SUSTAINABILITY FRAMEWORK REPORT 2019

Australian eggs

Australian Eggs is a member owned not-for-profit company providing research & development, marketing and industry information services. Working together with the egg industry and the Australian Government, Australian Eggs strives to deliver value to industry and the public by investing in programs that increase consumption and ensure industry sustainability. Programs are funded through statutory levies and Australian government funds for the purposes of approved R&D.

Throughout this report there are links to video content which are accessible using a **QR code reader**.

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SUSTAINABILITY FRAMEWORK REPORT 2019

Introduction

This report completes the first annual cycle of the Australian Egg Industry Sustainability Framework.

The process was commenced in April 2018 to provide for productive engagement with the Australian community and to guide ongoing industry improvement.

The Sustainability Framework reflects the Australian egg industry's objective of farming eggs for Australians in a manner that is socially, environmentally and economically responsible.

This is done by ongoing improvement and engagement to ensure high standards of food safety, hen welfare and biosecurity are maintained and evolving community expectations of the industry are met.

The backbone of the Sustainability Framework was the CSIRO community research process conducted between May and October. The CSIRO community survey process was undertaken to inform the egg industry of community attitudes and identify pathways to building greater community trust.

Sustainability is broad and we wanted to ensure the Australian egg industry was directed toward the issues of greatest relevance to the community.

The research process received a strong response and identified priority issues for the industry to pursue.

Through this report, Australian Eggs seeks to further engage the community on those priority issues. By providing information and context, the public will be able to better understand the nature of these issues and the steps being taken to address them.

It is hoped this process will draw both the community and industry towards a common understanding and encourage people to provide input in subsequent cycles of the Sustainability Framework.

Sustainability Framework process

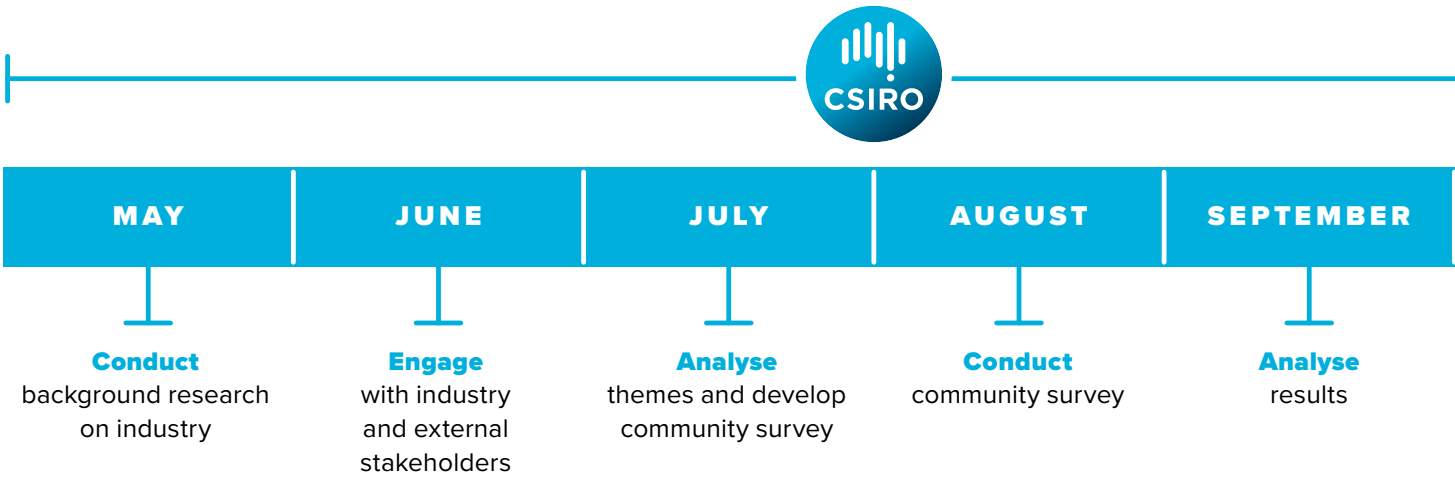
The Sustainability Framework seeks to give meaning to the Australian egg industry's objective of farming eggs for Australians in a manner that is socially, environmentally and economically responsible.

In broad terms, the Sustainability Framework process involves:

- tracking of public views on the impacts and contributions of the egg industry to identify issues of interest to the public;
- engaging genuinely with the public on issues of interest to correct misconceptions and acknowledge residual concerns;
- demonstrating how the egg industry is addressing issues of interest and applying international best practice on hen welfare, food safety and biosecurity; and
- reporting transparently on industry progress in key areas.

To put this process to effect, Australian Eggs obtained the assistance of leading independent social science researchers at the CSIRO. Using the CSIRO was intended to demonstrate Australian Eggs' commitment to a process of genuine community engagement. Their research team provided the expertise required to drive the project and the credibility of an independent organisation operating under a strict governance framework.

Working with the CSIRO, Australian Eggs developed an annual cycle of activity to ensure that the process was effective and transparent. Full details of these steps are available on the Australian Eggs website and an outline can be seen in the timeline below.



Rowan McMonnies

'People are increasingly interested in where their food comes from and the Sustainability Framework is a practical way to engage with the community on important sustainability issues'

ROWAN MCMONNIES – MANAGING DIRECTOR, AUSTRALIAN EGGS.

