Call for Information: review of Standard 4.2.5 – Primary production and processing standard for eggs and egg product

(Australia only)

Food Standards Australia New Zealand (FSANZ) is reviewing the standard for the primary production and processing of eggs and egg product (Standard 4.2.5 of the Australia New Zealand Food Standards Code) to determine whether it remains fit for purpose to manage food safety issues associated with eggs.

Eggs can carry Salmonella bacteria, which cause illness (salmonellosis) in humans. The incidence of salmonellosis in Australia has continued to increase over the past twenty years.

When Standard 4.2.5 was developed in 2011, FSANZ considered Salmonella Typhimurium as the main microbial hazard for eggs in Australia. The risk from Salmonella Enteritidis (SE) was not specifically considered, as it was not seen to be an issue in Australia at the time. However, in 2018-19 there was a significant outbreak of SE linked to eggs, with cases reported in NSW, Victoria, Queensland and Tasmania. This resulted in several recalls of eggs and a significant biosecurity response to control the spread of SE. SE presents a higher risk to consumers and the Australian egg industry because it can infect the ovaries of chickens and enter the internal contents of eggs during their development.

FSANZ is investigating if Standard 4.2.5 remains effective and current given the emergence of SE, with a focus on:

- the interface between biosecurity and food safety on-farm, including bird health and controls and monitoring for Salmonella
- the adequacy of current requirements for the safe production of eggs and egg products, including monitoring of layer flocks for SE, temperature control for intact shell eggs in the supply chain, and traceability (e.g. egg stamping).

As part of the review, FSANZ will consider current food safety risks as well as new food safety and traceability technologies that have been developed since the standard was introduced. Following the review, FSANZ will determine whether a proposal to amend the Australia New Zealand Food Standards Code (the Code) is necessary, or whether other measures are available to manage identified issues more efficiently and effectively. FSANZ expects to make a decision on a proposal at the conclusion of the review in late 2021. If FSANZ raises a proposal to amend the Code, the Implementation Subcommittee on Food Regulation (ISFR) Integrated Model for Standards Development and Consistent Implementation of Primary Production and Processing Standards1 will be used to ensure any amendments are consistently implemented at the national level.

This paper outlines:

- the background to the review
- the issues that FSANZ will consider
- the review process, and
- anticipated timelines.

The request for information provides an opportunity for stakeholders to provide their views on the proposed scope and approach to the review, and relevant data to support our analysis.

**How FSANZ will use the information provided**

Information supplied will be used by FSANZ to inform its review of Standard 4.2.5 and for related purposes. FSANZ will evaluate the supplied information together with other relevant data on the safety of eggs and egg products to determine whether additional risk management measures need to be considered to protect the health and safety of Australian consumers.

**Protection of confidential data**

FSANZ will not disclose or publish information identified as confidential unless required to do so by law. In-confidence submissions may be subject to release under the provisions of the *Freedom of Information Act 1991*.

Please ensure all confidential information is clearly identified and separated in any submission made to FSANZ as part of this Call for Information. The onus is on submitters to identify information that is confidential.

**How to provide information**

Information should be clearly identified as information for ‘Review of Standard 4.2.5 – Primary production and processing standard for eggs and egg product’ and be provided to standards.management@foodstandards.gov.au by 6pm (Canberra time) 8 November 2021. Questions about the call for information can also be sent to standards.management@foodstandards.gov.au.
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1 Background

In 2002, FSANZ was given responsibility for the development of standards in the primary production sectors. The primary production and processing standards focus on food safety, hygiene and handling. The standards are written as required outcomes, rather than prescriptive requirements, enabling greater flexibility in compliance and enforcement. FSANZ has developed primary production and processing standards for the seafood, dairy, poultry meat, egg and egg product, meat and seed sprout sectors.

In early 2006, work commenced on Proposal P301\(^2\) to develop a primary production standard for eggs and egg products. The work was prompted by:

- the absence of primary production and processing requirements for eggs and egg products in the Australia New Zealand Food Standards Code (the Code)
- inconsistent regulation of the egg industry across the jurisdictions
- the unacceptably high number of outbreaks of foodborne illness in Australia linked to contaminated eggs and egg products.

