Phasing Out Conventional 'Cage Egg' Production in Australia: A 10-year transition analysis

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ECONOMICS

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Executive Summary

The egg industry is important to Australia both in terms of jobs and providing a relatively inexpensive but nutritious food product for consumption. Egg consumption in Australia is one of the highest in the world with the trend being an increasing one, 231 eggs per capita in 2017 up from under 200 eggs per capita a decade ago. This is in the context of a decreasing proportion of 'cage egg' sales (by volume) from 71.4 per cent in 2007 to 48.9 per cent in 2017.

It is clear that an increasing number of consumers than before are making egg purchases based on animal welfare concerns of caging layer hens. This however is not surprising given that animal welfare in general around the world is becoming more of a priority for people and governments.

In November 2017, draft standards and guidelines for poultry were prepared by Animal Health Australia as a result of consultation with state and territory governments, livestock industry organisations, animal welfare groups and the general public under the auspices of the Animal Welfare Task Group (AWTG). The draft standards and guidelines and accompanying Consultation Regulatory Impact Statement (RIS) are currently open for public consultation.

This report provides analysis of one component of those draft standards and guidelines - Option D (10-year phase out of conventional cages for layer hens). The report finds:

- The Consultation Regulatory Impact Statement (RIS) is overly conservative in some assumptions and calculations, particularly in regard to calculating the net market effect of food service and grocery retailers' future decisions to cease serving/selling conventional cage eggs which has a bearing on the cost of Option D.
- The producer cost burden of Option D (10 years, layer hens only) of $1339.18 million over ten years is estimated to result in an average premium of approximately 2.4 cents per egg for the consumer. Option C is estimated to result in a premium of 1 cent per egg meaning that the extra premium to be paid by the consumer for Option D (10) above that which is currently proposed is estimated to be 1.4 cents per egg.
- Current cage egg consumers are likely to experience a cost increase due to cage egg phase out estimated to be 8 cents per barn laid substitute egg. Current barn laid and free range egg consumers are likely to experience a cost saving estimated at 4 cents per egg. These amounts do not include any pass-on producer cost premium which is estimated at an average of 2.4 cents per egg.
- Detailed modelling would be required in regard to all points.

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Introduction

In November 2017, draft standards and guidelines for poultry were prepared by Animal Health Australia as a result of consultation with state and territory governments, livestock industry organisations, animal welfare groups and the general public under the auspices of the Animal Welfare Task Group (AWTG).[1] The draft standards and guidelines and accompanying Consultation Regulatory Impact Statement (RIS) are currently open for public consultation.

This report provides analysis of one component of those draft standards and guidelines - Option D (10-year phase out of conventional cages for layer hens). Draft standards relating to the conventional cage system are outlined in Chapter B1 of the draft standards.[2]

Review of Standards and Guidelines for Poultry

The Animal Health Australia *Proposed Draft Australian Animal Welfare Standards and Guidelines for Poultry (Version: Public Consultation Nov 2017)* for which this report has been prepared was released in November 2017 for public consultation for a period of 90 days. A Consultation Regulatory Impact Statement (RIS) accompanied the draft standards and guidelines. The policy objective identified in the RIS is:

> *To minimise risks to poultry welfare; and to reduce both industry uncertainty and excess regulatory burden in a way that is practical for implementation and industry compliance.*

The main criterion for evaluating the proposed standards and the feasible alternatives is net benefit for the community, in terms of achieving this policy objective.

The following table provides a glossary of some of the main terms used in the report.

Table 1: Glossary

Barns	*Large sheds where up to several thousand hens may be kept together, and where the floor is often covered with litter. Nesting places are provided for egg laying, but hens are not confined to them.*
Conventional cages	*Hens are housed indoors, in groups of up to 9 hens, usually in multi-tiered systems with wire mesh floors.*
Free range systems (non-cage systems)	*Birds in free range systems are often housed in shedding and have access to an outdoor range. Except Ratites which may not include sheds.*
Furnished cages	*Cages that contain furnishing such as nest boxes, perches and/or scratch-pads.*

Source: BG Economics. Compiled from Animal Health Australia (AHA) 2017. 'Proposed Australian Animal Welfare Standards (Poultry): Consultation Regulatory Impact Statement', November 2017 and 'Proposed Draft Australian Animal Welfare Standards and Guidelines for Poultry'. Version: Public Consultation, Nov 2017.

