

National *Salmonella* Enteritidis Monitoring & Accreditation Program Guidelines





Australian Government
**Department of Agriculture
 and Water Resources**

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1. Purpose

The guidelines outline the National *Salmonella* Enteritidis Monitoring & Accreditation Program (NSEMAP) for all Australian commercial egg producers exporting eggs to overseas markets.

2. Scope

The guidelines focus on testing requirements and accreditation processes for *Salmonella* Enteritidis (SE) freedom. The guidelines do not explicitly cover other critical elements of a SE control program such as hazard analysis critical control point (HACCP) systems or biosecurity requirements. Producers are encouraged to consult other resources e.g. existing company biosecurity programs, their respective state and territory Food Authority, Department of Primary Industries, Biosecurity and the [Australian Eggs Limited](#) for further information.

3. Definitions and functions

Acronym	Definition	Function
APVMA	Australian Pesticides & Veterinary Medicines Association	Registration of all agricultural and veterinary chemical products into the Australian marketplace
BQ, DAF	Biosecurity Queensland, Department of Agriculture and Fisheries	Government organisation that coordinates government's efforts to prevent, respond to, and recover from animal and plant pests and diseases that threaten the economy and environment in Queensland
DAFWA	Department of Agriculture and Food, Western Australia	Government organisation that helps to grow and protect Western Australia's agriculture and food sector
ESA	Egg Standard of Australia	An industry quality assurance scheme that is voluntary and to provide a means of demonstrating best practice at farm level
GFSI	Global Food Safety Initiative	An industry-driven initiative providing thought leadership and guidance on food safety management systems necessary for safety along the supply chain that is internationally recognised
HACCP	Hazard Analysis Critical Control Point	A systematic approach to identifying and assessing hazards and risks associated with a food operation and defining the means of their control
IMVS	Institute of Medical & Veterinary Science	South Australian Pathology trading as IMVS, provides a unique blend of state-wide pathology services with comprehensive basic and clinical research programs
NATA	National Association of Testing Authority	Australia's government-endorsed provider of accreditation for laboratories and similar testing facilities conducting tests, calibrations and measurements in a wide spectrum of technical fields
NSW DPI	NSW Department of Primary Industries	Government organisation that provides a range of services to stakeholders in NSW, to continue driving economic growth and increasing the

		value of primary industries in the state
NSW FA	NSW Food Authority	Government organisation that helps ensure food in NSW is safe and correctly labelled
PIRSA	Primary Industries and Regions, South Australia	Government organisation that helps develop the South Australia economy, with responsibility for the prosperity of the state's primary industries and regions

Term	Definition
Flock	A flock includes all the birds in a shed
Drag swab	Two 5-8 cm gauze pads, or similar, connected to a cord of a suitable length
Boot swab	Sock, surgical shoe cover or mob cap
3 M swab	Flat sponge swab for sampling surfaces
Pooled samples	Individual samples that are collected from several locations or several birds or objects from one flock and pooled together
Poultry	Domestic fowl (including chickens, turkeys, ducks and geese) raised for the production of meat or eggs

4. Background

4.1 *Salmonella* Enteritidis

SE is a bacterial disease of poultry that may manifest clinically as depression, poor growth, weakness, diarrhoea, and dehydration. Possible sources of infection in commercial layer flocks include transmission from breeders, contaminated environments, infected vermin (including rodents) and contaminated feed. Transmission to progeny from breeders is mainly through eggshell contamination, although transmission through the egg may also occur.

SE is a notifiable disease in Australia. This means that there is a legal obligation to notify authorities if you know or suspect that poultry are infected with this disease. Visit <http://www.agriculture.gov.au/pests-diseases-weeds/animal/notifiable> for further information.

4.2 Human health implications

Salmonellosis is one of the most common and widely distributed foodborne diseases, with tens of millions of human cases occurring worldwide every year. *Salmonella* outbreaks can have particularly severe consequences in highly vulnerable human populations such as the young, old and immunocompromised.

Eggs are a common vehicle for foodborne illness. In particular, mayonnaise, desserts and sauces that contain raw egg have caused many outbreaks.