FSANZ’s risk assessment found that the main microbiological hazard associated with eggs and egg products was the bacterial pathogen *Salmonella*—in particular, *Salmonella Typhimurium*. Reported outbreaks of foodborne illness associated with eggs in Australia were attributed to the consumption of uncooked or lightly-cooked foods containing contaminated raw egg. Common risk factors identified in outbreaks was the use of:

- eggs with visible surface faecal contamination (dirty eggs)
- cracked eggs
- unpasteurised pulp.

Following the risk assessment, an analysis of existing control measures identified gaps in regulatory requirements for the primary production and processing of eggs and egg product. The most significant gap identified was the lack of national requirements to minimise the likelihood of on-farm contamination of eggs or egg pulp. Existing requirements in the Code were considered inadequate to prevent cracked and dirty eggs from being used in processing and reaching the market place.

The final assessment report for Proposal P301 recommended the development of a national standard as the preferred option to reduce the incidence of foodborne illness associated with eggs and egg products. In 2011, Standard 4.2.5 – Primary production and processing standard for eggs and egg product\(^3\) – was included in the Code. The introduction of this standard was accompanied by a compliance plan developed by regulators to facilitate consistent implementation nationally. That compliance plan is currently under review by state and territory food regulatory authorities.

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2 Introduction

2.1 Key issues

Despite the introduction of Standard 4.2.5 in 2011, eggs continue to be the primary cause of a large number of Salmonella-linked foodborne illness outbreaks in Australia. Of particular concern is the emergence of illness due to Salmonella Enteritidis (SE). The review of Standard 4.2.5 aims to investigate these issues and work towards a sustainable solution to the problem of Salmonella outbreaks linked to eggs.

Salmonella are bacteria that cause salmonellosis, a common form of illness in humans. Foodborne salmonellosis has significantly increased over the past 20 years in Australia. Compared to many similar countries, we have one of the highest rates of salmonellosis. In Australia, there are an estimated 56,200 cases of salmonellosis (2,100 hospitalisations and 15 deaths) annually, with 72% of these considered to be foodborne (Kirk et al., 2014).

In April 2017, the Australia and New Zealand Ministerial Forum on Food Regulation (now known as the Food Ministers’ Meeting) identified three priority areas for 2017–2021 to further strengthen the food regulation system. The first of these—Ministerial Priority 1—aimed to reduce foodborne illness, particularly related to Campylobacter and Salmonella. Australia’s Foodborne Illness Reduction Strategy 2018–2021 sets out ways to meet this priority. The strategy includes sector-based initiatives, including a review of Standard 4.2.5.

The problem of egg-related salmonellosis has been exacerbated more recently with the 2018–19 outbreak of SE linked to eggs (NSW OzFoodNet 2018). The outbreak caused 245 associated cases of illness across Australia, the culling of a significant number of birds, and egg recalls across several jurisdictions. Subsequently, cases of SE in Victoria were associated with commercial and backyard flocks. The incident highlighted the complexity of the egg production and processing supply chain and the food safety and biosecurity challenges within it. Further information on the egg primary production and processing supply chain is provided at Attachment A.

The 2018–19 SE outbreak is significant because SE was not previously considered to be a problem in Australia. The majority of human cases of this serovar before 2018 were in travellers returning from overseas. SE is of major concern to the egg industry internationally, where it has become established in commercial egg laying flocks and is now the main type of Salmonella responsible for outbreaks of foodborne illness, largely driven by the consumption of raw and undercooked eggs and egg products. The spread of SE in Australia is considered a significant biosecurity concern. SE presents a higher risk to consumers and the Australian egg industry because it can colonise the internal contents of eggs during their development via infection of the ovaries of chickens. This is called trans-ovarian or vertical transmission. The recent outbreaks and other evidence suggest that that there is a risk that trans-ovarian strains of SE may become established in Australia.

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In response to these issues, the Chair of the Food Regulation Standing Committee\(^5\) requested that FSANZ review Standard 4.2.5 to address the risk of SE to human health and also concerns about egg stamping raised in the Productivity Commission’s 2016 report into the regulation of Australian agriculture\(^6\).

A review of Standard 4.2.5 is timely. It is a decade since it was introduced, and the risk assessment that informed the development of the standard did not specifically consider the risk from trans-ovarian SE. It is, therefore, appropriate to consider whether there are any regulatory gaps which could lead to an increased incidence of foodborne salmonellosis, whether there is a need to amend the standard to address any such gaps, and whether there is a need to provide further guidance to assist egg producers to meet requirements imposed by the current Standard.

