

25 September 2025

360-25

Supporting document 5

Overview of the egg industry in Australia

Proposal P1060 - Egg Food Safety and Primary Production Requirements

Executive summary

This supporting document provides an overview of egg production in Australia. It includes how and where eggs are produced, with information on production volumes, imports and exports. This information contributes to our understanding of the complexity and diversity of the egg production and processing sectors that may be impacted by changes to food safety regulatory requirements.

Australia has had a significant commercial egg production sector since around the mid-20th century. Egg production had initially started in Australia when producers started going beyond just providing for the immediate family and commenced supplying local areas. Over time, increasing flock sizes were required to meet the demand from increasing urbanisation in Australia (Scott et al 2009). This has now grown into an industry producing 6.98 billion eggs with a gross production value of approximately \$1.37 billion in the 2023-24 financial year (Australian Eggs 2024).

The three main egg production systems in Australia are caged, barn laid and free range. Free range may be further divided into other types, such as pasture raised and/or organic. Based on retail data from major supermarkets, free range eggs make up the largest number of sales by volume, followed by caged eggs and barn-laid eggs.

Supply chains for eggs vary considerably, from short simple supply chains where eggs are sold to consumers within a week of being laid; to quite complex supply chains where eggs may be transported significant distances to meet demand in locations currently in short supply.

Commercial egg production occurs in all states and territories except for the Northern Territory. The majority of egg production is in the eastern states, with New South Wales, Queensland and Victoria making up approximately 85% of the national layer flock.

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1 Introduction

In February 2020, the Food Regulation Standing Committee (FRSC) requested FSANZ review Standard 4.2.5 – Primary Production and Processing of Eggs and Egg Products (the egg PPP standard) to address the risk of *Salmonella* Enteritidis (SE) to human health.

When assessing the need for a standard or considering changes to an existing standard, FSANZ must gain an understanding of the complexity and diversity of the industry sector/s involved. This includes how, where and when food is produced, processed and distributed, and what volumes or scale of production exist. This information contributes to analyses of public health and safety risks and economic factors.

1.1 Purpose

This paper provides an overview of domestic egg production including:

- Production statistics (production volumes by state or territory, by type of egg production system and markets)
- Supply chain activities for egg production, collection, transport, grading, packing, and processing.

1.2 Scope

This paper focuses on activities covered by the current standard, Standard 4.2.5, within the Australia New Zealand Food Standards Code for the Australian egg industry. This includes egg production at the layer farm through to grading floor and heat treatment processing of raw egg products. It does not cover further processing activities or preparation of meals using eggs or egg products as Chapter 3 of the Code applies to those food businesses.

2 Eggs

2.1 Description

Eggs are defined in Standard 4.2.5 as meaning an egg from any avian (bird) species, except ratites. The main species associated with commercial egg production in Australia is *Gallus gallus domesticus* (chicken), with some egg production from ducks and quail.

2.2 Industry statistics

The Australian egg industry produced 6.98 billion eggs with a gross production value of approximately \$1.37 billion in the 2023-24 financial year (Australian Eggs, 2024).

The Australian laying flock was estimated to be approximately 21,254,995 in June 2024 (Australian Eggs, 2024); figure 1 shows the proportion of the Australian egg laying flock by jurisdiction. The New South Wales and ACT (NSW+ACT) and Queensland regions had the highest number of laying hens (36% and 28.6%, respectively), followed by Victoria (22.3%), Western Australia (6.3%), South Australia (5.5%), and Tasmania (1.3%) (Australian Eggs, 2024).