[1] Animal Health Australia (AHA) 2017. 'Proposed Draft Australian Animal Welfare Standards and Guidelines for Poultry'. Version: Public Consultation, Nov 2017 (p.6).
[2] See Attachment A

The options to be evaluated in terms of costs and benefits by Animal Health Australia are:[3]

- ***Option A**: Maintain the status quo;*
- ***Option B**: convert the proposed national standards into national voluntary guidelines (the minimum intervention option);*
- ***Option C**: adopt the proposed standards as currently drafted.*

*The following Options D, E, F and G are all **variations of Option C** and are not mutually exclusive. In other words, a combination of one or more of these options can be considered when choosing a preferred option.*

- ***Option D** – vary the proposed standards (Option C) to phase out conventional cages for chicken layers over 10 and 20 years in favour of alternative systems 'typical' free range, barn/aviary, or furnished cages (which include a nest, a perch, and space to forage).* [Note: BG Economics underlining is the subject of this report analysis]
- ***Option E** – vary the proposed standards (Option C) to reduce maximum stocking densities in barns or sheds for non-cage layer hens to 9 birds per m2 and meat chickens 30kg/m2.*
- ***Option F** – vary the proposed standards (Option C) to require the availability of nests, perches and litter for all layer hens in cage and non-cage systems.*
- ***Option G** – vary the proposed standards (Option C) to ban castration, pinioning and devoicing. No hot blade beak trimming at hatcheries, and no routine second beak trimming – unless exceptional circumstances (hot blade permitted in this circumstance).*

The costs of Option D (10 years) comprise the costs of Option C plus the costs of a variation on the proposed standards that would phase out conventional cages.[4] These incremental costs are described in the RIS as including one-off costs of setting up new or converting existing sheds to alternative production systems, land costs, potential associated 'business fragmentation' costs, and ongoing capacity loss of egg production as a result of moving from conventional cages to other production systems.

The RIS-estimated cost of the proposed standards and guidelines (Option C) in regard to layer hens is $517.01 million over a 10-year period ($709.72 million for all poultry) as opposed to the estimated cost for Option D of $1,339.18 million over a 10-year period for layer hens ($1,531.89 million total cost of all poultry including meat chickens estimated to cost $104.38 million; turkeys $88.01 million; and ducks $0.31 million representing the additional $192.71 million cost)[5].

The 'layer hen' component of Option D is the subject of this report analysis as it represents the vast majority of the cost of both options (72.8% for Option C and 87.4% for Option D).

[3] Animal Health Australia (AHA) 2017. 'Proposed Australian Animal Welfare Standards (Poultry): Consultation Regulatory Impact Statement', November 2017 (p.52)
[4] Animal Health Australia (AHA) 2017. 'Proposed Australian Animal Welfare Standards (Poultry): Consultation Regulatory Impact Statement', November 2017. (p.66)
[5] Ibid. (p.67, Table 30; p.155 Table A5.1)

Table 2: Estimated PV Cost ($M) of Option C versus Option D (10-year cage phase out)

State grouping	Option C (all poultry)	Option C (layer hen only)	Option D (all poultry)	Option D (layer hen only)
NSW, QLD and VIC	$594.14	$428.39	$1,318.33	$1,152.58
SA, WA and TAS	$115.58	$88.62	$213.56	$186.60
Total	**$709.72**	**$517.01**	**$1,531.89**	**$1,339.18**

Source: BG Economics adapted from Consultation RIS 2017, Tables A5.1, 28, 30 & 49.2

Note: According to Australian Eggs 2017 'Annual Report 2016/17', state flock proportions as at June 2016 were New South Wales/ACT 31.55%; Queensland 28.54%; Victoria 27.02%; Western Australia 8.17%; South Australia/Northern Territory 3.16%; and Tasmania 1.56%.

Transitioning away from conventional cage production is the policy option that would best satisfy the physiological and behavioural needs of laying chickens. This option would be in alignment with changing expectations of the community in regard to the 13 good husbandry principles, particularly 'social contact with other poultry' and 'space to stand, lie and stretch their wings and limbs and perform normal patterns of behaviour'[6] benefiting an estimated 10.7 million birds.[7]

Additional benefits not identified in the RIS are difficult to quantify without further detailed investigation, which would include:

- Positive reputational benefits for Australia (and states) from increased animal welfare. This is likely to make a small but important difference in marketing Australia's international reputation as a producer of 'clean green' agricultural products.

Australia's egg industry

The egg industry is important to Australia both in terms of jobs and providing a relatively inexpensive but nutritious food product for consumption. Egg consumption in Australia is one of the highest in the world and has been increasing. Consumption in Australia was 231 eggs per capita in 2017, up from under 200 eggs per capita a decade ago.[8]