In undertaking its review, FSANZ will have regard to relevant public health and safety considerations (including those set by the Food Standards Australia New Zealand Act 1991), stakeholder views, and potential regulatory impacts. The following sections (2.2 Scope and 3.0 Issues) detail:

- the scope of this review
- existing regulatory and non-regulatory measures
- issues associated with foodborne illness, biosecurity, food safety and production.

Stakeholders are invited to provide responses to the questions in the blue boxes, but are welcome to include other pertinent information in their submissions. Details on how to make a submission are provided in the cover page to this Call for Information.

### 2.2 Scope

#### 2.2.1 In-scope

The review will focus on issues identified in the management of food safety risks in the production, processing and supply chain of eggs, including:

- the interface between biosecurity and food safety on-farm, including:
  - bird health (including the contribution of pullets and spent hens as potential risk factors)
  - controls and monitoring for Salmonella (including SE).
- the adequacy of current through-chain requirements for the safe production of eggs and egg products, including:
  - testing/monitoring of layers for SE
  - temperature control for intact shell eggs in the supply chain
  - traceability requirements, including individual identification requirements for eggs (i.e. egg stamping).

**Question 1:** Are there other issues which FSANZ should consider including within the scope of the review? If so, please provide details and the reasons why FSANZ should consider them in this review.

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\(^5\) The key committees and agencies of the food regulation system are described in Attachment A

2.2.2 Out of scope

The review of Standard 4.2.5 will not include:

- ratite eggs
- poultry welfare
- microbiological limits for eggs and/or egg products
- a review of chemical hazards associated with eggs
- Australian Consumer Law matters (e.g. free range claims)
- labelling issues (e.g. method of production and the labelling of reused egg cartons).

In addition, the risks arising in food service and closely related food retail businesses from the handling, preparation and sale of eggs, egg products and foods containing eggs will not be directly addressed in this project. These issues fall under the scope of work being undertaken by FSANZ in Proposal P1053 – Food Safety Management Tools.

2.3 Existing regulatory measures

2.3.1 Food safety regulatory measures

In Australia, the food safety requirements that apply to eggs are set out in various chapters of the Code. The Code is a collection of food regulatory measures given effect by state, territory or other Commonwealth legislation. Food enforcement agencies are responsible for implementing, monitoring and enforcing compliance with the Code in Australia through their jurisdictional food legislation. An overview of the food regulation system is provided at Attachment B. A summary of relevant Code chapters and standards follows.

**Chapter 1 and 2 standards**

Chapter 1 contains labelling and information requirements that apply to eggs and egg products (Standard 1.1.2). Other requirements that apply to the sale and supply of eggs are set out in Chapter 2 (Standard 2.2.2). This includes traceability requirements and the definition of an unacceptable egg (by reference to Standard 4.2.5).

**Chapter 3 food safety standards**

Chapter 3 contains the food safety standards, which establish requirements for minimising food safety risks in all food businesses. These standards cover food safety programs, food safety practices and general requirements, and food premises and equipment. The food safety standards apply to food businesses that handle, process and sell eggs and egg products, as well as to businesses that process eggs and egg products.

**Chapter 4 primary production and processing (PPP) standards**

Chapter 4 contains food safety, hygiene and handling requirements applying to primary production and processing businesses, such as farms. The chapter 4 standards do not address biosecurity, animal welfare or market access risks, as FSANZ does not have legislative responsibility for those aspects of primary production. The standards describe high level food safety outcomes that need to be met, rather than prescriptive requirements, ensuring that maximum flexibility is maintained in compliance and enforcement. Introduction of a PPP standard is accompanied by a compliance plan, developed by regulators, to facilitate consistent national implementation and enforcement of the standard.

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7 [https://www.foodstandards.gov.au/code/proposals/Pages/P1053.aspx](https://www.foodstandards.gov.au/code/proposals/Pages/P1053.aspx)
2.3.2 Biosecurity regulatory measures

Each jurisdiction in Australia has a biosecurity regulatory framework. The Australian Government, New South Wales, Queensland, Western Australia and Tasmania have enacted specific biosecurity legislation. In other jurisdictions, biosecurity requirements are implemented through livestock and animal disease legislation. In most jurisdictions, the enforcement of biosecurity legislation is the responsibility of agencies that regulate primary industries. In some jurisdictions, these agencies also enforce aspects of food safety legislation.