Australian eggs

OCTOBER	NOVEMBER	DEC / JAN	FEBRUARY
Share research outputs	**Engage** Industry on research outputs	**Develop** Sustainability Framework Report	**Release** Sustainability Framework Report

Highlights

Egg industry **commitment** to sustainable egg farming

CSIRO stakeholder **consultation**

CSIRO **research** on community views

Identification of issues to progress

Actions to drive ongoing improvement

NUTRITION
Research to improve contribution to human health

TRANSPARENCY
Engage with the public on farming practices

NATURAL BEHAVIOURS
Explore relationship between natural behaviours, hen experiences and community values

CARBON FOOTPRINT
Assess viability of renewables across production systems

ANIMAL HUSBANDRY
Expand husbandry training programs for farm workers

RISK MANAGEMENT
Develop enhanced risk assessment and management tools

Industry Committee

Australian Eggs uses levy funds and commonwealth contributions to provide R&D, marketing and industry information services to the egg industry and the public. The Australian Egg Industry Sustainability Framework has been undertaken as a service to the industry.

Australian Eggs is not a farming business or a representative body for egg farmers and it was important that the Sustainability Framework process was conducted with the support of egg farmers.

To achieve this, Australian Eggs formed the Sustainability Industry Consultative Committee which comprises a group of prominent egg farmers.

The Sustainability ICC is made up of large and small egg farmers from each state, as well as a delegate from the national egg industry representative body, Egg Farmers of Australia. EFA has a federated structure and its activities are guided by state-based egg industry representative bodies.

Members of the Sustainability ICC are:

Paul Pace, Pace Farm, NSW

Kent Antonio, McLean Farms, QLD

Anne Andary, Days Eggs, SA

Ian Wilson, Bodalla Eggs, WA

Phil Szepe, Kinross Farm, VIC

John Coward, Egg Farmers of Australia

John Coward

'Working through this review will provide the framework for us to continually improve our industry.'

JOHN COWARD – EGG FARMERS OF AUSTRALIA.

Egg industry sustainability

The Australian Egg Industry Sustainability Framework sits within a global sustainability movement committed to social inclusion, environmental sustainability and economic development.

Global organisations, led by the United Nations have spent decades developing a plan for action to guide improvement by nations, industries, businesses and individuals. These Sustainable Development Goals have been adopted by Australia and our trading partners to form a touchstone for sustainability initiatives globally.

The Sustainability Framework is a process for exploring how the egg industry can best contribute to the Sustainable Development Goals by defining what is socially, environmentally and economically responsible in the context of egg farming.

It does this by driving informed consideration of issues that:

- are important to the public and other industry stakeholders;
- reflect the impacts and contributions of the Australian egg industry; and
- can be progressed by egg farmers.

The priority issues that are the focus of the Sustainability Framework have been informed by the community research process conducted by the CSIRO. These priority issues are not intended to be comprehensive and the egg industry will continue to pursue a broad range of additional issues that impact sustainability, such as food safety and anti-microbial stewardship.

The Australian Egg Industry Sustainability Framework links to the Sustainable Development Goals in the areas highlighted below.

About the egg industry

As an Australian household staple, eggs are an important source of nutrition for the vast majority of people. Australians eat 17 million of them every day and egg farmers work around the clock to supply a range of eggs and egg products to suit everyone.

Egg farms are spread across Australia and farmers sell to a variety of markets, including retailers, wholesalers, food service establishments and food manufacturers. The industry is largely domestic-focused and only a very small volume of eggs is exported, mainly to South East Asia.

The egg industry is made up of a diverse range of businesses, from large vertically integrated farms that control rearing, production, grading, packing and transportation, to very small-scale farms that sell to local markets.

There are three main egg farming systems used in Australia: free range, cage and barn-laid (also called cage free). Free range egg production has grown significantly over the last 15 years and now makes up the largest grocery retail segment. However, there remains strong demand for cage and barn-laid eggs as an affordable source of high-quality protein.

Supermarket egg sales by volume (2018)

Free range **45%**

Cage **44%**

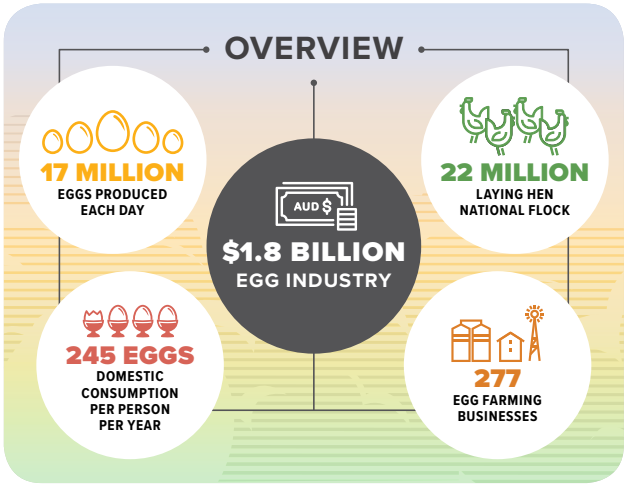
Barn-laid **9%**

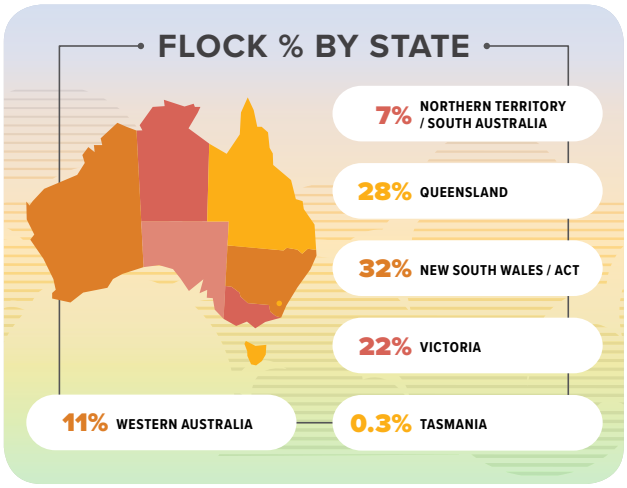
Specialist **2%**

Quality assurance

The industry's ability to provide consistently high quality eggs from well-run farms is the result of experienced and dedicated farmers who are committed to quality assurance.