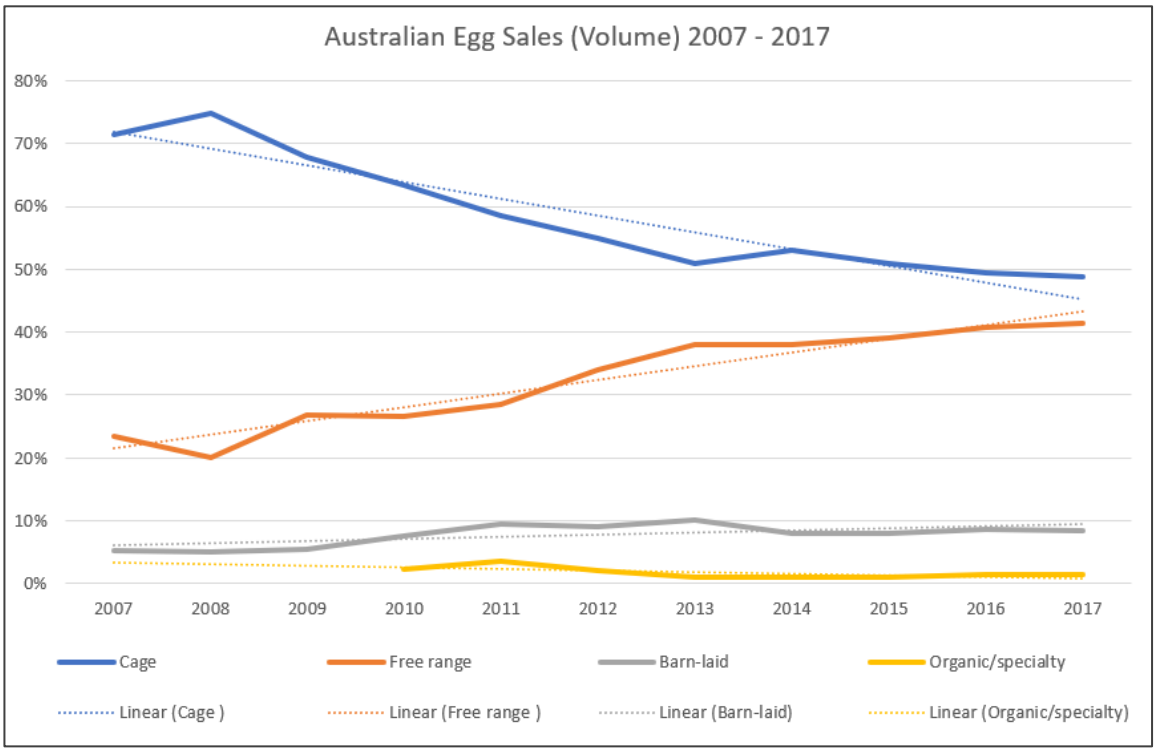
This is in the context of a decreasing proportion of cage egg sales (by volume) from 71.4 per cent in 2007 to 48.9 per cent in 2017 as shown below.

[6] Animal Health Australia (AHA) 2017. 'Proposed Draft Australian Animal Welfare Standards and Guidelines for Poultry'. Version: Public Consultation, Nov 2017 (p.12).

[7] Animal Health Australia (AHA) 2017. 'Proposed Australian Animal Welfare Standards (Poultry): Consultation Regulatory Impact Statement', November 2017. (p.80)

[8] Australian Eggs 2017. 'Annual Report 2016/17'.

Figure 1: Australian Egg Sales by volume 2007 to 2017



Source: BG Economics 2018. Compiled from Australian Eggs annual reports

Australian egg producers operate in a mixed-production system quite different to the environment they operated in ten years ago, given the significant increase in consumer demand for non-cage eggs.

The tables below show the number and proportion (%) of layer hens by production system and total number of layer hen farms (337). Of these, 199 are free range farms, 50 barn farms and 88 cage farms. Most farms (76.6%) are in the three largest states by population.

Table 3: Number and proportion of hens housed (capacity) by production system

Production system	**NSW, QLD & VIC**	**SA, WA & TAS**	**Total**
Cage	9,474,722 (56.48%)	1,241,941 (43.05%)	10,716,713 (54.51%)
Barn	1,625,050 (9.69%)	162,500 (5.63%)	1,787,550 (9.09%)
Free range	5,674,185 (33.83%)	1,480,500 (51.32%)	7,154,685 (36.39%)
Total	**16,774,007 (85.33%)**	**2,884,941 (14.67%)**	**19,658,948 (100.00%)**

Source: BG Economics, adapted from Consultation RIS 2017, Table A1.1

Table 4: Number of layer hen farms by production system

Production system	NSW, QLD & VIC	SA, WA & TAS	Total
Cage	70	18	88
Barn	36	14	50
Free range	152	47	199
Total	**258**	**79**	**337**

Source: BG Economics, adapted from Draft RIS 2017, Table A1.1

The two key stakeholder groups impacted by a change in policy that phases out conventional cage eggs over a 10-year period are *producers* and *consumers.* From a production perspective, the market is dominated by three firms which have a mix of cage and non-cage production systems. Some operate in more than one jurisdiction.[9]

- Sunny Queen Australia Pty Ltd (32.3%)
- Alimfresh Pty Ltd (28.9%)
- Farm Pride Foods Limited (9.3%)
- Others (29.5%)

Financial impact on producers of phasing out conventional cage eggs

The RIS provides estimated costs of phasing out (conventional) cage eggs, the breakdown of which includes existing facility conversion and downtime costs, new facility land and infrastructure costs, plus a cost for business fragmentation.