The biosecurity requirements that apply to egg producers and processors generally cover a wider range of elements on-farm. In relation to egg production and processing, the biosecurity and food safety systems converge in a number of areas—including bird health—and share a common goal of preventing the introduction and spread of disease. However, biosecurity requirements generally place a stronger focus on poultry health, nutrition, welfare, movement and breeding, in order to prevent and control the spread of disease within the flock.

In recent years, biosecurity requirements have evolved to control a broad spectrum of animal diseases, including SE in poultry. For example, under the Biosecurity Act 2019 (Tas)\(^8\), the detection of SE in commercial poultry can result in mandatory flock de-population. Similarly, SE in poultry is a notifiable disease under the Livestock Diseases Control Act 1994 (Vic)\(^9\).

Other biosecurity agencies, such as the New South Wales Department of Primary Industries (NSW DPI), are taking additional action to control the spread of SE. In mid-2019, NSW DPI introduced the Biosecurity (Salmonella Enteritidis) Control Order 2019 to assist in the management of the biosecurity risk posed by the spread of SE. The order established minimum biosecurity standards and mandatory testing requirements for the poultry and egg industries, and made them legally enforceable under the Biosecurity Act 2015 (NSW). Under a revised control order introduced in mid-2020 (hereafter referred to as the NSW 2020 SE control order\(^10\)), licensed egg producers are also required to regularly test for SE. Other areas covered by the order include signage, control of persons entering premises, handwashing, disposal of dead birds, vermin control and record keeping.

**Question 2:**
(a) How effective do you believe the current regulatory measures are?
(b) How could they be made more effective?
(c) Do they place an unreasonable cost burden on industry to achieve and/or maintain compliance?
Please provide supporting detail and data, where available.


2.4 Non-regulatory measures

2.4.1 Food safety non-regulatory measures

There is a range of government and industry plans, guidelines and codes of practice that cover the production and processing of eggs and egg products. Government non-regulatory measures generally take the form of guidance documents that assist industry to comply with legislative requirements. For example, NSW DPI has developed Requirements for small egg farms\(^{11}\) and Egg cleaning procedures\(^{12}\) factsheets to provide guidance for industry compliance with the Code and the Food Regulation 2015 (NSW). Other jurisdictions also maintain guidance on their agency websites.

The industry services body for egg producers and processors, Australian Eggs, has developed an extensive range of guidance and education material, including an online Salmonella risk assessment toolkit\(^{13}\) and a guide for producers on Salmonella Enteritidis.\(^{14}\)

2.4.2 Biosecurity non-regulatory measures

Industry bodies and governments have produced a number of national biosecurity plans, guidelines, codes of practice and other tools and materials for egg producers. Key examples are the National farm biosecurity technical manual for egg production (NFBTMEP\(^{15}\)) and the Code of practice for biosecurity in the egg industry (CPBEI).\(^{16}\)

The NFBTMEP establishes a minimum set of biosecurity standards for commercial table egg production farms. The manual covers egg production from the time of delivery of day old chicks until depopulation of the spent layer hens, including transportation and delivery of point-of-lay pullets. It also covers the transport and movement of eggs and egg products to other farms and to grading and processing establishments.

The CPBEI has been developed by Australian Eggs to assist egg businesses to develop and adopt a biosecurity plan based on hazard analysis and critical control point (HACCP) principles.\(^{12}\) The document contains recommendations for appropriate HACCP-based biosecurity programs/procedures and good manufacturing practices to prevent the occurrence of endemic and emergency diseases in layer and pullet flocks; and the multiplication of pathogens on-farm and their subsequent spread from farms into the environment or to other poultry.

Question 3: (a) How effective do you believe the current non-regulatory measures are?  
(b) How could they be made more effective? If you do think they could be made more effective, please explain how and why. Please provide supporting detail and data, where available.  
(c) Are there non-regulatory measures or existing industry egg production and processing practices that would be more effective if they were made mandatory through inclusion in the Code?