Egg Standards of Australia (ESA) is the egg industry's national quality assurance program and it provides a comprehensive set of compliance standards for farmers to meet.





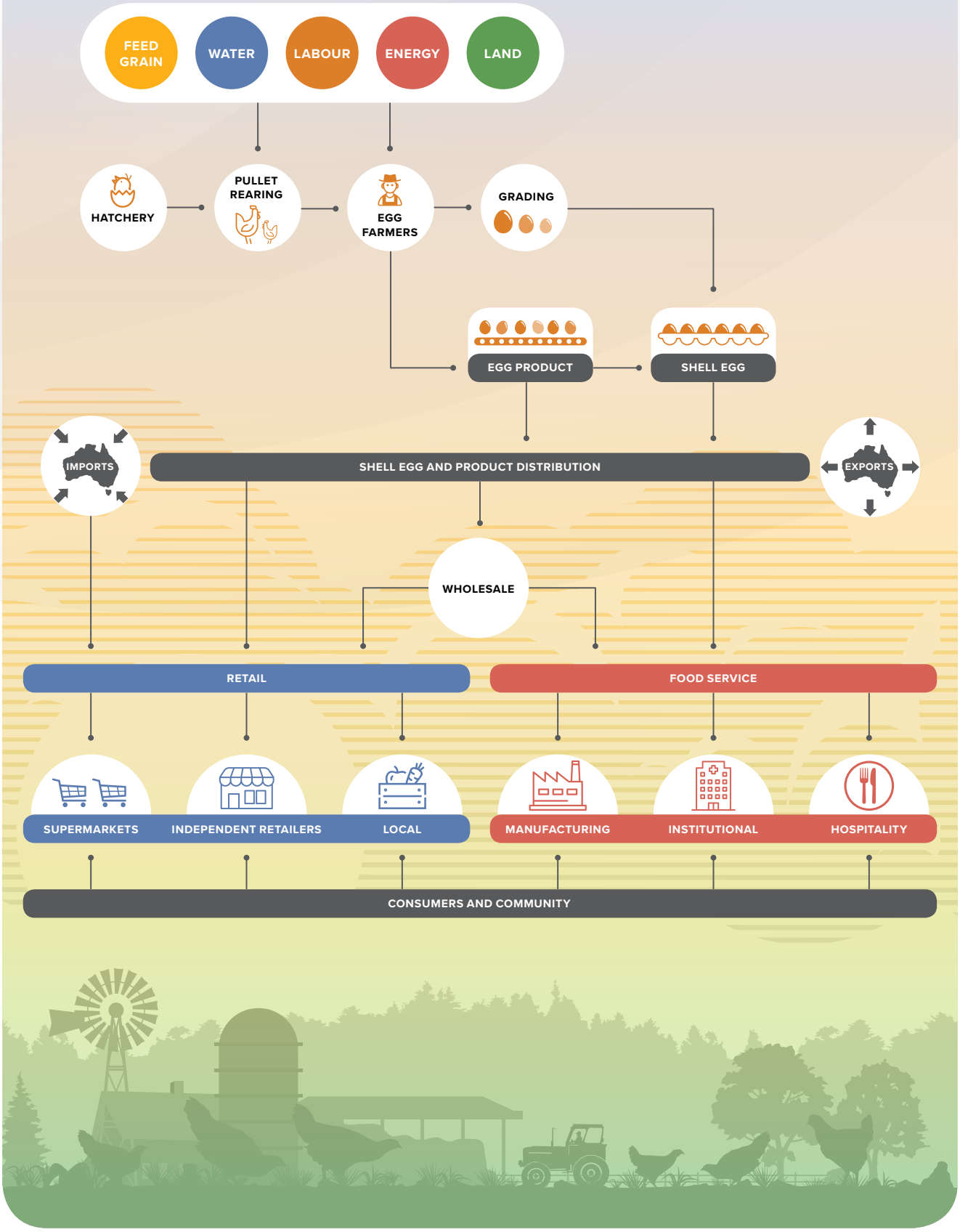
ESA assists egg business to:

- minimise food safety risks;
- achieve high animal welfare standards;
- manage biosecurity risks;
- minimise the risk of eggs being mislabelled; and
- ensure the production and delivery of consistent product.

The comprehensive set of standards was developed in-line with national retailer and regulatory requirements and audits are carried out by independent, third party auditors.

ESA accredited egg farms currently have more than 80 percent of the national flock.