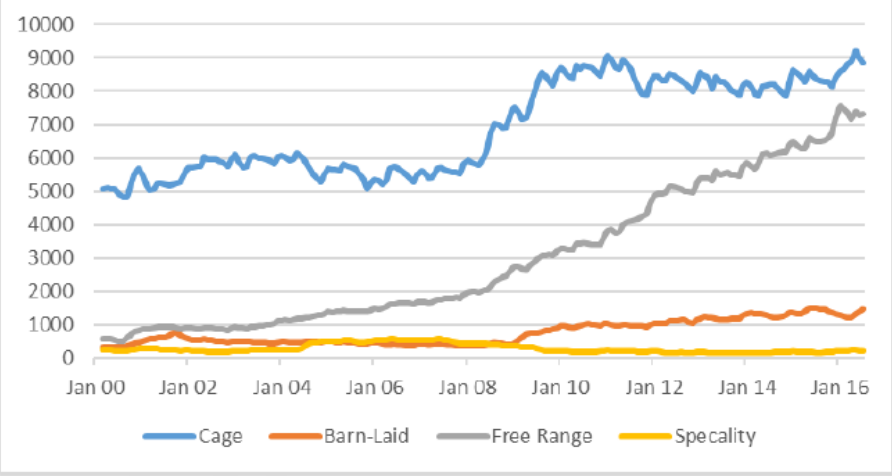
These costs are then adjusted by a factor of 0.87 (more accurately 0.867) to reflect the estimated net market force of reduced consumer demand and expected actions of retailers, including fast food businesses, restaurants and major supermarkets. A seven per cent (7%) discount value is used to arrive at the present value.

The RIS emphasises at a number of points that conventional cage eggs are still popular and are '… likely to form a significant part of the egg market into the future, both as a growing category and as an important part of total egg market growth'.[10] The RIS supports this statement with a number of pieces of evidence, for example, by providing Figure A3.1 below, from which it concludes:[11]

[9] IBISWorld 2017. 'Egg Farming in Australia: IBISWorld Industry Report AO172' September 2017
[10] Animal Health Australia (AHA) 2017. 'Proposed Australian Animal Welfare Standards (Poultry): Consultation Regulatory Impact Statement', November 2017. (p.141)
[11] Ibid. (p.140)

There has been a steady trend in growth of non-cage eggs over the last 10 years, predominantly as a result of growth in free range egg supply. However, when conventional cage eggs are viewed in isolation, the available evidence indicates that conventional cage eggs are not a disappearing category and have in fact grown in key segments. IRi grocery scan data indicates that conventional cage egg sales reached record levels in terms of volume in 2016 as shown in Figure A3.1.

Figure 2: Monthly egg sales volume – supermarket retailers (3 month rolling '000doz)



Source: IRi Grocery Scan data

BG Economics does not take as optimistic a view of the above chart for cage eggs, as it shows a flatlining of cage egg sales from around January 2010 with a single small peak in January 2016. Importantly, these figures do not take into account the population growth in Australia which increased by nearly two million people between 2011 and 2016.[12] The most recent annual IBIS*World* industry report shares a similar view, stating:

The industry will continue to produce cage eggs, which attract lower prices, although they are anticipated to account for a declining portion of total egg production over the next five years.[13]

The RIS also projects that retailers are not likely to significantly reduce their stocking of cage eggs:

Given the two largest grocery retailers (Woolworths and Coles) and the remainder of grocery retailers have not made a commitment to cease supplying caged eggs, it could be projected that a relatively low proportion of cage egg retailers are likely to cease supply in the future, representing significantly below 50% of grocery retail caged egg volume.[14]

[12] Australian Bureau of Statistics (ABS) 2017. '2024.0 – Census Population and Housing: Australia Revealed 2016'. Available http://www.abs.gov.au/ausstats/abs@.nsf/mf/2024.0 Accessed 16.02.2018
[13] IBISWorld 2017. 'Egg Farming in Australia: IBISWorld Industry Report AO172' September 2017.
[14] Animal Health Australia (AHA) 2017. 'Proposed Australian Animal Welfare Standards (Poultry): Consultation Regulatory Impact Statement', November 2017 (p.142)

Again, this is not consistent with our view which is that larger supermarkets in particular, such as Coles, Woolworths and Aldi, are likely to implement recent public statements about their intent to cease the sale of cage eggs in their stores by 2025 (or indeed sooner if they can be assured of supply to meet demand).

Major supermarket grocery chains' egg sales volume in the 2016-17 financial year was 218.4 million dozen, which represented 47.56 per cent of the total 459.2 million dozen eggs produced.[15] Given Coles, Woolworths and Aldi are likely to comprise the vast proportion of these sales, current cage egg producers, particularly those who do not have mixed production systems, are vulnerable if these large retailers bring forward their plans to phase out cage eggs. A planned industry phase out of caged eggs over a 10-year period would provide certainty in this regard.

It is our view that the RIS is overly conservative in its expectation of changing consumer demand pattern. We do agree however that smaller retailers, including 'corner shop' convenience stores, are unlikely to make the same commitment as the larger retailers to phase out caged eggs anytime soon, given their inability to materially affect prevailing prices or have a measurable impact on competitors.

The importance of predicting these future trends is correctly outlined in the RIS, largely because the estimated cost of Option D is significantly affected by the estimation of 'net market forces'.[16] This calculation comprises two components: (1) the volume of food service retail outlets that are likely to cease using cage eggs in their businesses (e.g. fast food outlets, restaurants); and (2) the volume of grocery retail stores that are likely to cease selling cage eggs (e.g. Coles and Woolworths). Panel A3.1 of the RIS (see below) shows the 'Total net market effect' calculated to be minus 13.3 per cent (-13.3%).

