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Salmonella Poultry Active Surveillance Programme

Background

Numerous strains of Salmonella exist in poultry worldwide. Important poultry adapted strains include *S.* Pullorum (which causes pullorum disease) and *S.* Gallinarum (which causes fowl typhoid). Both of these poultry adapted strains can cause high mortality in young birds, and *S.* Gallinarum can also cause diarrhoea and liver lesions in older birds. **Both *S.* Pullorum and S. Gallinarum are absent from Ireland.**

Many other strains of salmonella, which are not poultry adapted, exist worldwide. These typically do not cause clinical signs, mortality or economic losses at farm level. However, since salmonella species are a common cause of food borne illness, these non-poultry adapted salmonella strains are of substantial public health significance. Prevalence of these strains in Ireland is low, but they do occasionally occur in a small number of flocks, and are generally detected during routine sampling from clinically normal birds.

Legislative basis for sampling

Different categories of poultry are covered by different pieces of legislation for the purposes of sampling for *Salmonella.* The legislation can be summarised as follows:

Category of poultry	EU legislation	National legislation
Broiler Breeders (Parents & Grandparents)	Commission Regulation (EU) No 200/2010	SI 706 of 2006
Commercial broilers	Commission Regulation (EU) No 200/2012	SI 64 of 2009
Turkey breeders	Commission Regulation (EU) No 1190/2012	SI 99 of 2010
Turkey fatteners	Commission Regulation (EU) No 1190/2012	SI 99 of 2010
Table egg layer rearing pullets	Commission Regulation (EU) No 517/2011	SI 247 of 2008
Table egg layers	Commission Regulation (EU) No 517/2011	SI 247 of 2008

Official sampling

Official surveillance and monitoring for *Salmonella* spp. within the national poultry flock is performed on a routine basis by DAFM. The organisation of this official sampling is defined by poultry type and genetic level of the flock.
Feed mills manufacturing poultry feed are also subject to official DAFM sampling for *Salmonella* spp. on a regular basis.

Official samples are taken at holdings according to procedures laid down in EU legislation, and analysed at Laboratories approved by DAFM for the testing of samples under regulations on the control of salmonella in poultry flocks.

Official sampling frequency depends on the bird category:

1. Broilers: Each year official sampling is carried out by authorised inspectors from the Regional Veterinary Offices (RVOs). The sampling programme must include at least one flock of broilers on 10% of the holdings with more than 5,000 birds, with flocks selected on the basis of a risk assessment. Sampling takes place within the 3 week period before the birds are moved to the slaughterhouse.

2. Broiler breeder: 3 times a year in all flocks with >250 birds.
(a) within four weeks following moving to laying phase or laying unit;
(b) towards the end of the laying phase, not earlier than eight weeks before the end of the production cycle;
(c) at any time during the production cycle which is sufficiently distant in time from the sampling referred to in points (a) and (b).

3. Turkey breeders: Once a year in all flocks with at least 250 adult breeding turkeys between 30 and 45 weeks of age and all holdings with elite, great grandparents and grand parent breeding turkeys.

4. Turkey fatteners: Once a year at least in one flock on 10 % of the holdings with at least 500 fattening turkeys.
5. Table Egg Layer Rearing Flock: No official sampling is performed
6. Table Egg **Gallus Gallus** Layers: In at least one flock per year per holding comprising at least 1000 birds.

2016 Summary of Official DAFM Salmonella samples by Poultry category:

Year	Type of Bird	No of Samples (Boot swab & Dust)	Positives	Negatives
2016	Broiler Breeders	850	0	850
	Broilers	100	1	99
	Layers	393	1	392
	Turkey Breeders	12	0	12
	Turkey Fatteners	40	4	36

2017 Summary of Official DAFM Salmonella samples by Poultry category:

Year	Type of Bird	No of Samples (Boot swab & Dust)	Positives	Negatives
2017	Broiler Breeders	814	0	814
	Broilers	71	0	71
	Layers	416	2	414
	Turkey Breeders	12	0	12
	Turkey Fatteners	46	0	46

2018 Summary of Official DAFM Salmonella samples by Poultry category:

Year	Type of Bird	No of Samples (Boot swab & Dust)	Positives	Negatives
2018	Broiler Breeders*	826	0	826
	Broilers	127	2	125
	Layers	413	0	413
	Turkey Breeders	12	0	12
	Turkey Fatteners	58	13	45

*There were a further 42 samples tested from Broiler Grandparent flocks, all with negative results.