EGG PRODUCTION & SUPPLY



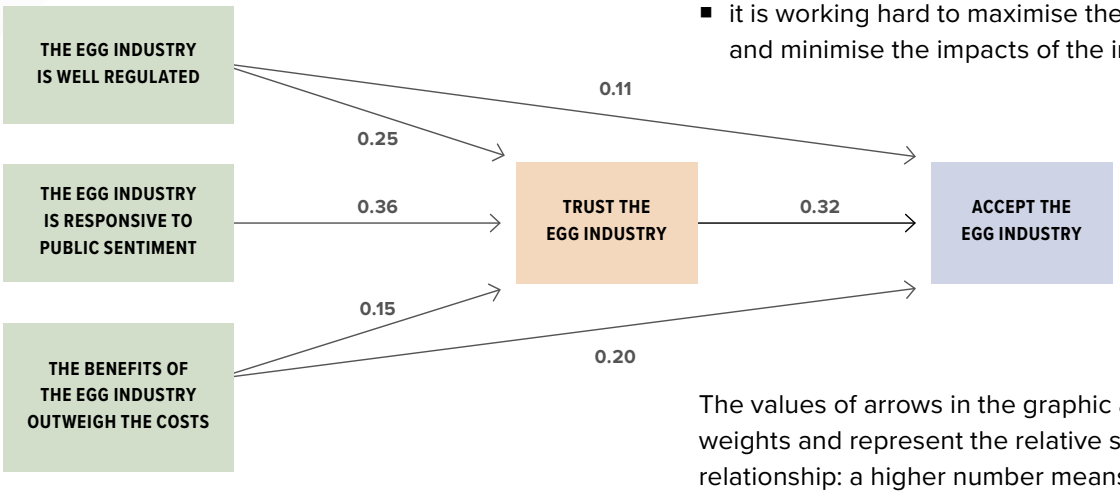
CSIRO research outputs

The key conclusions of the CSIRO research outputs were that Australians view the egg industry as:

- making a positive contribution in terms of being an affordable, nutritious staple in the Australian diet, as well as making a positive economic contribution; and
- having impacts in terms of animal welfare, environmental management and the provision of accurate information about the industry.

The CSIRO research outputs also identified pathways to building deeper community trust, as set out in the graphic below. The practical impact of the CSIRO findings are that the egg industry must demonstrate:

- responsiveness to community sentiment by working to maintain contributions and minimising impacts;
- the manner in which the egg industry is regulated and that it supports the development of appropriate regulation; and
- it is working hard to maximise the contributions and minimise the impacts of the industry.



The values of arrows in the graphic are called beta weights and represent the relative strength of each relationship: a higher number means that pathway is stronger than one with a lower number.

Dr Kieren Moffat addressing CSIRO research program

'My job is to understand the nature of the relationship between industries and the social context in which they operate.

DR KIEREN MOFFAT

The CSIRO research program involved collecting surveys from two samples of Australians: a representative sample taken from a large, nation-wide research panel and an open sample of Australians that completed the survey through a public link on the project web page. These samples comprise different groups of people. While the representative sample was designed to be representative of the Australian community on key demographic characteristics, the open sample mainly comprised a group of highly engaged Australians that are passionate about animal welfare.

Due to its representative nature, Australian Eggs has focused on the CSIRO research outputs on the representative sample as the key input to the Sustainability Framework Report. However, Australian Eggs has also considered the responses to the open sample and will use these insights in developing its public engagement activities.

Priority issues

Australian Eggs' response to the CSIRO research outputs is to pursue the priority issues issues set out below under each key focus area of the Sustainability Framework.

These were selected as the most relevant issues to pursue as they were identified in the CSIRO research report as being important to the community. The 10 priority issues also reflect the egg industry's primary impacts and contributions and are able to be practically progressed.

Lives of people

Contributing to the Australian community through the provision of a nutritious, staple food.

Food security

Nutrition

Industry transparency

Hen welfare

Farming in a way that aligns with community expectations.

Living conditions of hens

Natural behaviours

Animal husbandry

The remaining sections of the Sustainability Framework Report address these priority issues by:

- providing relevant context;
- identifying progress to date; and
- identifying opportunities for further improvement.

The information provided is intended to strike a balance between being engaging to the broader community as well as being insightful. The objective is to create a common understanding of the context of each priority issue so opportunities for improvement can be identified and tracked through to a practical setting.

Environmental impact

Preserving natural resources and minimising long term impacts on environmental systems.

Carbon footprint

Land management

Economic viability

Having the economic resilience to profitably deliver outcomes of value to the community.

Egg farm profitability

Risk management

Lives of people

Contributing to the Australian community through the provision of a nutritious, staple food.

Food security

The CSIRO research report showed Australians consider eggs to be an important staple food. Eggs are readily available because the industry is able to:

- Produce the required volume of eggs, currently 17 million each day; and
- Manage risks to reliability, namely biosecurity risks.

The scale and capacity of the industry would come as a surprise to many Australians. While there is a spectrum of egg farms from small to large, it is the small number of very large farms that produce the majority of eggs consumed in Australia. These cage, barn and free range farms involve networks of large sheds that are often linked by conveyor belts to central grading floors. It is only when visitors stand in expansive cool rooms amongst towers of egg pallets that it becomes clear that the egg industry is not a cottage industry and that the existing industry capacity requires high technology intensive farming to meet demand.

In terms of managing biosecurity, the key risk is high pathogenic avian influenza. The relevant forms of bird flu are generally not a risk to humans but are difficult to detect and can move very quickly to wipe out entire flocks of laying hens. There have been recent outbreaks in the US and South Korea in which tens of millions of hens have succumbed to avian influenza, creating immediate egg shortages and having a substantial impact on farm businesses, food manufacturers and consumers.