This calculation reflects the expected decrease in cage egg consumption (sales) that is likely to occur over time. A factor of 0.87 (0.867) is then applied '… taking into account the assumption of a -13% net market effect on conventional cage egg production systems'.[17]

Table 5: Assumptions used in RIS to estimate the impact of net market effect

	Percentage	Net market effect
Food service estimated share of cage volume	67%	
Volume of food service retail likely to become cage free	10%	
Total food service (net market effect)		*-6.7%*[226]
Retail estimated share of cage volume	33%	
Volume of grocery retail likely to move to cage free (reduced for leakage to other retailers)	20%	
Total retail (net market effect)		*-6.6%*[227]
Total net market effect		***-13.3%***

Source: RIS Panel A3.1

[15] Australian Eggs 2017. 'Annual Report 2016/17'
[16] Ibid. (p.144 Panel A3.1)
[17] Animal Health Australia (AHA) 2017. 'Proposed Australian Animal Welfare Standards (Poultry): Consultation Regulatory Impact Statement', November 2017 (p.144)

BG Economics' view in regard to the first component (BG's red outline) is that the estimated '10%' is likely to be an under estimation (i.e. extremely conservative) and could be at least twice that. If it were assumed to be 20 per cent, for example, the net market effect would change from minus 6.7 per cent (-6.7%) to minus 13.4 per cent (-13.4%). This is assuming the estimated share of cage volume (67% food service retail / 33% grocery retail stores) is correct, however it is not immediately obvious how this two-thirds / one-third split has been arrived at.

In relation to the second component (BG's blue outline), it is our view that the estimated '20%' is also likely to be an under estimation. If it were to be 40 per cent for example, the net market effect would change to minus 13.2 per cent (-13.2%). Again, this is assuming that the estimated share of cage volume (67% food service retail / 33% grocery retail stores) is correct or near correct.

A less conservative calculation would then be: [-13.4% + -13.2% = -26.6%]. This would result in a factor of 0.74 (0.734) being applied to the cost of Option D (10 years). This calculation significantly affects the cost of Option D and more detailed modelling should be considered in this regard.

Funding of a 10-year cage egg phase out

If Option D were to be adopted as costed in the RIS, the extra cost burden would need to initially be met by the producer who would either absorb the cost or pass the cost on to egg consumers over time in the form a slightly higher egg prices, or they could absorb a portion of the cost and pass a portion on to consumers.

In the event producers passed the entire $1339.18 million on for Option D (layer hens only), or $133.92 million for one year, and assuming 5.51 billion eggs sold in a year (459.2 million dozen eggs in FY2016-17), this would result in an average premium of approximately 2.4 cents per egg for the consumer. It should also be noted that producers would be required to fund and absorb or pass on the cost of Option C if implemented being $517.01 million (layer hens only) over 10 years (51.7 million/year)[18] resulting in an estimated premium of approximately 1 cent per egg for the consumer. Therefore, the extra premium to be paid by the consumer for Option D (10) above that which is currently proposed is estimated to be 1.4 cents per egg.

Such a premium is a small additional price for consumers. However, some firms either due to their size or other factors may be unfairly burdened by trying to recover any upfront outlay required to transition away from conventional cage egg production. In such instances, this cost burden could be either fully or partially met by an industry structural adjustment program (or similar). As identified previously, most of the extra cost burden is placed on NSW, Queensland and Victoria. For South Australia, Western Australia and Tasmania the extra cost burden is far less (in absolute terms, not relative terms).

[18] Animal Health Australia (AHA) 2017. 'Proposed Australian Animal Welfare Standards (Poultry): Consultation Regulatory Impact Statement', November 2017 (p.60, Table 24)

Government funded industry packages, particularly federally funded packages, are not uncommon in the agricultural industry which compensates producers for the cost of government decisions in regard to agriculture including:[19]

- *Dairy Structural Adjustment Program Scheme 2000 (DSAP Scheme)*
- *Supplementary Dairy Assistance Program (SDA)*
- *Sugar Industry Reform Package Sugar Industry Reform Programme (SIRP 2004)*
- *Tobacco Grower Adjustment Assistance Package (TGAAP)*
- *Premium Fresh Tasmania Regional Food Producers Innovation and Productivity Program (RFPIPP)*

The Dairy Structural Adjustment Program (May 2000 to December 2008) had a total budget of $1.63 billion.

Types of adjustment package include:

- Industry Restructuring – To make the industry overall more sustainable, can include exit assistance (frequent in agriculture)
- Enterprise assistance
- Labour market assistance
- Inward investment

Financial impact on consumers of phasing out conventional cage eggs

The RIS identifies the retail price of cage eggs (almost all conventional cages) as at June 2016 as being $3.24/dozen; barn laid $4.68; free range $5.40; and specialty eggs $9.24. This equates to $0.27 per egg for cage; $0.39 for barn laid; $0.45 for free range and $0.77 for a specialty egg (e.g. organic).