SE infection in humans is characterised by acute onset of fever, abdominal pain, diarrhoea, nausea, and sometimes vomiting. The onset of clinical signs occurs 6-72 hours (usually 12-36 hours) after ingestion of bacteria and symptoms last for 2-7 days.

5. Introduction

The NSEMAP offers a Monitored Status – Stage 1 (MS-1), a Monitored Status – Stage 2 (MS-2), and an Accredited Status (AS) for eligible commercial layer flocks in Australia. In order to become eligible for accreditation as SE-free, all the requirements of the guidelines must be met.

5.1 MS-1

MS-1 indicates that a flock is being regularly monitored for SE, but has not yet achieved MS-2. MS-1 will remain in place subject to the following conditions:

- Sampling and testing is done in accordance with the guidelines and results have been forwarded to the Administrator
- All flocks have undergone three consecutive monthly tests
- All test results are negative for SE
- Maintaining and documenting good on-farm biosecurity in accordance with industry manuals (e.g. [National Farm Biosecurity Technical Manual for Egg Production](#) and [National Farm Biosecurity Manual - Poultry Production](#))
- Eggs on-farm are promptly stored in a cool environment where the thermostat temperature is set at less than 15°C, but greater than 1°C
- Annual registration fees are received in a timely manner by the Administrator

MS-1 will cease once a flock progresses to MS-2 or if SE infection is confirmed or the requirements in the guidelines are breached.

5.2 MS-2

Flocks that have been MS-1 for 3 months with negative SE laboratory results are eligible for MS-2, which enables participants to collect samples from production flocks at intervals of 3 months instead of every month. In addition, rearing flocks must also be tested immediately prior to point of lay.

MS-2 will remain in place subject to the following conditions:

- Sampling and testing is done in accordance with the guidelines and results have been forwarded to the Administrator
- All flocks have undergone three consecutive 3-monthly tests
- All test results are negative for SE
- Maintaining and documenting good on-farm biosecurity in accordance with industry manuals
- Eggs on-farm are promptly stored in a cool environment where the thermostat temperature is set at less than 15°C, but greater than 1°C
- Drinking water is derived from a potted water source or has been effectively sanitised in line with the National Water Biosecurity Manual - Poultry Production available at <http://www.farmbiosecurity.com.au>
- An effective auditable vermin control program is in place and rodenticides are used in compliance with APVMA label instructions
- Feed is stored on-farm in areas not accessible to other animals (including vermin)
- Annual registration fees are received in a timely manner by the Administrator

MS-2 will cease once a flock progresses to AS or if SE infection is confirmed or the requirements in the guidelines are breached.

5.3 Accredited Status

Flocks that have been MS-2 for 3 consecutive negative SE laboratory results are eligible for AS once they meet the following conditions:

- Sampling and testing is done in accordance with the guidelines and results have been forwarded to the Administrator
- All test results are negative for SE
- A documented biosecurity program that monitors and prevents the introduction of SE from outside the farm and spread between poultry sheds is in place

- Eggs on-farm are promptly stored in a cool environment where the thermostat temperature is set at less than 15°C, but greater than 1°C
- Drinking water is derived from a potted water source or has been effectively sanitised in line with the National Water Biosecurity Manual - Poultry Production
- An effective auditable vermin control program is in place and rodenticides are used in compliance with APVMA label instructions
- Feed is stored on-farm in areas not accessible to other animals (including vermin)
- People working on the farm, particularly in the egg collection processing area, are familiar with and follow personal hygiene to minimise chance transfer of *Salmonella* from humans to poultry or their products
- Recommended industry practices are employed on the farm, particularly in the egg collection and grading area, in order to minimise risks associated with SE cross-contamination between equipment, eggs and humans
- Replacement pullets are derived from:
 - a. a NSEMAP accredited flock; or
 - b. the replacement pullets' environment is tested 1 month before arrival according to the NSEMAP [Salmonella Enteritidis environmental sampling procedures](#) with negative results; or
 - c. fifteen blood samples from the replacement flock are tested by the SE ELISA (to achieve a 95% confidence of a 5% incidence) within 1 month prior to arrival with negative results.
- A satisfactory on-farm inspection by an approved veterinarian with recommendations made to the Administrator supporting accreditation
- Annual registration fees are received in a timely manner by the Administrator

An accreditation certificate will be provided on request for accredited flocks to allow producers to apply in accordance with the overseas country's requirement.

