

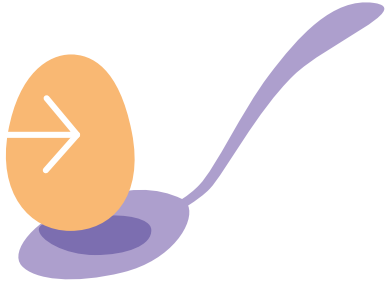


Protecting the egg
from pullet to plate



FOOD SAFETY PROGRAM

Salmonella protection from pullet to plate



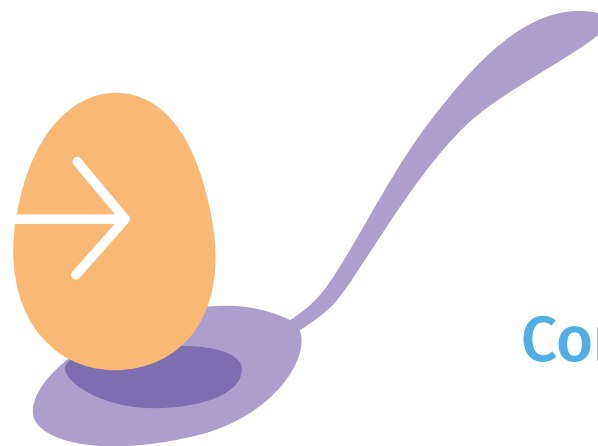
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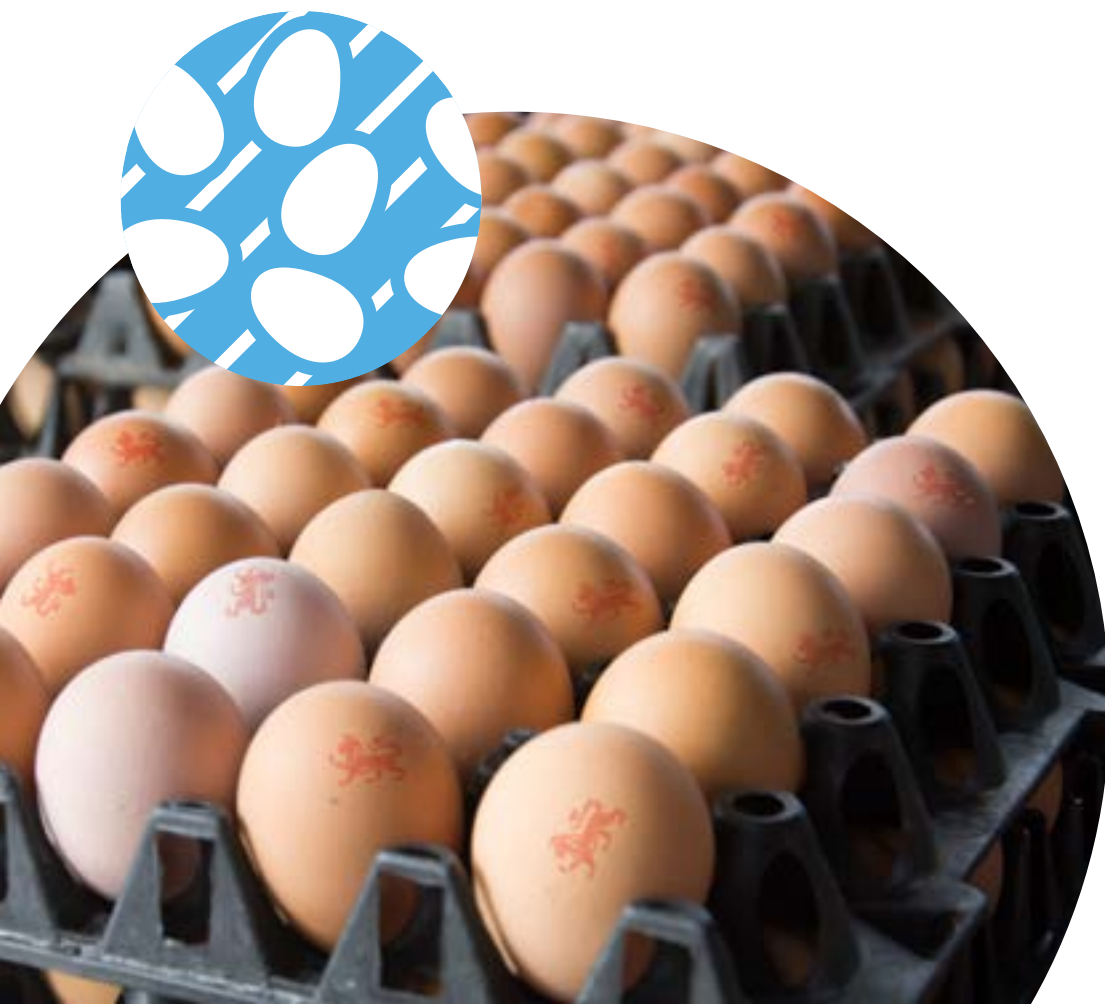
FOOD SAFETY PROGRAM