Biosecurity is managed through protocols including buffer zones, limiting movement between farms and hygiene practices such as disinfecting visitors and vehicles. These practices are generally effective but cannot eliminate the risk of avian influenza or other disease outbreaks as they can be transferred through the movement of wild birds. It is here that the diversification of the industry is important. While a small number of very large farms might be the most efficient way to produce eggs, having a range of large, medium and small farms reduces the risk of a biosecurity incident resulting in supply shortages.

Progress

The egg industry is constantly investing in biosecurity protections both as an industry initiative and as part of an agriculture sector-wide effort to maintain Australia's high biosecurity standards.

This includes conducting mock avian influenza outbreak exercises to ensure a rapid and effective response can be relied upon to minimise the impact of any future incidents. Projects are also currently underway to investigate drivers of biosecurity engagement by egg farmers in Australia and approaches for improving adherence to protocols in the future.

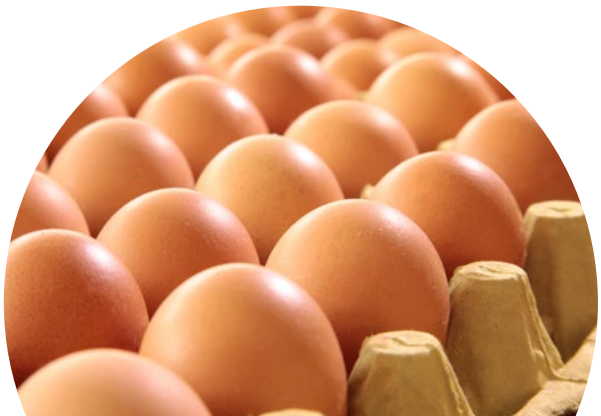
Importantly, strict biosecurity protocols form part of the egg industry quality assurance program, Egg Standards Australia. This ensures that compliance with protocols are part of an audit process by independent certification bodies to drive compliance and minimise industry risks.

Nutrition

As a natural whole-food, the nutritional benefits of eggs are generally recognised. Eggs are recommended as part of a healthy diet as they contain high quality protein and a range of nutrients that benefit individuals directly, as well as being linked to healthy eating habits more broadly.

The benefits of eggs as a staple food are significant but not fully understood and the dynamic nature of public health issues presents new opportunities for eggs to contribute to specific health problems.

There is also the potential for eggs to be used proactively to address public health issues by supplementing the feed provided to hens to improve the nutrition profile of eggs. This would need to be approached in step with health policy makers to maintain community understanding and support.



Progress

The egg industry is working towards a deeper understanding of the nutritional benefits of eggs through a range of programs.

A comprehensive nutritional analysis of eggs was recently completed to update previous data obtained in 2007. This analysis confirmed that the basic nutrition profile of eggs had not changed substantially but did identify a significant increase in Vitamin D as a result of improved testing technology. This is an important link given vitamin D deficiency is a significant public health issue in Australia.

The industry is also exploring how the significant choline levels in eggs relate to research about the importance of choline to foetal brain development.

Industry transparency

There is substantial community interest in the egg industry and many voices offer information and perspectives on industry issues. This includes egg farmers, egg industry bodies, government bodies, retailers and non-government organisations. Each of these organisations has relevant information in relation to the industry and a perspective in relation to that information.

Part of Australian Eggs' role is to provide egg industry information to the community and our goal is to be the leading source of credible information about the egg industry. As Australian Eggs also provides marketing services, it is tempting to only focus on the positives with a view to driving egg consumption. However, we see this as counterproductive to our end-goal of increasing industry sustainability. Consistent with the Sustainability Framework, Australian Eggs' approach is to provide balanced information on both the contributions and impacts of the industry. It is hoped this will put the community in a position to better understand the context of egg farming and allow people to form their own views.

Progress

All About Eggs is a Kindergarten to Year 10 education program that provides lesson plans and resources for teachers to engage students across multiple syllabuses, covering food technology, health and nutrition, recipe development and environmental sustainability.

The Learn About Egg Farming area of the Australian Eggs website provides a wide range of information about egg farming and the egg supply chain. More than 15,000 users visited these pages in 2018, with each person spending an average of four minutes viewing the content.

Australian Eggs is active on social media and regularly distributes video content showing different aspects of egg farming. Videos about the different egg production systems, quality assurance, research and development projects, and profiles of Australian egg farmers were shared with the public in 2018. Through Facebook alone, these videos had a combined reach of over seven million people.