\(^{11}\) https://www.foodauthority.nsw.gov.au/media/2411  
\(^{12}\) https://www.foodauthority.nsw.gov.au/media/2351  
3 Issues

3.1 Foodborne illness associated with eggs and egg products

The rate of salmonellosis notifications in Australia has steadily increased since Standard 4.2.5 was gazetted in 2011, although there has been an improvement since its peak in 2016. Relative to many comparable countries, Australia now has one of the highest salmonellosis rates per 100,000 population (Figure 1). Approximately 72% of salmonella notifications in Australia are considered to be foodborne (Kirk et al., 2014).

Eggs are often reported as the type of food associated with Salmonella foodborne outbreaks in Australia. From 2001–2016, eggs and egg-containing foods were the most common cause of Salmonella outbreaks, responsible for 238 (30.6%) of the 778 outbreaks (Ford et al. 2018). The types of egg products most often associated with outbreaks were shell eggs, egg-based sauces, desserts containing raw or lightly cooked eggs, and fresh pasta eaten lightly cooked or with a lightly cooked egg-based sauce.

From 2001–2016, Salmonella Typhimurium was responsible for 95% of the egg-related outbreaks, whereas other serovars (including SE) were only associated with one or two outbreaks each (Ford et al. 2018).

Over half of the egg-related outbreaks from 2001–2010 were from food prepared by commercial food providers (e.g. restaurants and caterers) rather than food prepared in private residences (Moffat et al. 2016). When trace-back investigation were conducted for these outbreaks, the outbreak strain was found on the farm which produced the eggs about 20% of the time.
3.1.1 *Salmonella* Enteritidis

*Salmonella* Enteritidis (SE) is of major concern to the egg industry internationally. It has become established in overseas commercial egg laying flocks and has been the main type of *Salmonella* responsible for outbreaks of foodborne illness following the consumption of raw and undercooked eggs and egg products.

The risk assessment undertaken during development of Standard 4.2.5 identified *Salmonella Typhimurium* as the main microbial hazard for eggs in Australia. The risk from trans-ovarian SE was not specifically considered because it was not seen to be an issue in Australia at the time—the majority of human cases of SE in Australia were from travellers returning from overseas. However, the 2018-19 multi-state outbreak of SE linked to eggs has raised questions about that assumption.

The potential spread of trans-ovarian SE in Australia is considered a significant biosecurity concern, as well as having public health and economic consequences. Investigations into the 2018-19 outbreak identified that the movement of people, eggs and equipment could have helped SE spread between farms. More information is required to understand both the potential risk posed to the Australian population from SE and the risk factors that are driving the apparent increase in the number of egg-related outbreaks associated with *Salmonella Typhimurium* and other serovars.

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**Question 4:** Are there aspects of egg production and processing that could benefit from changes to the standard and help reduce egg-related foodborne illness? Please provide details and explain what changes should be made and why.

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3.2 Interface of biosecurity and food safety issues

3.2.1 Bird health (including the contribution of pullets and spent hens as risk factors)

Standard 4.2.5 addresses diseases or conditions of the layer flock that could make eggs unsafe or unsuitable. However, the health and disease status of birds in breeder flocks, hatcheries and pullet rearing, and that of birds at the end of their productive egg-laying life (so-called spent hens), is not explicitly considered by the standard.

The definition of poultry in the NSW 2020 SE control order includes spent hens and fertilised eggs. In relation to spent hens, businesses or persons (including members of the public) receiving ≥100 spent hens must have an appropriate license and a property identification code.

Industry guidelines, such as the CPBEI, focus on the development of HACCP-based controls to protect poultry flocks from infectious organisms and diseases, including SE.

3.2.2 Controls and monitoring for *Salmonella* (including SE)

The NSW 2020 SE control order requires licenced egg businesses to test individual sheds/poultry housing areas every 12–15 weeks for SE, or to participate in the National *Salmonella* Enteritidis Monitoring & Accreditation Program (NSEMAP), which has more specific sampling requirements.

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The NSEMAP provides an accreditation process to demonstrate that flocks are free from SE. Accredited status is achieved after completion of a two-stage monitoring process which requires three consecutive monthly SE tests (Monitored Status—Stage 1) followed by three consecutive 3-monthly tests (Monitored Status—Stage 2). All SE tests must be negative. The testing requirements, introduced as part of the NSW 2020 SE control order, are in addition to controls such as maintaining and documenting good on-farm biosecurity, egg cooling requirements and vermin control.