It is important however to note that the free range egg price includes different stocking densities. Free range eggs from stocking densities of 1,500 birds/hectare are typically more expensive than free range eggs where there is a maximum stocking density of 10,000 birds/hectare. The average shelf price of a free range egg from a 10,000 bird/hectare farm is therefore likely to be closer to $0.40/egg or $4.80 per dozen than $0.45/egg ($5.40/doz.). Indeed, these '10,000 bird' free range eggs are sometimes sold by large supermarkets as low as $4.20 per dozen for a 700g carton and $3.80 per dozen for a 600g carton. Barn laid eggs too are from time to time on special as low as $3.60 per dozen (700g carton) as opposed to $4.68 per dozen.[20]

[19] Beer, Andrew (2014). 'Structural Adjustment in Australia'. Regional Studies Association Conference 2014. Available https://www.adelaide.edu.au/churp/presentations/Beer_-_presentation_for_Izmir.pdf Accessed 10.02.2018
[20] See Appendix B

It is our view that the shelf price of barn laid eggs and densely stocked free range hens (10,000 birds/ha), although not likely to go as low as current cage egg prices, will be only marginally higher as economies of scale, competition and innovation are realised over the 10-year phase out period and regulatory certainty is introduced thereby stimulating new investment, new technologies and improved farming practices. Indeed, as IBIS*World* notes:

> *Larger farms have the greatest total costs but tend to have the lowest per-unit costs. These establishments benefit from cost savings created through economies of scale in production.*[21]

Non-cage farm sizes are typically 'small' (>5,000 – 100,000 chickens) or 'micro' (<=5,000 chickens) meaning economies of scale are likely to be realised in the event of conventional caged egg phase out as farms seek to consolidate with regulatory certainty to maximise profits, leading to likely lower production and shelf prices. It is acknowledged that there are sometimes constraints to doing this e.g. planning controls and availability of land.

The table below provides an estimate of the retail price effect per egg from realised economies of scale and other factors. Understanding the retail price effect per egg is the best way to calculate the financial impacts on individual consumers. While in 2017 per capita egg consumption was 231, this figure is achieved by simply dividing the total number of eggs consumed in a single year by the population of Australia. This is a very crude statistic as the very young and the very old are unlikely to be big egg consumers, some body builders may consume more than 500 eggs per year, while vegans are unlikely to consume any eggs at all.

The aim is to provide an indication of the decrease in retail (shelf) price that is likely to result from egg producers consolidating the number of barn laid and, especially, free range production farms. A reasonable assumption is that a 10 per cent decrease in shelf price for consumers is likely to be achievable due to future economies of scale, innovation and competition in the industry. Furnished cage and speciality/organic egg production is not considered.

Table 6: Likely retail price (rounded) of eggs due to future economies of scale, etc.

Production type	5%	10%	15%	20%
Barn laid ($0.39/egg, 2016)	$0.37	$0.35	$0.33	$0.31
Free range ($0.45/egg, 2016)	$0.43	$0.41	$0.38	$0.36

Source: BG Economics

[21] Ibid.

Table 7: Estimated consumer surplus due to future economies of scale, etc. (10%)

Egg Consumers	Barn laid	Free range
Current cage egg consumers, $0.27/egg	(-) $0.08	(-) $0.14
Current barn laid egg consumers, $0.39/egg	(+) $0.04	(-) $0.02
Current free range egg consumers, $0.45/egg	(+) $0.10	(+) $0.04

Source: BG Economics

Current cage egg consumers

Under Option D with conventional cage-egg phase out, consumers would have the option of purchasing furnished cage eggs, barn laid, free range, or specialty eggs. Assuming a 10 per cent price decrease from economies of scale, innovation, competition and other market forces, this group of consumers would experience a negative consumer surplus (required to pay more for their eggs). For example, purchasing barn laid eggs (next best option) if conventional caged eggs were phased out is estimated to result in an ***additional cost*** of:

- 100 eggs/year purchased: $8.00 ($0.08/egg)
- 200 eggs/year purchased: $16.00
- 300 eggs/year purchased: $24.00

Note – a premium (estimated at 2.4 cents per egg) may also apply due to the costs incurred by egg producers as detailed in the previous section.

Current barn laid egg consumers

Under Option D with conventional cage-egg phase out, consumers would have the option of purchasing furnished cage eggs, barn laid, free range, or specialty eggs. Assuming a 10 per cent price decrease from economies of scale, innovation, competition and other market forces, this group of consumers would experience a consumer surplus (pay less for their eggs). Continuing to purchase barn laid eggs if conventional caged eggs were phased out is estimated to result in a ***cost saving*** of:

- 100 eggs/year purchased: $4.00 ($0.04/egg)
- 200 eggs/year purchased: $8.00
- 300 eggs/year purchased: $12.00

Note – a premium (estimated at 2.4 cents per egg) may also apply due to the costs incurred by egg producers as detailed in the previous section.