Salmonella protection from pullet to plate



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Introduction to the Elanco Food Safety Program



Salmonella protection from pullet to plate

Piloted since 2018, FSP has been developed with the aim to deliver safe food throughout the food chain. An integrated concept combining on-site assessments, calculations, follow up actions and continual review. It assists businesses in understanding and improving their food safety protocols, specifically *Salmonella* protection.

The control of *Salmonella* on farm requires a holistic and integrated approach. There are many interventions that can be done to reduce the risk of contracting *Salmonella*. The Food Safety

Index (FSI) is at the centre of the FSP process. It is a score that has been developed to determine the relative risk of *Salmonella* on farm. By facilitating measurement of risk factors, the FSI can be used to guide interventions to minimise the risk of *Salmonella* to a flock.

This brochure outlines the program and the FSI in more detail, the assessment stage, recommendations, management and the support given to you to deliver safe food for the end user, with traceability throughout the journey of the egg, from pullet to plate.

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The Food Safety Program



FOOD SAFETY PROGRAM

Salmonella protection from pullet to plate

Why it's important

The Lion Code has been in place since 1998, in which time billions of Lion Code eggs have been tested and sold. It is seen as the quality stamp by producers, packers and retailers alike.

However, whilst still seen as an industry standard, further strategies and traceability are crucial to reassure retailers and the public that the industry continues to innovate to ensure *Salmonella* safety and prevention.

The Elanco Food Safety Program has been developed to bring another dimension to the traceability of the egg, from pullet to plate. It is bespoke and innovative, offering a level of targeted recommendations and individual solutions which makes it unique in supporting businesses to aim to be *Salmonella-free* for the long term.

At Elanco we want to help ensure consistency of the whole supply chain, minimising risk with robust benchmarking through our Food Safety Index (FSI), quantifying risks and implementing solutions.



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A systematic process that allows us to:

- 1 Evaluate the risks related to *Salmonella* contamination at the different stages of egg production
- 2 Reduce the risks by providing tailored recommendations and individual solutions, quantifying critical points on farm through evidence-based risk assessment
- 3 Benchmarking of farms to drive continuous improvement with specific areas of focus
- 4 Analyse resultant data to identify areas of risk across the entire industry
- 5 Establish a monitoring program to improve current situations
- 6 Support farms to aim to remain *Salmonella-free* for the long-term



Salmonella prevention



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Salmonella protection from pullet to plate