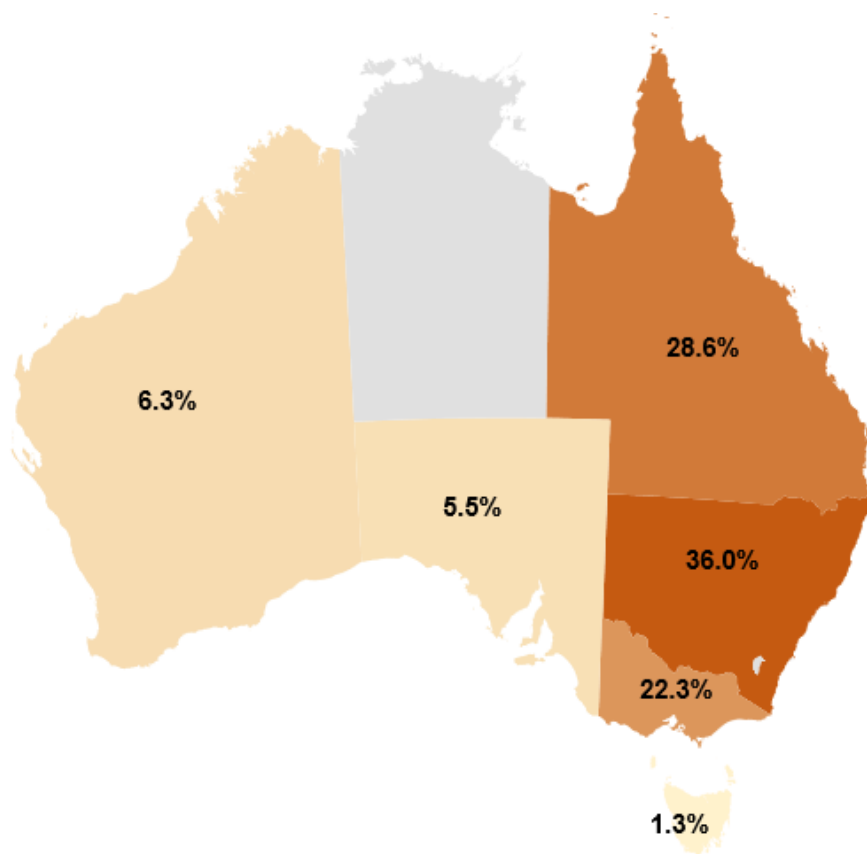


Figure 1: Distribution of the Australian layer flock

Most egg producers are concentrated on the east coast of Australia, with Queensland, New South Wales and Victoria accounting for 86.9% of the national flock. Although Queensland contains 7.6% of total number of layer farms, they are the second highest producing region.

For the purposes of this proposal, FSANZ determined that a small layer farm would be a farm having up to 10,000 layer hens on a property. For a medium layer farm, the farm would have between 10,000 and 50,000 layer hens, with a large layer farm having in excess of 50,000 layer hens on the property.

Table 1 summarises the number of egg layer farms by jurisdiction based upon information provided to FSANZ by each jurisdiction in 2024.

Table 1: Number of layer farms by jurisdiction

	ACT	NSW	QLD	SA	TAS	VIC	WA	Total number	% of farms
Small	3	177	74	73	15	789	62	1193	81.2%
Medium	1	43	21	4	3	63	8	143	9.7%
Large	0	39	17	4	2	63	9	134	9.1%
total	4	259	112	81	20	915	79	1470	
%	0.3%	17.6%	7.6%	5.5%	1.4%	62.2%	5.4%		

By volume, free range eggs made up the largest number of sales in major supermarkets (57.4%), followed by barn-laid eggs (20.9%), cage eggs (19.7%) and specialty eggs (2.1%) (Australian Eggs, 2024).

The proportion of private label and proprietary labels sold in major super markets in the 2023-24 financial year was 57.1% and 42.9% (by volume), respectively. Eggs sold in supermarkets are sold in 6, 10, 12, 15, 18 and 30 packs; with the majority sold as 12 packs (82.4%) (Australian Eggs, Annual Report 2024).

2.3 Egg production and processing

For the purposes of this paper, the egg supply chain includes activities that occur within the scope of standard 4.2.5.

2.3.1 Layer farm activities

Layer hens are sourced from one or more of the following options. A layer farm may:

1. have their own breeding program for replacement flocks
2. purchase day old chicks from a hatchery and rear these onsite or
3. purchase point of lay pullets from rearing farms.