Opportunities

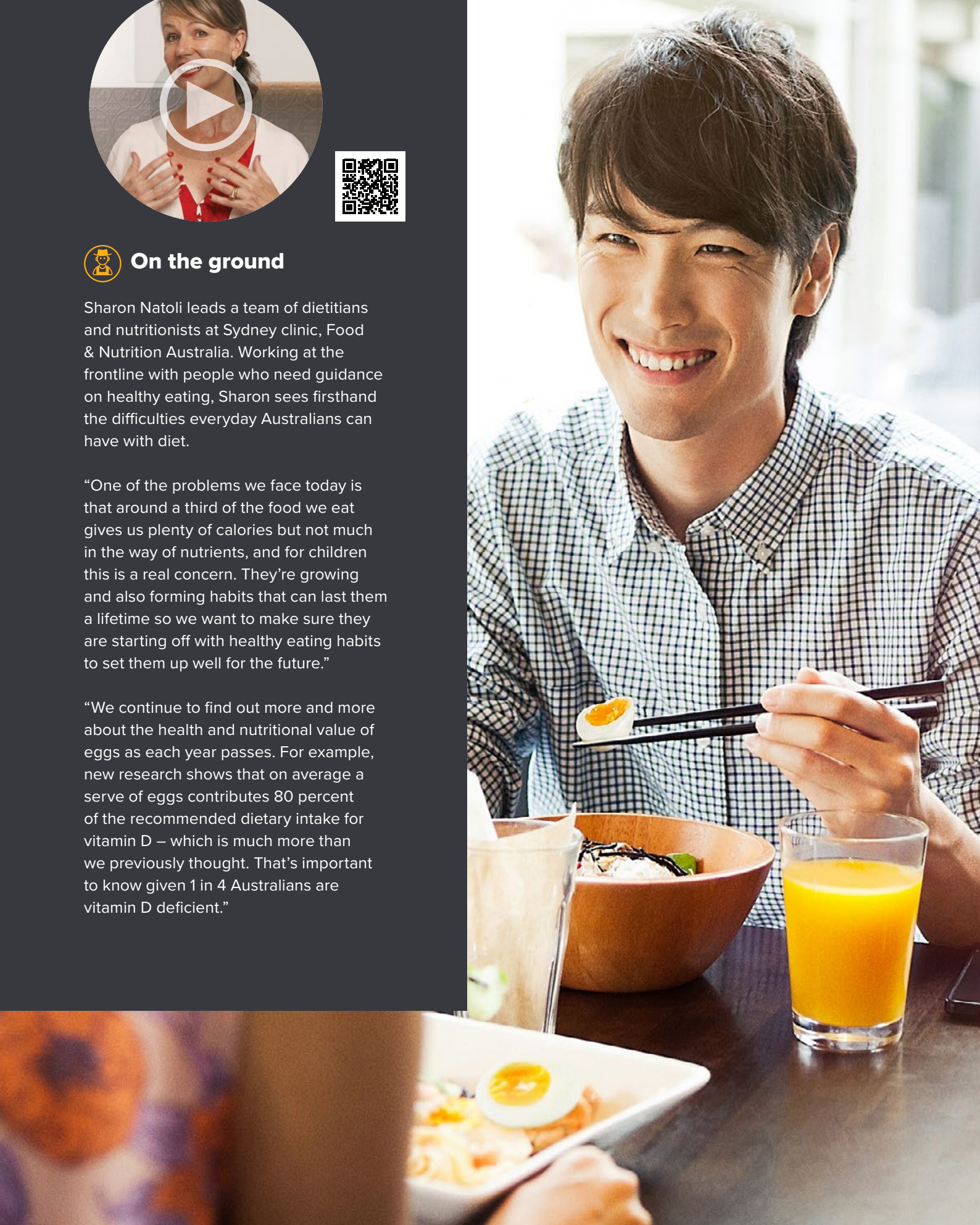
- **Assessment of biosecurity risks and protocols for industry-wide adoption**
- **Human nutrition research to better understand how eggs can contribute to human health**
- **Public engagement on key aspects of the egg industry**

On the ground

Sharon Natoli leads a team of dietitians and nutritionists at Sydney clinic, Food & Nutrition Australia. Working at the frontline with people who need guidance on healthy eating, Sharon sees firsthand the difficulties everyday Australians can have with diet.

“One of the problems we face today is that around a third of the food we eat gives us plenty of calories but not much in the way of nutrients, and for children this is a real concern. They’re growing and also forming habits that can last them a lifetime so we want to make sure they are starting off with healthy eating habits to set them up well for the future.”

“We continue to find out more and more about the health and nutritional value of eggs as each year passes. For example, new research shows that on average a serve of eggs contributes 80 percent of the recommended dietary intake for vitamin D – which is much more than we previously thought. That’s important to know given 1 in 4 Australians are vitamin D deficient.”



Hen welfare

Farming in a way that aligns with community expectations.

Living conditions of hens

Hen welfare was the main issue of interest and concern identified in the CSIRO research findings with responses strongly indicating the community cares how their eggs are produced. This tracks closely with the high level of community interest in cage egg production and the long term trend towards free range egg consumption.

The egg industry has responded to these trends by substantially increasing free range capacity in step with consumer demand over the last 15 years. The industry continues to produce cage eggs because there remains substantial demand for them. While free range and barn-laid continue to increase, there is insufficient demand for eggs from these systems for the industry to switch all of its production.

There are objective welfare trade-offs between cage systems and systems that involve less confinement. However, these factual considerations are often not engaging to members of the community. The CSIRO research outputs confirm this, indicating that Australians tend to form their views on the living conditions of hens based on their values. Some people look at hens in a cage system and consider it acceptable for animals to be confined in a farming context. Others consider it unacceptable.

It is these different perspectives that drive the CSIRO research findings that there are two significant groups within the Australian community: those that consider the price of eggs to be the most important consideration and those that consider price to be least important. The egg industry considers both of these perspectives to be valid because the industry exists to serve the whole community and there is nothing to be gained by dismissing a popular perspective.

Progress

The most significant progress has been the expansion of alternative production systems in response to consumer demand. Over the past ten years cage egg production has reduced from approximately 77% of the national flock to approximately 50% and free range production is now the largest segment in supermarkets with approximately 45% of total volume.

The egg industry has sought to contribute to debates around cage egg production by conducting research to inform consideration of welfare issues. This includes measuring the stress levels of hens in different production systems based on the level of corticosterone hormones found in eggs from hens in each of cage, barn and free range systems. Although this is only one indicator of hen stress, the research indicated there was little difference in stress levels of hens across production systems.

The egg industry has also taken steps to increase transparency on egg production systems to enable the community to form views on hen living conditions. This includes Australian Eggs undertaking public engagement activities that demonstrate the nature of each production system as well as egg farmers opening their farms to visitors.