It starts with the bird

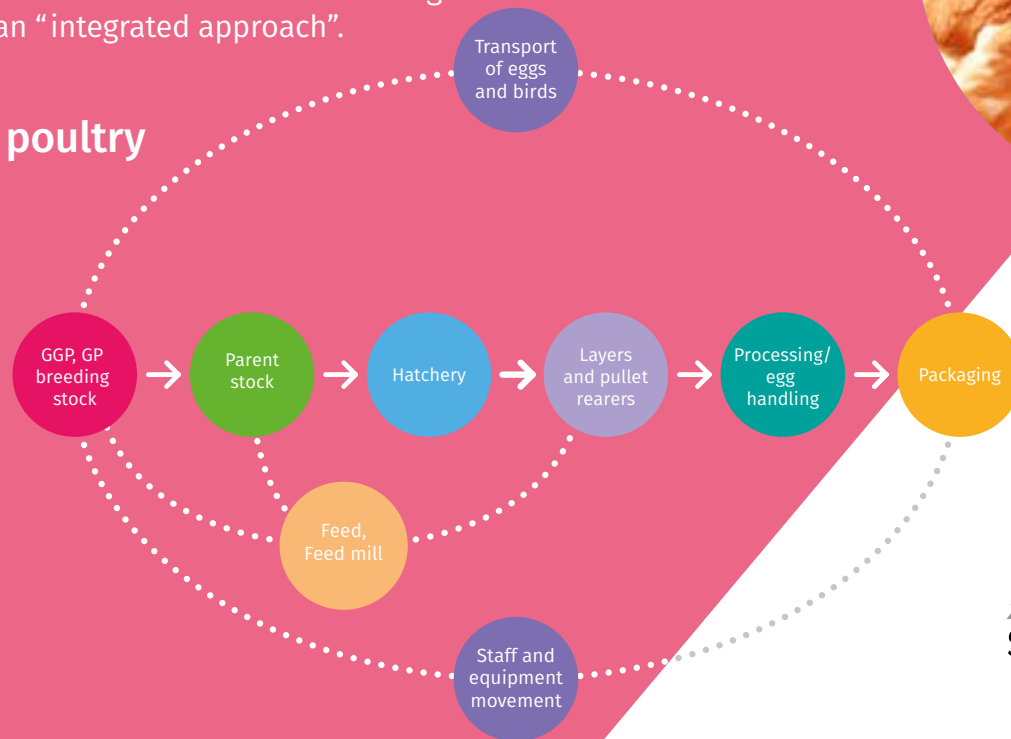
An integrated *Salmonella* prevention program starts with the bird. Protecting and building bird immunity from day 1 of bird's life via vaccination*. This is essential and forms the basis surrounding egg safety.

Prevention of *Salmonella* infection has the best chance of being managed successfully through an "integrated approach".



Infection routes in the poultry production chain

It is key to identify and protect the main risk areas in the supply chain with a **prevention** program



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* AviPro Salmonella Duo SPC

The three pillars for integrated *Salmonella* prevention

Salmonella-free eggs

FSP targets all three pillars and offers integrated intervention strategies

General Infection Prophylaxis

- Biosecurity
- Rodent and pest control
- Cleaning and disinfection
- Health management
- Education and awareness
- Reduce infection pressure
- Interrupt infection chains



Vaccination

- Vaccination against *S. Enteritidis* and *S. Typhimurium* to offer the best possible protection
- Regular monitoring of the *Salmonella* status of flocks



Comprehensive management

- Optimum housing conditions to achieve good health status of flocks
- Well-managed flocks are less likely to be susceptible to *Salmonella* infection





FOOD SAFETY PROGRAM

Salmonella protection from pullet to plate

Four steps to integrated *Salmonella* prevention

- 1 Measure
- 2 Understand
- 3 Improve
- 4 Monitor

1 Measure: On-farm food safety assessment

The Elanco team and your packer, will work closely with you to understand and identify possible risk areas that may lead to *Salmonella* contamination. FSP will allow you to highlight risk areas resulting in the calculation of an FSI score.

Risks are identified and ranked using our integrated questionnaire and FSP modelling criteria. For each area, the risk is calculated and ranked into one of three risk categories

- **High Risk**
- **Increased Risk**
- **Potential Risk**



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Salmonella protection from pullet to plate

