

SALMONELLA ON POULTRY FARM

Pathology description



Salmonellosis is a bacterial disease caused by strains of Salmonella. It occurs in animals and humans. In both cases it is an enteric disease of varying severity, usually involving diarrhoea. With poultry, however, most Salmonella infections are without symptoms. Salmonella infection is a Public Health Concern. Many strains of Salmonella are zoonotic agents, spreading to man from contaminated animal origin food products. In humans Salmonellosis is one of the most common causes of food poisoning. The commonest serotypes causing disease in humans are Salmonella Enteritidis and Salmonella Typhimurium. Since 1987 S. Enteritidis has been the main cause of Salmonella poisoning in humans from

poultry products. National control measures, often including legislation, have been implemented in many countries. In the European Union the Zoonoses Directive (EC/92/117) was enacted in 1992 to minimize Salmonella infection of breeders and layers.

Costs of the disease

- Treatment with antimicrobials
- Culling. In many countries the slaughter of positive breeding flocks is mandatory.

Vectors

• Environment

The litter can be contaminated by Salmonella.

• Material

All equipment and vehicles used for catching and transporting poultry are high risk items.

• Animal

The main source of infection is the birds themselves. Chicks may be infected with Salmonella via contaminated egg-shells. Effective measures should be taken to ensure poultry houses are not infested by vertebrate or invertebrate pests.

• Working method

Insufficient cleaning

• People

Farm staff and visitors should be encouraged to understand and practice hygiene and security standards.

• Feeding and drinking water

Raw materials presenting a high risk of contamination with salmonella must be excluded. Heat or other effective anti-salmonella treatment should be used in manufacture.



→ MAIN VECTOR: contaminated birds

Preventive action

Effective Salmonella control on the farm is based on preventing the introduction of Salmonella onto a farm and preventing its spread.

Stop Salmonella Entering the Farm :

On arrival at the site, chicks should be *Salmonella free*.

- There must be adequate Salmonella monitoring and control at the hatchery
- When chicks arrive at the site, samples can be taken from:
 - chick box liners
 - swabs from bases of boxes
 - chicks dead-on-arrival or cull chicks

Culture of these samples will confirm the Salmonella status of the new birds. Positive samples should be traced to the supplier.

Stop the Spread of Salmonella on the Farm :

1. Monitoring

Flocks should be monitored frequently for possible Salmonella infection.

Samples for culture can be taken from:

- litter
- faecal samples
- boot or drag swabs
- dust samples

On broiler farms, a combination of boot swabs and dust taken at 21-28 days is better than sampling litter

For breeder flocks in lay and commercial laying flocks, samples can also be taken from:

- nest-box floor swabs
- nest-box litter
- swabs from egg sorting tables and corridors
- spilled debris from egg-collection belt.



In cases of positive samples appropriate action must be taken. This could be:

- Treatment with antimicrobials
- Culling. In many countries the slaughter of positive breeding flocks is mandatory. Compensation is paid.
- Informing the hatchery, slaughterhouse or egg distributors/processing plant.



2. Vaccination

Breeders, broilers and layers can all be vaccinated against Salmonella.

3. Gut-flora enhancement

Water treated with organic acids support the natural intestinal microflora resulting on a negative effect on pathogenic bacteria such as *Salmonella*. The shedding of *Salmonella* is thus reduced.

4. Cleaning and disinfection

All-in all-out process is advised. Houses and buildings should be designed to facilitate cleaning and disinfection. After cleaning swabs should be taken to check for the persistence of Salmonella.

Farms that may pose problems are large multiple house sites with a short turnaround time. These farms may not allow adequate time for efficient cleaning and disinfection. Problem farms (farms with previous Salmonella positive flocks) should allow more time for cleaning and disinfection. All-in all-out process is advised.

In general:

- Wash - dry - disinfect - dry - fog
- Drying is very important in the complete elimination of Salmonella.
- Effective disinfectants/application rate/concentration.
- Avoid recontamination - staff/equipment/pests.

After cleaning and disinfection, fresh litter should be supplied for the new flock.

5. Hatching egg hygiene

This is another important aspect of on farm Salmonella control. Chicks may be infected with Salmonella via contaminated egg-shells. This could cause the spread of Salmonellosis in the hatchery. Shells are usually contaminated in nest boxes by faeces.

Strict attention should be paid to the management of nest boxes.

- Eggs should be collected at least 3x daily.
- Dirty eggs and eggs taken from the floor should be separated and not used for hatching.
- Lightly soiled eggs may be cleaned by gentle buffing or with a bactericidal solution. In the hatchery these eggs should be placed at the bottom of the setters and hatcher

Controlling action

Effective *Salmonella* control on the farm is based on preventing the introduction of Salmonella onto a farm and preventing its spread.

Advised Protocols

For every possible vector, a hygiene protocol must be implemented. See these Specific Purpose Protocol:



PERSONAL
HYGIENE



TRANSPORT



HOUSING
HYGIENE