**Question 5:** Are there significant gaps, overlaps or inconsistencies between biosecurity and food safety requirements applying to the primary production and processing of eggs? Please provide details and suggestions for how to manage these through regulatory and/or non-regulatory means.

### 3.3 Adequacy of current through-chain requirements for the safe production of eggs and egg products

#### 3.3.1 Controls for intact shell eggs (cracked/dirty eggs, temperature)

Through-chain requirements implemented throughout the egg supply chain are critical for managing the risk from contamination of eggs and egg products. Contributing factors to the risk are the intactness of the egg shell and temperature control.

In its risk assessment for Proposal P301, FSANZ identified the use of eggs with visible surface faecal contamination (dirty eggs) and cracked eggs as common risk factors in outbreaks. In 2005, a risk profile on eggs and egg products funded by Australian Eggs (which was called Australian Egg Corporation Limited (AECL) at the time) estimated that the risk of illness from cracked eggs was 100 times higher than for intact eggs (Daughtry et al., 2005). Similarly, intact eggs that have surface faecal contamination contribute to a higher risk of cross contamination of other foods and surfaces.

Standard 4.2.5 addresses the risk from cracked or dirty eggs through obligations on the producer to not supply unacceptable eggs (except for those destined for pasteurisation—a process that kills harmful bacteria), and on the processor to either clean or pasteurise the eggs/egg pulp. Removal of cracked and dirty eggs is undertaken at several points in the primary production and processing supply chain. The principal controls are sorting and candling. Initial sorting of eggs often occurs on-farm to remove eggs that are crushed or too dirty to clean and before they proceed to grading for market specification. Further sorting may also occur during the grading process before they proceed to crack detection.

The P301 risk assessment outlined a number of factors that influence how temperature affects eggs during primary production and processing. These include the level of surface faecal contamination; temperature differences between the environment and internal contents of the egg; and the amount of moisture on the shell outer surface. While the albumen (white) of an egg contains bacteriostatic compounds that inhibit the growth of microorganisms, the yolk provides an ideal growth medium for *Salmonella* if eggs are stored at temperatures that allow its growth (i.e. above 7°C). However, the egg would have to be stored under such conditions for a period of time sufficient to allow bacteria to penetrate the shell, pass through the egg white and grow in the yolk.

Question 6: (a) Is there a need for the standard to make through-chain temperature control of eggs a mandatory requirement? (b) Would such a requirement impose a cost burden on industry? (c) Can you provide an estimate of the burden, including both initial and ongoing costs?

3.3.2 Traceability and individual identification requirements for eggs

Standard 4.2.5 includes requirements for the identification of individual eggs and raw egg products to facilitate traceability from the farm to the table. This has advantages for consumers, retailers, regulatory authorities and producers (Roberts and Runge 2011). The usefulness of traceability information (on eggs, cartons and outer containers) has been borne out by authorities being able to rapidly identify where affected eggs have been distributed and to instigate a targeted recall. A review of egg stamping undertaken by NSW DPI in 2015 concluded that this practice improved traceability across NSW. The value of egg stamping was also observed during the 2018 national SE outbreak, and assisted in subsequent food safety recalls.

However, submissions to the Productivity Commission’s inquiry on the regulation of Australian agriculture presented an opposing viewpoint, leading the commission to recommend in 2016 that FSANZ ‘remove the requirement for egg stamping under the Primary Production and Processing Standard for Eggs and Egg Product, unless it can be shown through a transparent and rigorous cost–benefit analysis that egg stamping is more effective and confers higher net benefits compared to alternative traceability methods.’

In its response, the government supported reviewing the standard to determine whether egg-stamping was the most cost-effective measure to meet the food safety objective.

Question 7: (a) Do you believe the current through-chain requirements for eggs adequately manage the risk of egg-related salmonellosis? (b) If you think the requirements should be changed to better manage the risk, please explain how and why. Please provide supporting detail and data, where available.

4 Consultation

FSANZ has engaged a range of government and industry stakeholders on the scope and approach for progressing this work. The information gathered from those stakeholders has assisted in the preparation of this paper.