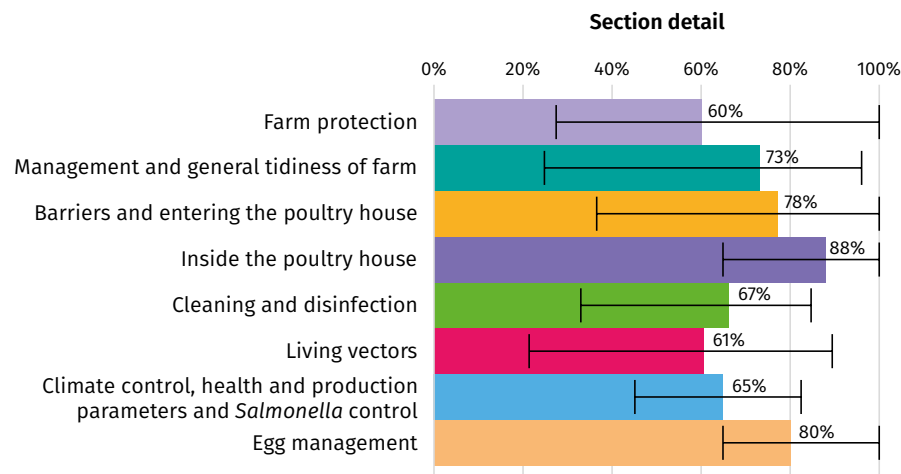


2 Understand: Identify and document points of control with the Food Safety Index (FSI)

The FSI algorithm was developed in conjunction with many producers and veterinary professionals.

Using the FSP modelling criteria, the responses and their relative impact determines the FSI score. The index is presented as a percentage; the higher the percentage, the lower the risk.

The FSI will rank the scores and identify areas of potential risk so you can focus on these and improve where necessary. From this example, a focus for this farm would be: **Farm Protection**.



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Salmonella protection from pullet to plate



3 Improve: Training resources aimed at improving food safety

Once risks have been assessed, training resources can be supplied and management recommendations reviewed with you, identifying the gaps in protocols and how these can be controlled and corrected.

As an example, for a farm with a score of 61% for their general area, some influencing parameters would be suggested to minimise the risk in this area.

Focus on one general theme for Green Farm for any one period	RECOMMENDED FOCUS: FARM PROTECTION
Influencing parameters	<ul style="list-style-type: none">● Integrity of fences and access control to farm entrance● <i>Salmonella</i> monitoring for farm staff and visitors● Cleanliness of boxes/crates used to deliver birds● Sharing of equipment and tools between farms

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4 Monitor: Establishing and maintaining a food safety monitoring program

Actions to test the effectiveness of the implemented solutions are critical to ensure the recommendations are well implemented. On-going monitoring will be designed with the producer management team taking into account factors that may have an impact on success i.e. finance, time etc.

The monitoring will focus on specific risk factors identified by the FSI, an increased index score will reflect successful implementation. FSP also allows benchmarking between farms, both geographically and over time. This will give an overview of farm status before and after implementation of improvements.