2019 Summary of Official DAFM Salmonella samples by Poultry category:

Year	Type of Bird	No of Samples (Boot swab & Dust)	Positives	Negatives
2019	Broiler Breeders*	921	4	917
	Broilers	111	0	111
	Layers **	474	5	469
	Turkey Breeders	12	0	12
	Turkey Fatteners ***	59	3	56

*There are 10 further samples from Layer breeder flocks (4) and Grandparent broiler flocks (6) tested, all of which had negative results. The 4 isolates were *Salmonella* Typhimurium obtained from just two broiler breeder flocks prior to lay.

** The five isolates were obtained from two layer flocks, one of which was a small layer flock with *Salmonella* Typhimurium and another flock with *S*. Schwarzengrund.

*** The three turkey isolates were all *Salmonella* Derby from two flocks.

2020 Summary of Official DAFM Salmonella samples by Poultry category:

Year	Type of Bird	No of Samples (Boot swab & Dust)	Positives	Negatives
2020	Broiler Breeders	806	0	806
	Broilers	110	0	110
	Layers *	446	1	445
	Turkey Breeders	8	0	8
	Turkey Fatteners	30	0	30

*S. Kentucky detected in one layer flock

2021 Summary of Official DAFM Salmonella samples by Poultry category:

Year	Type of Bird	No of Samples (Boot swab & Dust)	Positives	Negatives
2021	Broiler Breeders*	774	2*	772
	Broilers	82	0	82
	Layers	400	0	400
	Turkey Breeders	10	0	10
	Turkey Fatteners	16	0	16

* Two isolates were *S.* Enteritidis

2022 Summary of Official DAFM Salmonella samples by Poultry category:

Year	Type of Bird	No of Samples (Boot swab & Dust)	Positives	Negatives
2022	Broiler Breeders	841	0	841
	Broilers *	99	1*	98
	Layers **	415	2**	413
	Turkey Breeders	8	0	8
	Turkey Fatteners	23	5*	18

* S. Enteriditis;

** S. Typhimurium

Private laboratory sampling

In addition to official sampling by the Competent Authority (DAFM), private laboratory sampling is required to be arranged by the Food Business Operator. The frequency depends upon the bird category:

Broilers: All broiler flocks must be sampled privately by flock owners within 3 weeks of slaughter. The result must be available before birds go for slaughter.

Broiler breeders:

i) **Rearing flocks** should be sampled by the producer on 3 occasions:

- As day old chicks:
- At 4 weeks of age
- Two weeks before the birds move to the laying Phase or laying unit.

ii) **Adult flocks** should be sampled on farm every two weeks while in lay. This sampling covers adult breeding flocks of *Gallus gallus* comprising at least 250 birds.

Turkey breeders and turkey fatteners:

Sampling of flocks of fattening turkeys on the initiative of the food business operator takes place within three weeks before the birds are moved to the slaughterhouse.

Additionally, sampling of flocks of breeding turkeys on the initiative of the food business operator shall take place:

- in rearing flocks: at day-old, at four weeks of age and two weeks before moving to the laying phase or laying unit,
- in adult flocks: at least every third week during the laying period at the holding or at the hatchery.

Table Egg Layers:

- **Rearing Flocks**: must be sampled by the producer as day old chicks and as pullets two weeks before moving to the paying phase or laying unit.
- **Adult Flocks:** must be sampled at least every 15 weeks with the first sampling taking place at a flock age of between 22 and 26 weeks.

Passive surveillance

It should be noted that the active surveillance outlined above is supplementary to the passive surveillance system which is in place in Ireland. This system includes mandatory disease reporting and laboratory based passive surveillance.

Infection with certain *Salmonella* species is notifiable in Ireland, meaning that anyone who suspects that an animal may have these diseases is legally obliged to notify DAFM (under SI 130 of 2016). The notifiable strains of *Salmonella* in poultry include *S.* Pullorum*, S.* Gallinarum*, S.* Enteritidis*, S.*Typhimurium*, S.* Hadar, *S.* Infantis *and S.* Virchow.

DAFM also operates a network of regional veterinary laboratories, strategically located around the country. Farmers and private veterinary practitioners (PVPs) submit samples to the laboratories every week. DAFM is confident that these parallel systems provide effective surveillance with regard to detecting an incursion of salmonellosis.

Farmers are encouraged to have their PVP examine and test sick poultry, to report suspicions of notifiable diseases to their local Regional Veterinary Office, and to make use of their local Regional Veterinary Laboratory to aid with diagnosis of disease conditions.

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