5 Next steps

Following this consultation, FSANZ will decide whether a proposal should be prepared to amend the Code—including Standard 4.2.5—to better manage the risk to public health from the production, processing and handling of eggs. If FSANZ decides to prepare a proposal, FSANZ will undertake further consultation on options to improve egg food safety, including non-regulatory approaches.

20 https://www.foodauthority.nsw.gov.au/industry/eggs/egg-stamping
6 References


# EGG PRIMARY PRODUCTION AND PROCESSING SUPPLY CHAIN

<table>
<thead>
<tr>
<th>Stage of production</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parent breeder</td>
<td>Breeding farms house hens and roosters to produce fertilised eggs. The fertile eggs are collected daily and transported to the hatchery. Breeder stock are retained for approximately 12 months and then directed to meat processing.</td>
</tr>
<tr>
<td>Hatchery</td>
<td>Fertilised eggs are incubated in hatcheries. Day old chicks are screened and sexed before being vaccinated against avian diseases such as infectious bronchitis virus (IBV) and Marek's disease (MD). Day old chicks are then transported to farms for rearing.</td>
</tr>
<tr>
<td>Pullet rearing</td>
<td>Day old chicks are reared in either deep litter or cage rearing systems until approximately 17 weeks of age, after which they (pullets) are transferred to layer farms (either the same farm or sold on to other layer farms). Pullets are vaccinated against a number of endemic poultry diseases such as Fowl Cholera, avian encephalomyelitis (AE) and Newcastle disease (NDV).</td>
</tr>
<tr>
<td>Layer farm</td>
<td>Layers remain in production systems generally from approximately 18 until 78 weeks of age. In most production systems, birds are considered spent between 72 and 80 weeks of age. Layer farms vary greatly in size, from small farms holding a few thousand birds through to larger operations with &gt;500,000 birds.</td>
</tr>
<tr>
<td>Egg collection</td>
<td>Eggs are generally collected daily, either manually or via conveyer belt, to an on-farm packing shed or a centralised grading facility. Cracked or visibly dirty eggs are generally disposed of or collected for further processing.</td>
</tr>
<tr>
<td>Egg cleaning</td>
<td>Eggs are then either wet or dry cleaned. On commercial farms, eggs are wet washed—a mechanised process involving initial spray wetting, followed by ultraviolet sanitising, rinsing and drying. Dry washing is mainly only done on smaller farms, as it is labour intensive.</td>
</tr>
<tr>
<td>Egg grading</td>
<td>Eggs are placed into plastic or cardboard fillers and checked for defects, cleanliness, and quality. Modern egg grading equipment uses bright lights to inspect the internal quality of an egg—a process known as candling. A visual assessment may follow. Automatic acoustic crack detection technology may be used to identify cracks, micro-cracks or fractures. Dirty or cracked eggs are diverted for either disposal or further processing. Eggs are also graded by size for market specifications.</td>
</tr>
<tr>
<td>Stage of production</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Packaging</td>
<td>Eggs are weighed and sorted into different size cartons. Packaging helps to prevent damage and breakage occurring before reaching the consumer. Eggs are packaged for retail in clean moulded fibre or plastic cartons to prevent damage.</td>
</tr>
<tr>
<td>Storage and transportation</td>
<td>Eggs are stored between laying and grading / washing, after grading and during transportation to retail. Storage conditions (time, temperature and humidity) can affect the growth of microorganisms that may be present on or in the egg.</td>
</tr>
<tr>
<td>Further processing</td>
<td>Excess or second grade eggs (e.g. cracked or soiled) are often diverted to further processing steps for the manufacture of egg products such as liquid and dried egg.</td>
</tr>
</tbody>
</table>

Prepared in consultation with Egg Farmers of Australia.
FOOD REGULATION AND THE ROLE OF FSANZ

The food regulation system

The Australian food regulation system regulates the sale and importation for sale of food – including eggs – in Australia.

The food regulation system in Australia is a multi-jurisdictional cooperative arrangement involving the Commonwealth Government and the eight Australian state and territory governments.

An Inter-Governmental Agreement (1991), between the Commonwealth and states and territories, provides the framework for the food regulation system and sets out the roles and responsibilities of relevant governments and their agencies (see below).

Australian state and territory food laws

Food sold in Australia must comply with state and territory food laws. Eggs are a food for the purposes of these laws.

