentals	<b>Clarification:</b> The data collected in salmonella monitoring can be used for evaluations as part of quality assurance.	01.01.2024
1.1 Scope 2 Central Salmonella database 2.7 QS Qualität und Sicherheit GmbH	<b>Editorial change:</b> The wording was adjusted to standardize the guidelines for the monitoring programs.	01.01.2024

Guideline  
**Salmonella Monitoring Pigs**

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