Natural behaviours

Natural behaviours are those that an animal commonly engages in when able to do so. Natural behaviours can be taken to be either a positive experience for that animal (for example, hens naturally flock, forage and dust bathe) or a negative experience (for example, pecking the feathers of other hens or smothering).

In the past, ensuring positive natural behaviours was not a strong focus of animal husbandry in agriculture industries. Approaches to animal welfare were generally built around the impact of a farming system on the biological function of farm animals to determine acceptable welfare outcomes. This approach is still valid but

has been supplemented by new perspectives on animal welfare which relate to the extent to which animals have positive and negative experiences. This development has been driven by changes in community expectations about the importance of animal welfare.

Progress

The egg industry recognises the increasing community interest and concern in relation to hen welfare and is working to bring these values to a practical commercial setting. To achieve this, research will be required to better understand and measure welfare outcomes and accurate information will be required to understand the relationship between different aspects of hen welfare.

This includes taking steps to understand emerging perspectives on animal welfare in circumstances where they can be contentious. A recent study sought to bring some clarity to this area by considering animal welfare policy and assessment frameworks. One of the key conclusions was individual values play a role in forming views on animal welfare. This has provided important guidance to the egg industry in planning ways to progress consideration of hen natural behaviours and welfare issues more broadly.

The egg industry is also progressing ways to better understand and measure the impact of farming practices on hen welfare. Recently commenced research seeks to progress the difficult area of measuring the affective state of hens in terms of both positive and negative experiences. This research seeks to use developments in human and animal health to explore whether micro RNA biomarkers could allow hen welfare to be objectively measured.

Animal husbandry

Good animal husbandry is driven by two factors: the quality of the farmer and the animal husbandry practices used.

Egg farming requires dedication as the constancy of the process requires flocks and systems to be checked and then checked again to ensure that a problem has not arisen. Importantly, a commitment to good husbandry is critical to success in egg farming and farm managers that do not display dedication and intuition for finding and solving problems do not last long. That said, entry by inexperienced farmers and the movement of staff over time creates a real challenge in maintaining trained farm managers that can consistently perform to a high standard.

Animal husbandry practices are used to resolve ongoing production issues and are undertaken in a manner that minimises the pain, stress or injury to hens. Animal husbandry practices such as beak trimming and the disposal of male chicks can be the subject of concern as they can involve trade-offs between different aspects of animal welfare and sometimes require egg farmers to make difficult choices to arrive at the best possible welfare outcome.

Progress

The practice of beak trimming can be controversial as it involves removing the tip of a hen's beak. Beak trimming is done to manage the negative natural behaviour of feather pecking. Hens can peck for a range of reasons from curiosity to dominance and the problem tends to arise in large flocks where it is more difficult for hens to establish a recognised social order (commonly referred to as the pecking order).

To address this, chicks are given a laser treatment which deadens and removes the tip of the beak. This allows the beak to grow back without the natural sharp hook that causes damage when feather pecking occurs. In most cases this single treatment is effective for the life of the hen.

It is currently unavoidable that male chicks are hatched as part of breeding layer hens and as they are not productive and are produced in large numbers they have to be euthanised. In the past, this was done through maceration that acts quickly to minimise pain to the chick but this created controversy as it provided awful and confronting imagery.

This euthanising process is now supplemented with carbon dioxide gas so chicks are unconscious before maceration. It is hoped that research being conducted internationally into chick sexing will provide opportunities to avoid this process entirely in the near future.

On the ground

As the Livestock Manager at Pure Foods in Longford, Tasmania, John Sattler is responsible for the well-being of 150,000 laying hens.

Over a 33 year career, he has seen the egg industry modernise to a point where technology now assists everything from egg collection to manure removal and feed, water and climate control.

Good hen welfare means caring for the birds and it starts with rearing good quality chicks in special rearing sheds. Days 1-7 are particularly important for the chicks and that's when John and his team put in the maximum effort.

He says there's a reason behind every decision that gets made on-farm and it's important to understand the context. "They're not pets, they're livestock, but we care for them all as individuals and as a flock," John says.

"If you can affect the hen behaviour you get an extremely good welfare outcome for the birds and a very good economic outcome for the farm."

Opportunities

- **Provide greater transparency on the living conditions of hens**
- **Explore the relationship between natural behaviours, hen experiences and community values**
- **Invest in consistently high welfare outcomes through training**

Environmental impact

Preserving natural resources and minimising long term impacts on environmental systems.

Carbon footprint

All industries have environmental impacts and for the egg industry, the key impact is energy use. The greatest advancement in animal welfare in the past 20 years has been the introduction of climate controlled sheds to protect flocks from harsh climatic conditions. The consequence of this has been an increase in electricity use. Still, the egg industry has a low carbon footprint compared to other protein sources, with cage egg production using slightly less energy than barn and free range systems.

Sharp increases in electricity costs in recent years have provided strong incentives for egg farmers to explore alternative sources of energy. In particular, high electricity transmission costs to remote areas have made establishing large scale solar energy generation viable for a number of large egg farms. It could be expected that as the cost of solar technology continues to fall and efficiency increases there will be further opportunities to transition the industry towards renewable energy.

Carbon footprint is based on inputs sourced off-farm as well as energy used on-farm and the primary input for the egg industry is feed grain. While the grains industry operates at scale and is highly efficient, the transport of grain increases this impact. Transport costs and distances are largely beyond the control of the egg industry but the ability to minimise grain usage is a major focus. Feed efficiency can have a significant impact on carbon footprint, flock health, and productivity and is therefore an important area of focus as the egg industry continues to expand free range production that is generally less feed efficient than cage systems.