The supply chain for a layer hen involves the breeder farm where fertilised eggs are produced, which go to a hatchery and once hatched, the day old chicks are moved to a rearing facility where they are grown to about 15 or 16 weeks of age, just prior to maturation and commencement of egg laying. These point of lay pullets are then moved to a laying farm for commencement of egg laying. The layer hens are usually kept in commercial egg production for a further 60 weeks, sometimes longer, before being replaced by a new layer flock.

Sometimes, after the 60 week laying period, the layer farm may sell off the layer hens as 'spent hens', which may then go back into egg production for another period of time. This may be as backyard chickens or into another layer farm commercially producing eggs.

There are three types of egg farming systems, these being caged, barn or free range (including 'pasture raised').

Housing for layer hens varies depending upon the type of egg farming system and scale of operation. Small mobile poultry housing/roosting units (also referred to as caravans) are used for flocks of around 1000 hens in free range or pasture based egg farming systems. Large scale free range egg farms utilise large poultry sheds that provide access to a fenced pasture or range area, with semi-automation involved for opening of the exits to the range area. These large sheds may house around 20 000 laying hens.

Caged egg farming systems utilise large, environment controlled poultry sheds housing around 45 000 hens.

Barn laid egg farming systems use large, environment controlled sheds and house around 20 000 hens, with space allocated for movement of hens in addition to the roosting areas and nesting boxes.

2.3.2 Grading floor activities

Grading floor is a term used to describe where the collected eggs are assessed, cleaned, graded and packed, with storage of eggs occurring while awaiting grading and again after the grading and packing activities. Figure 3 provides a diagram for grading floor activities.

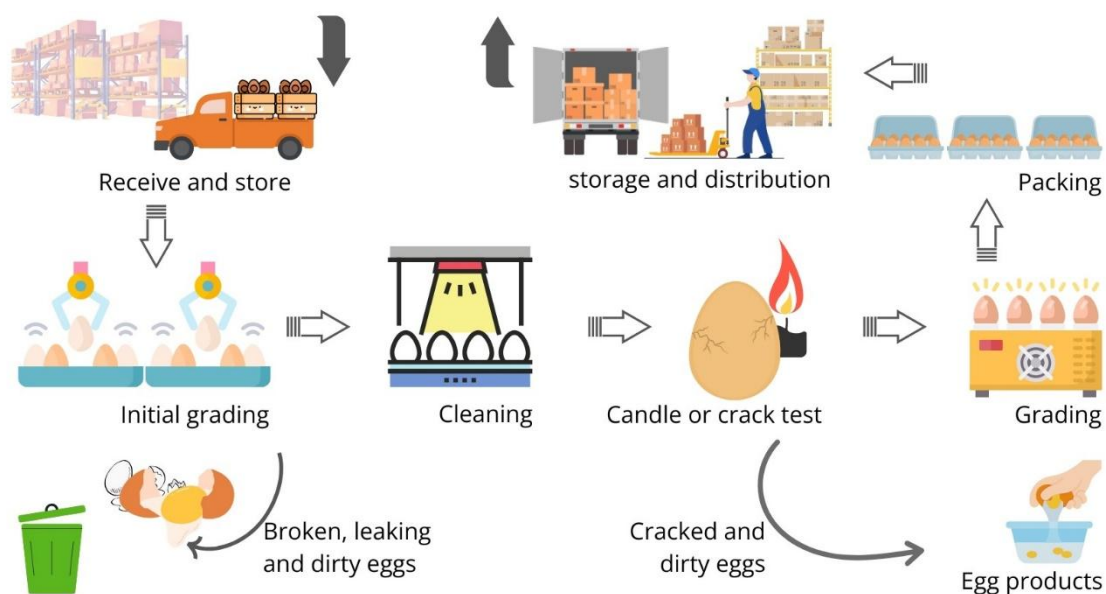


Figure 3. Summary of grading floor activities

Grading floors may be small, such as a designated area within a shed on a layer farm, through to large processing rooms with semi-automated and automated machinery for the grading and packing of eggs into cartons and onto pallets for distribution.