State and territory food laws generally require all food sold or offered for sale to be safe and suitable. They also require food and food products offered for sale to comply with any relevant requirement set by the Australia New Zealand Food Standards Code (“Code”) for that food (see below).

Imported Food Control Act 1992

All food imported into Australia must comply with any relevant requirements set out in the Code.

The Imported Food Control Act 1992 (the Act) and its subordinate legislation (the Imported Food Control Order 2019 and Imported Food Control Regulations 2019) establishes the Imported Food Inspection Scheme (IFIS) and requires imported food to comply with the food standards set out in the Code.

Further information on the IFIS is available here.

The Code

The Code is a collection of food standards that set requirements for food sold or offered for sale, and for any business or activity that involves the handling of food for sale. Eggs are a food for the purposes of the Code.

The Code – including Standard 4.2.5 – does not have any legal effect of itself. Rather, the Food Regulation Agreement between the states, territories and Commonwealth of Australia provides that the states and territories will adopt or incorporate into state or territory food law the standards in the Code (see above).
How food standards are made or amended

The Code is developed and maintained by FSANZ. FSANZ is an independent authority, within the portfolio of the Australian Government Department of Health, established under the *Food Standards Australia New Zealand Act 1991* (FSANZ Act).

FSANZ must develop food standards in accordance with the FSANZ Act and Australian administrative law. The FSANZ Act sets out a statutory process for standards development, which includes public notification and consultation. FSANZ’s processes must be open and transparent, and rely on input from industry, the public health sector, consumers and governments to inform standards development work.

Food standards are made or amended by FSANZ through application or proposal. Any person may apply to FSANZ at any time to seek an amendment to the Code, whereas proposals are prepared by FSANZ. For both applications and proposals, the FSANZ Act requires that any new standard or variation to an existing standard be found to be warranted by an evidence-based risk assessment that had regard to stakeholder submissions and to each of the assessment criteria set by the Act. FSANZ uses a risk analysis process for assessments that is based on the internationally accepted Codex Risk Analysis Framework.

The FSANZ Act prescribes objectives and assessment criteria to which FSANZ must have regard in standards development.

Section 18 of the Act sets out the following objectives (in descending order of priority) for FSANZ when developing or reviewing food standards:

- the protection of public health and safety
- the provision of adequate information relating to food to enable consumers to make informed choices
- the prevention of misleading or deceptive conduct.

Section 18 of the Act also requires FSANZ to have regard to the following when developing or reviewing food standards:

- the need for food standards to be based on risk analysis using the best available scientific evidence
- the promotion of consistency between domestic and international food standards
- the desirability of an efficient and internationally competitive food industry
- the promotion of fair trading in food
- any written policy guidelines prepared by the food Ministers.

Other standards development assessment criteria prescribed by the FSANZ Act include:

- whether costs that would arise from the proposed food standard outweigh the direct and indirect benefits to the community, government or industry that would arise from its development
- whether other measures (available to FSANZ or not) would be more cost-effective than the proposed food standard
- whether there are any relevant New Zealand standards
- any other relevant matters.

All standards and variations to standards developed and approved by the FSANZ Board are referred to the *Food Ministers’ Meeting* (FMM; formerly the Australia and New Zealand Ministerial Forum on Food Regulation) for consideration. Consideration by the FMM is the final step in the standards development process under the *Food Regulation Agreement* and the FSANZ Act.
If the FMM accepts a draft standard or variation to standards, the latter are included in the Code and adopted into Australian food laws. The FMM can also request that a draft standard or variation be reviewed, amended or rejected.

The FMM is made up of Ministers from each of the states and territories, the Australian Government and a Minister from New Zealand. Ministers have responsibility for setting food regulation policy and for general oversight of the food regulation system. Wherever possible, the FMM makes its decisions by consensus. If this is not possible, the FMM can resolve matters by voting. Each of the ten governments has one vote, and six votes are required for a decision. Each jurisdiction has a lead Minister for voting purposes.

FSANZ does not have a role in relation to the implementation and enforcement of the Code. Instead, this is the responsibility of government agencies responsible for the food laws that adopt and apply the Code. This means that, in Australia, state or territory government agencies and in many cases local councils, are responsible for the application, interpretation and enforcement of the Code. The Australian Department of Agriculture, Water and the Environment is responsible for enforcing the Code at the border via the IFIS.