Note: production flocks must be tested every 3 months and rearing flocks immediately prior to point of lay. Compliance with these requirements will be assessed prior to an accreditation certificate being issued.

6. Fees

Fees will be charged on a cost-recovery basis.

The following initial accreditation fee applies:

- \$176
- \$240 (late accreditation fee)

The following annual re-accreditation fee applies:

- \$176
- \$240 (late accreditation fee)

All costs, as part of obtaining and maintaining accreditation in the NSEMAP (including sampling, testing and on-farm inspections), are the responsibility of the owner/s of flocks enrolled in the program.

7. Administration

The NSEMAP will be administered by the Administrator.

The Administrator will notify the respective jurisdiction of any new flocks that join the NSEMAP from that jurisdiction in a timely manner.

The Administrator will notify the respective jurisdiction of any issues relating to MS-1, MS-2 and AS flocks from that jurisdiction in a timely manner.

The Administrator will ensure systems and policies relating to the NSEMAP are in place to maintain appropriate levels of confidentiality of information from other jurisdictions, particularly in relation to reporting of any results.

The Administrator, in consultation with animal biosecurity staff, may initiate any investigations and impose conditions deemed necessary to ensure that the credibility of the NSEMAP is maintained.

The guidelines may, if deemed necessary, be revised by the Administrator subject to appropriate consultation with internal and external stakeholders.

The Administrator will provide Animal Health Australia with de-identified data quarterly for storage in the National Animal Health Information System for reporting purposes and for analysing the national status for SE.

For further information, please contact:

Jo Collins
Administrator NSEMAP
Work: 02 6391 3607
Email: jo.collins@dpi.nsw.gov.au

8. Approved testers

Approved testers for the NSEMAP include:

- Registered veterinarians who have been approved by the Administrator
- Lay persons who have been trained by an approved registered veterinarian (training records must be kept and be available for inspection on request by the Administrator)

9. Approved laboratories

Approved laboratories for the NSEMAP include:

- State Veterinary Diagnostic Laboratory, Elizabeth Macarthur Agricultural Institute, Woodbridge Road, Menangle NSW 2568
- Microbiological Diagnostic Unit, Peter Doherty Institute for Infection and Immunity, The University of Melbourne, Parkville VIC 3010
- IMVS Food and Environmental Laboratory
- Biosecurity Sciences Laboratory, Health and Food Science Precinct, 39 Kessels Road, Coopers Plains, QLD 4108
- Private laboratories that are NATA certified for *Salmonella* testing and have been approved by the Administrator

SE testing must be done by an approved laboratory employing a microbiologist or a veterinarian. The laboratory must have the capacity to differentiate Group D from other *Salmonella* groups (Group D includes *Salmonella Pullorum*, *Salmonella Gallinarum* and SE).

10. Reporting

Results of any SE testing must be emailed to avian.labresults@dpi.nsw.gov.au in a timely manner.

Positive SE results must be reported to the relevant jurisdictional authority or authorities within 24 hours:

- i) [Biosecurity NSW](#) - NSW Department of Primary Industries
- ii) [Chief Veterinary Officer Unit](#) - Victorian Department of Economic Development, Jobs, Transport and Resources (DEDJTR)
- iii) [Biosecurity Queensland](#) - Queensland Department of Agriculture and Fisheries
- iv) [Biosecurity Tasmania](#) - Tasmania Department of Primary Industries, Parks, Water and Environment
- v) [Primary Industries and Regions SA \(PIRSA\)](#)
- vi) [Department of Agriculture and Food, Western Australia \(DAFWA\)](#)
- vii) [Northern Territory Government – Animal Biosecurity Branch](#)

It is the responsibility of the laboratory to ensure that *Salmonella* results (down to serovar or phage type level) are emailed to the relevant jurisdictional authority or authorities in a timely manner.

11. Verification

Annual verification of the NSEMAP will be done in conjunction with either the Egg Standard of Australia (ESA), retailer (Coles or Woolworth) audits, State Food Safety Department audits or a Global Food Safety Initiative (GFSI) recognised audit.