Current free range egg consumers

Under Option D with conventional cage-egg phase out, current free range egg consumers would have the option of purchasing furnished cage eggs, barn laid, free range, or specialty

eggs. Assuming a 10 per cent price decrease from economies of scale, innovation, competition and other market forces, this group of consumers would experience a consumer surplus (pay less for their eggs). Continuing to purchase free range eggs if conventional caged eggs were phased out is estimated to result in a ***cost saving*** of:

- 100 eggs/year purchased: $4.00 ($0.04/egg)
- 200 eggs/year purchased: $8.00
- 300 eggs/year purchased: $12.00

Note – a premium (estimated at 2.4 cents per egg) may also apply due to the costs incurred by egg producers as detailed in the previous section.

Conclusion

This report finds that:

- The Consultation Regulatory Impact Statement (RIS) is overly conservative in some assumptions and calculations, particularly in regard to calculating the net market effect of food service and grocery retailers' future decisions to cease serving/selling conventional cage eggs which has a bearing on the cost of Option D.
- The producer cost burden of Option D (10 years, layer hens only) of $1339.18 million over ten years is estimated to result in an average premium of 2.4 cents per egg for the consumer. Option C is estimated to result in a premium of approximately 1 cent per egg meaning that the extra premium to be paid by the consumer for Option D (10) above that which is currently proposed is estimated to be 1.4 cents per egg.
- Current cage egg consumers are likely to experience a cost increase due to cage egg phase out estimated to be 8 cents per barn laid substitute egg. Current barn laid and free range egg consumers are likely to experience a cost saving estimated at 4 cents per egg. These amounts do not include any pass-on producer cost premium which is estimated at an average of 2.4 cents per egg.
- Detailed modelling would be required in regard to all points.

References

Australian Bureau of Statistics (ABS) 2017. '2024.0 – Census Population and Housing: Australia Revealed 2016'. Available http://www.abs.gov.au/ausstats/abs@.nsf/mf/2024.0

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IBISWorld 2017. 'Egg Farming in Australia: IBISWorld Industry Report AO172' September 2017

Attachment A: B1 Laying Chickens, Standards & Guidelines

B1 Laying Chickens[3]

Standards

General standards in Part A also apply to minimise risk to the welfare of laying chickens.

SB1.1	A person in charge must not allow the excreta of laying hens in cages to accumulate to the stage that compromises poultry health and welfare.
SB1.2	A person in charge must ensure multi deck cages are arranged so that the poultry in the lower tiers are protected from excreta from above.
SB1.3	A person in charge must ensure poultry in cages are able to stand at a normal height. Cages must be at least higher than the maximum height of all the poultry standing normally. The height of all cages must be at least 40 cm over 65% of the cage floor area.
SB1.4	A person in charge must ensure that, for useable areas and any area occupied by feeding and watering equipment and nest boxes, on one or more levels ensure that; 1) each level is easily accessible to the hens 2) headroom between the levels is at least 45 cm 3) all levels are accessible to stock workers to observe and reach birds which are sick or injured 4) feeding and watering facilities are distributed to provide equal and ready access to all hens; and 5) levels are sited so as not to foul birds below.
SB1.5	A person in charge must ensure that after the training period, where hens are housed under artificial light, lighting schedules must provide a minimum of 4 hours of continuous darkness in each 24-hour period.

Stocking Densities Cage Systems

SB1.6 A person in charge must ensure that all caged laying chickens weighing less than 4.5 kg live weight have the following minimum acceptable space allowances:

Birds per cage	Minimum cage floor area per bird
3 or more birds (<2.4 kgs) per cage	550 cm²
3 or more birds (>/= 2.4 kgs) per cage	600 cm²
2 birds per cage	675 cm²
Single bird cages	1000 cm²

[3] Laying chickens include birds (*Gallus gallus*) being reared and managed for table egg production, but do not include birds being reared and managed for purposes of breeding laying chickens (see Part B3)

NB: Floor area is measured in a horizontal plane and includes the area under the egg/waste baffle and the area under the drinking nipples and vee-trough for water.

Maximum acceptable live weight density for rearing laying pullets is 40 kg live weight per m^2 cage floor area.

SB1.7 A person in charge must ensure that all laying chickens weighing 4.5 kg or more live weight do not exceed the following stocking densities:

Birds per cage	Maximum live weight per unit of floor
3 or more birds per cage	46 kg/m^2
2 birds per cage	40 kg/m^2
Single birds cages	26 kg/m^2

NB: Floor area is measured in a horizontal plane and includes the area under the egg/waste baffle and the area under the drinking nipples and vee-trough for water.

Maximum acceptable live weight density for rearing laying pullets is 40 kg live weight per m^2 cage floor area.

Stocking Densities Non – Caged Systems

SB1.8 A person in charge must not exceed a stocking density of 30 kg/m^2 (measured as bird density in the useable area) for rearing laying pullets and for managing adult laying chickens.

SB1.9 A person in charge must provide nest boxes for layer hens in lay in non-caged systems.

Guidelines

General guidelines are also recommended in Part A to minimise the risk to the welfare of laying chickens.