Eggs may be stored in the grading area or in purpose built, temperature controlled storage rooms. A large proportion of eggs in Australia are stored in temperature controlled areas at approximately 15°C.

Cracked and dirty eggs that have been graded out are either diverted away from human consumption or will go into egg products that are subject to a heat treatment. Eggs that were broken or leaking at time of collection are diverted to waste, as well as those eggs considered to be 'dirty' eggs.

2.3.3 Processing activities

Egg products must be processed in accordance with the heat treatments (pasteurisation) contained within the standard. Egg products include egg pulp, liquid egg white and liquid egg yolk.

Once the egg products have been treated they must be kept under refrigeration. These processing activities normally occur at an egg pulping facility or at a larger food manufacturing facility where the egg products are treated and then used in food manufacturing.

Grading floors rarely have the pasteurisation equipment co-located, however the larger grading facilities do often pulp eggs for sending to the egg pulping facility for pasteurisation. Smaller grading floors will separate the cracked and dirty eggs for delivery to the pulping facility.

There are only a few egg pasteurisation facilities in Australia, so where cracked and dirty eggs are not sent to these facilities (due to costs for transport or capacity limits being exceeded at the facility), the eggs are diverted away from human consumption.

2.3.4 Supply chains

Supply chains for eggs are very diverse depending on the size and location of the egg production.

Short supply chains were observed with small layer farms, where the eggs may be collected and then sold at the local farmers market or at the farm gate within days of being laid. Some of the large egg producers also had short supply chains where the eggs are laid, fed into their onsite grading floors and within a couple of days those eggs are on retail supermarket shelves.

Other supply chains are longer, where the medium size egg producers may supply independent grading floors that then distribute graded and packed eggs to retail and food service.

Supply chains may also become quite complex with eggs moving significant distances to meet supply demands. The foodborne illness incident of 2018-19 demonstrated how complex these supply chains can become and the challenges in maintaining through chain traceability of eggs.

These different supply chains can result in differences in the number of days from date of lay an egg may spend within a supply chain before being offered for sale. This variation can be between three to more than 20 days from date of lay to point of sale, based on information provided to FSANZ.

More information on supply chains is contained within the microbiological risk assessment supporting document (SD) 2.

2.3.5 Best before dates

The Food Standards Code does not specify a Best Before date duration. The industry recommendation is a Best Before of 42 days when stored appropriately. Industry practice is to apply this Best Before dating from the date the egg is packed into a retail carton.

During the course of this proposal, FSANZ has noted use of Best Before dates that were in excess of the 42 days from date of pack. This is a commercial decision for each business to consider and justify if there were to be quality or food safety issues.

2.5 Exports and imports

Exports of eggs and egg products totalled approximately \$15.76 million for the financial year 2022-23 (ABARES), which was the highest export value for the period 2020 through to March 2024. Exports were to a range of countries, predominantly within south-east Asia and pacific regions.

Australia's strict biosecurity requirements mean there are limited imports of whole table eggs to Australia. There are some permissions for processed egg product such as egg powders, where the products are able to satisfy the import permit requirements.

3 References

Australian Eggs, Australian Eggs website, accessed on 3 December 2024, [Australia's Egg Industry: Everything You Need To Know \(australianeggs.org.au\)](https://australianeggs.org.au)

Australian Eggs, Australian Eggs Annual Report 2024, accessed on 3 December 2024, <https://www.australianeggs.org.au/who-we-are/annual-reports>

Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES), Trade Dashboard accessed on 21 June 2024, [Trade dashboard \(beta\) - DAFF \(agriculture.gov.au\)](https://trade.abares.gov.au)

Scott, P., Turner, A., Bibby, S., and Chamings, A., *Structure and dynamics of Australia's commercial poultry and ratite industries*, Report prepared for the Department of Agriculture, Fisheries and Forestry, published June 2005, updated December 2009