Areas to be verified, but not limited to, include site/building set up, cleaning and sanitation, water sanitation, feed, pest control, staff hygiene training, egg handling and grading, training of samplers and veterinarians, and farm biosecurity standards.

It is the responsibility of the owner/s of the flocks enrolled in the NSEMAP to comply with the verification requirements and to provide evidence to the Administrator on request.

12. Loss of accreditation

Accreditation may be suspended if:

- Application for renewal is not carried out before the expiry date
- Testing is not carried out within 4 weeks of the specified period
- There is any breach or suspected breach of the guidelines
- SE positive serological or environmental samples are reported
- There is suspicion that flocks are associated with clinical cases of SE

Accreditation will be cancelled following:

- Continued breaches of the NSEMAP guidelines
- SE positive culture from the internal organs of chickens from suspected SE positive flocks

13. Re-accreditation

Re-accreditation after suspension is subject to a review of each individual case by the Administrator and may be subject to a renewal fee.

14. Change of ownership

When the ownership of an accredited flock changes, the flock may be re-registered in the new owner's name provided the new owner applies to the Administrator for accreditation and undertakes to comply with the guidelines of the NSEMAP.

15. Positive environmental swab results

Positive culture of environmental drag swabs will require confirmatory testing that may consist of serological tests, necropsy and bacteriological culture from animal tissues of the initial sampled flock and further drag swabs. Accreditation will be suspended during these investigations and corrective actions are to be undertaken.

If SE is suspected, laboratory costs associated with further investigations may be met by government dependent on the policy in each jurisdiction.

In the event that SE is detected in Australian poultry, testing requirements will be reviewed to give ongoing confidence of SE-freedom in accredited flocks.

The Australian Eggs *Salmonella* Enteritidis Response Plan is available at

<https://www.australianeggs.org.au/what-we-do/leading-research/salmonella-enteritidis-response-plan/>

16. Appendix 1: *Salmonella* Enteritidis environmental sampling procedures

16.1 Sample collection

In the **cage** system, sampling requires the swabbing of the manure/litter using environmental drag swabs along the entire row under the cages using one swab per row. The swabs used must be moistened with water before sampling begins. The swabs must be dragged along the centre of the manure under the cages by a string or by a rod or tied to the end of the manure belt of each row at the time when the manure belt is operated to remove manure from the shed. Other surfaces like egg belts can be swabbed as supplementary testing.

In sheds with less than 5 rows per shed, all the rows must be sampled. In sheds with 5 and more rows per shed, at least 4 rows must be sampled. In these cases, the selection of rows must cover all age groups and sub-flocks in the shed.

Once a shed has been swabbed, all the swabs from each shed should be pooled for culture in the laboratory. A maximum of 4 swabs per pool/culture is permitted. Swabs from different sheds (unless specifically approved by the Registrar) must not be mixed together and are not to be pooled into one container e.g. if there are only 2 rows in one shed and 2 rows in another shed, the 2 swabs from one shed must be placed in one container and the swabs from the second shed into a separate container.

Each sample must be clearly identified including date, farm name, flock or shed description and the collector's name.

In **deep litter barn** type situations, sampling can be done by walking around the poultry building with absorbent material placed over the footwear (boot swabs) of the approved tester or by using drag swabs, which is then submitted to the laboratory for culture. Swabbing must cover ½ of the litter area in a shed. Two additional swabs (drag swabs or 3M swabs) should be collected from the nests/belt areas. The 4 swabs may be pooled into one container.

In **fully-slatted barn** sheds, sampling can be done by walking around the slatted floor area with absorbent material placed over the footwear (boot swabs) of the approved tester or by using drag swabs, which is then submitted to the laboratory for culture. Swabbing must cover ½ of the slatted floor area in a shed. Two additional swabs (drag swabs or 3M swabs) should be collected from the nests/belt areas. The 4 swabs may be pooled into one container.

The 'on-farm sampling' can be done by farm personnel trained by an approved registered veterinarian.

16.2 Laboratory submission

There is no need to send *Salmonella* swab samples chilled to laboratories. Once collected, samples can be sent to an approved laboratory by express post. Kits that include pre-filled out return plastic envelopes and swab containers can be obtained from laboratories prior to sample collection.