Rank	Farm	FSI	Rank	Farm	FSI	Rank	Farm	FSI	Rank	Farm	FSI	Rank	Farm	FSI	Rank	Farm	FSI	Rank	Farm	FSI
1	Farm 001	86%	28	Farm 028	76%	55	Farm 055	74%	82	Farm 082	72%	109	Farm 109	70%	136	Farm 136	67%	163	Farm 163	62%
2	Farm 002	85%	29	Farm 029	76%	56	Farm 056	74%	83	Farm 083	72%	110	Farm 110	70%	137	Farm 137	67%	164	Farm 164	61%
3	Farm 003	83%	30	Farm 030	76%	57	Farm 057	74%	84	Farm 084	72%	111	Farm 111	69%	138	Farm 138	67%	165	Farm 165	61%
4	Farm 004	81%	31	Farm 031	76%	58	Farm 058	74%	85	Farm 085	72%	112	Farm 112	69%	139	Farm 139	67%	166	Farm 166	61%
5	Farm 005	81%	32	Farm 032	76%	59	Farm 059	74%	86	Farm 086	72%	113	Farm 113	69%	140	Farm 140	66%	167	Farm 167	60%
6	Farm 006	80%	33	Farm 033	76%	60	Farm 060	74%	87	Farm 087	72%	114	Farm 114	69%	141	Farm 141	66%	168	Farm 168	60%
7	Farm 007	80%	34	Farm 034	76%	61	Farm 061	74%	88	Farm 088	72%	115	Farm 115	69%	142	Farm 142	66%	169	Farm 169	59%
8	Farm 008	80%	35	Farm 035	76%	62	Farm 062	74%	89	Farm 089	72%	116	Farm 116	69%	143	Farm 143	65%	170	Farm 170	59%
9	Farm 009	79%	36	Farm 036	76%	63	Farm 063	74%	90	Farm 090	71%	117	Farm 117	69%	144	Farm 144	65%	171	Farm 171	58%
10	Farm 010	79%	37	Farm 037	76%	64	Farm 064	74%	91	Farm 091	71%	118	Farm 118	69%	145	Farm 145	65%	172	Farm 172	57%
11	Farm 011	79%	38	Farm 038	76%	65	Farm 065	74%	92	Farm 092	71%	119	Farm 119	69%	146	Farm 146	65%	173	Farm 173	57%
12	Farm 012	79%	39	Farm 039	76%	66	Farm 066	74%	93	Farm 093	71%	120	Farm 120	69%	147	Farm 147	65%	174	Farm 174	57%
13	Farm 013	79%	40	Farm 040	76%	67	Farm 067	73%	94	Farm 094	71%	121	Farm 121	69%	148	Farm 148	64%	175	Farm 175	57%
14	Farm 014	79%	41	Farm 041	76%	68	Farm 068	73%	95	Farm 095	71%	122	Farm 122	69%	149	Farm 149	64%	176	Farm 176	56%
15	Farm 015	79%	42	Farm 042	76%	69	Farm 069	73%	96	Farm 096	71%	123	Farm 123	69%	150	Farm 150	64%	177	Farm 177	54%
16	Farm 016	79%	43	Farm 043	76%	70	Farm 070	73%	97	Farm 097	71%	124	Farm 124	69%	151	Farm 151	64%	178	Farm 178	54%
17	Farm 017	78%	44	Farm 044	75%	71	Farm 071	73%	98	Farm 098	71%	125	Farm 125	69%	152	Farm 152	64%	179	Farm 179	53%
18	Farm 018	78%	45	Farm 045	75%	72	Farm 072	73%	99	Farm 099	71%	126	Farm 126	68%	153	Farm 153	64%	180	Farm 180	52%
19	Farm 019	78%	46	Farm 046	75%	73	Farm 073	73%	100	Farm 100	71%	127	Farm 127	68%	154	Farm 154	63%	181	Farm 181	50%
20	Farm 020	78%	47	Farm 047	75%	74	Farm 074	73%	101	Farm 101	71%	128	Farm 128	68%	155	Farm 155	63%	182	Farm 182	50%
21	Farm 021	77%	48	Farm 048	75%	75	Farm 075	73%	102	Farm 102	71%	129	Farm 129	68%	156	Farm 156	63%	183	Farm 183	50%
22	Farm 022	77%	49	Farm 049	75%	76	Farm 076	73%	103	Farm 103	71%	130	Farm 130	68%	157	Farm 157	63%	184	Farm 184	47%
23	Farm 023	77%	50	Farm 050	75%	77	Farm 077	73%	104	Farm 104	70%	131	Farm 131	68%	158	Farm 158	62%	185	Farm 185	45%
24	Farm 024	77%	51	Farm 051	75%	78	Farm 078	72%	105	Farm 105	70%	132	Farm 132	68%	159	Farm 159	62%			
25	Farm 025	77%	52	Farm 052	75%	79	Farm 079	72%	106	Farm 106	70%	133	Farm 133	67%	160	Farm 160	62%			
26	Farm 026	77%	53	Farm 053	75%	80	Farm 080	72%	107	Farm 107	70%	134	Farm 134	67%	161	Farm 161	62%			
27	Farm 027	77%	54	Farm 054	74%	81	Farm 081	72%	108	Farm 108	70%	135	Farm 135	67%	162	Farm 162	62%			



FOOD SAFETY PROGRAM

Salmonella protection from pullet to plate

The Food Safety Program supports the aims of farms to remain *Salmonella*-free for the long term.

It's a science-based, internationally tested tool, grounded in real world application – practical and pragmatic in its approach with the unique algorithm that will generate a bespoke Food Safety Index (FSI) score for your farm.

Evaluating risks at the different stages of egg production and highlighting where gaps need to be controlled, FSP will enable you to put actions in place and establish a monitoring program to protect against potential *Salmonella* outbreaks during the journey of the egg - from pullet to plate.

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