GB1.1 The slope of the floor should not exceed 8 degrees. Where mesh flooring is used, the mesh size should be less than 25 mm x 25 mm.

Lighting

GB1.2 The lighting system should provide a minimum period of 8 hours continuous artificial or natural lighting per day and a minimum period of 7 hours continuous darkness (with all lights off) to be provided at night, in every 24-hour period. The exception to this is during extreme heat where feeding birds during cooler parts of the day may be required to reduce the risk to their welfare.

GB1.3 The light intensity measured at bird head height across the laying facility, during the light period, should be at least 10 Lux.

Litter

GB1.4 For tiered systems, unless the poultry can access outdoor areas the litter area should provide sufficient space to allow at least one third of the flock to forage and dust-bathe at any one time.

GB1.5 When using litter poultry should be given continuous access to litter as soon as possible but no later than 3 weeks following placement allowing for a period in which to train birds to use the nests.

Nest boxes

GB1.6 Where nests are provided, there should be a sufficient number of appropriately-sized nests for the strain and number of hens in each group.

GB1.7 Hens should be provided with a minimum of one single nest for every 7 birds or 1m² nesting box area for every 120 birds.

GB1.8 Nest boxes should be enclosed and provide a suitable floor substrate to encourage nesting behaviour.

GB1.9 Nest box flooring should not consist of wire or plastic-coated wire.

GB1.10 Nest boxes should be kept clean and operational.

GB1.11 Where used during nest box training, nest box lighting should:

- only be turned on in the morning
- be turned off in the afternoon
- not be used once birds have learnt to lay in the nest.

GB1.12 Where electric wires are used along walls and corners to prevent floor eggs, these should:

- only be turned on in the morning during nest box training
- be turned off in the afternoon
- not be used once birds have learnt to lay in the nest.

GB1.13 Where a large number of floor eggs are found, efforts should be made to identify if there is a problem with the nest boxes, and to rectify the problem if possible.

Perches

GB1.14 Perches should be provided at all times.

GB1.15 Perches should be provided at not less than 15 cm per bird unless a producer is able to demonstrate that this would obstruct movement of birds and people throughout the laying facility in which case no less than 7.5 cm per bird is permitted.

GB1.16 Perches should be constructed and positioned to:

- be raised above and not flush with floor areas
- allow birds to access them
- allow birds to stand in a normal posture
- provide a comfortable support for the bird's feet and keel bone
- minimise the risk of injury

- prevent vent pecking by birds below and/or behind
- minimise soiling of birds below.

Veranda

GB1.17 Birds should be given access to the veranda as soon as possible but no later than 3 weeks following placement allowing for a period in which to train birds to use the nests.

GB1.18 The veranda should be designed and constructed to provide shade, natural light and good airflow.

GB1.19 The usable floor area of the veranda should provide sufficient space to allow at least one third of the flock to forage and dust-bathe at any one time.

GB1.20 The roof of the veranda should be waterproof.

Outdoor Area

GB1.21 Birds should at least have daily access to the outdoor area immediately after the egg-laying period. The exceptions to this are during unsuitable weather conditions, while training birds to use the nests, under direct veterinary advice, during treatment specified in the Veterinary Health Plan, or on the day of depopulation.

GB1.22 A daily record specifying the date and times of access to the outdoor area should be kept.

GB1.23 At least 8 m^2 of natural and/or artificial overhead shade/shelter per 1000 birds should be provided and distributed across the outdoor area.

GB1.24 Birds should be observed to be using shade/shelter structures and action taken to modify facilities if use is deficient.

GB1.25 Feed and drinking water should not be provided in the outdoor area.

GB1.26 The opening that provides access between indoor and outside areas (pop hole) should be at least 35 cm high and 40 cm wide with a combined total width of all openings being 2 metres for each 1,000 birds.

Colony Cages

GB1.27 A colony cage height should be at least 45 cm other than in the nest area.

GB1.28 A scratching area should be provided in colony cages.

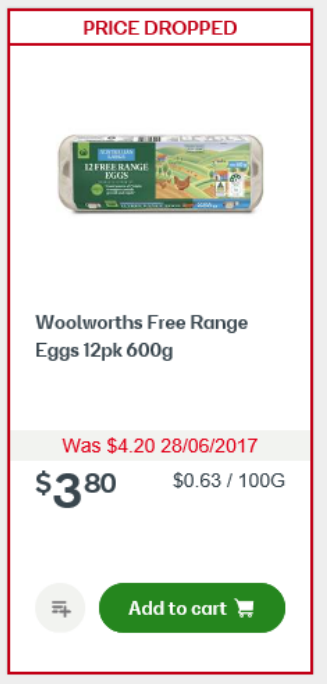
GB1.29 Suitable claw shortening devices should be fitted in colony cages.

GB1.30 The scratch pad area should be sufficient to allow all poultry to exhibit foraging behaviour.

GB1.31 All hens in colony cages should have access to dust-bathing material.

Attachment B: Cage free egg prices (various) as at 15 February 2018

Coles (free range)



Woolworths (free range)

Woolworths (barn laid)