Progress

Two studies have been conducted on energy use in the Australian egg industry: a full supply chain life cycle assessment and an energy efficiency study of farms. This work determined that feed production makes up around three-quarters of energy use across the whole supply chain and on-farm energy use across bird housing, feed milling and egg grading is the second largest component.

A major project currently underway is investigating the factors that drive poor feed efficiency in flocks of hens, such as metabolic variation and body composition.

The research will provide important information on the physiology underpinning feed efficiency, as well as the influence of a range of husbandry and nutrition approaches on flock performance.

Solar is the most mature of the renewable energy opportunities and significant investment is happening across the egg industry. Solar installations at egg farms with a combined capacity of 7000 kilowatts have been completed over the last two years, equalling approximately 10,000 tonnes of carbon offset, the equivalent of 2,000 cars taken off the road for a year.

An assessment of biogas energy generation found the energy potential of layer manure is moderate and overall manure volumes are sufficient to produce more electricity than is required for on-farm activities. At least one biogas facility has already been established at an Australian egg farm.

Land management

Egg farmers have the ability to positively or negatively impact the environment through land management practices, and for the most part, the industry makes a positive contribution.

The main focus of land management is in the growing free range segment where extensive ranges are required. Hens are naturally destructive of the environment through scratching and foraging behaviour and it is very difficult to maintain pasture or cover of any kind immediately outside free range sheds.

Beyond this, egg farmers face the challenge of enticing hens onto ranges where they can be exposed to high temperatures across the day and predators. This process can be assisted through tree cover and new free range farms usually involve tree and shrub planting on range areas. The success of new plants is far from guaranteed and the industry is experimenting with resilient plant species that have the ability to withstand a range of climates and hen behaviour.

Progress

Egg Industry Environmental Guidelines updated and republished in 2018 incorporate the latest scientific knowledge on key environmental issues affecting the egg industry. The Guidelines give egg farmers the necessary information to improve their environmental management practices as well as assisting in the establishment of new farms or expansion of existing operations.

A resilient plants research project currently underway is identifying vegetation suitable for free range layer farms across different soil types and rainfall patterns. A guideline package will be developed for free range egg farmers on what, when and how to plant, as well as strategies to manage plants on farm.

Opportunities

- **Assess the viability of renewable energy across farming contexts**
- **Explore opportunities to increase feed efficiency**
- **Support improvements in range management**

On the ground

Pace Farm has invested $3.2 million in three large-scale solar projects across their New South Wales farms over the last 18 months. The annual output across the three sites is 2.7 million kilowatt hours (kWh) – enough to power more than 400 homes.

The solar system at their Wattle Ridge Farm in West Wyalong is 927 kilowatts in size and has an annual output of 1,428,000 kWh. Solar is a particularly effective source of energy for egg farms as the size and timing of daily peak demand mirrors peak energy production as more energy is used to cool sheds during the middle of the day.

Solar installer, Todae Solar, has rolled out more than 7MW of installation across the egg industry over the last three years. “The egg industry is switching to solar in a big way and that’s good for the environment, it’s good for their competitiveness and ultimately good for consumers as well,” says Landon Kahn from Todae Solar.

Economic viability

Having the economic resilience to profitably deliver outcomes of value to the community.

Egg farm profitability

Like any business, egg farms need to be profitable in order to be sustainable. While the process of egg farming has a constancy to it in terms of input costs and sales revenue, there is considerable market volatility that makes long term profitability challenging to manage.

This is because egg farming at a medium to large scale is relatively inflexible, requiring substantial fixed cost investment in infrastructure up-front with the expectation that it will be utilised over long time frames of 20 or more years. This leaves egg farmers susceptible to short term changes such as the loss of a supply contract or longer term shifts in consumer demand, such as movement from one production system to another.

This process is managed through an industry that is constantly evolving by making new investments to meet anticipated future demand, while existing infrastructure moves through its useful life. The result is a process where holistic change is impossible but incremental change is the norm as egg farmers take into account the direction of the market and plan their next steps toward it.

An example of this has been the expansion of free range production over the past 15 years which has gone from a specialty segment to the largest grocery retail segment. Over this period, egg farmers received clear and consistent market signals that additional capacity was required and they responded accordingly. However, this process involves risk and can be difficult where community expectations are not closely aligned with consumer demand and messages are mixed.

Progress

The egg industry does not currently have the ability to capture information on the profitability of particular egg farms and there are likely to be obstacles to developing processes to do so. However, there are key indicators of industry performance that can be useful in assessing the operating conditions of egg farms as they relate to profitability.

The first relates to the extent to which the market is growing, which may drive consumption beyond supply and increase egg prices and profitability. Over the past 10 years egg consumption has grown consistently from 194 eggs per person in 2009 to 245 in 2018 which has created a buoyant market in which to invest. However, for compliance reasons, it is not possible to coordinate investment decisions and there remains a prospect of under or over-investment.

Another indicator of industry financial performance are input costs in the form of feed grain. Feed forms 65% of the variable costs of an egg farming business such that fluctuations in grain availability and price can have a substantial impact on profitability. This is currently a major issue for the egg industry with the drought in the Eastern states imposing feed grain increases from approximately $250 per tonne to over $500 per tonne. While input costs could be expected to reduce as climate conditions normalise, the impact on egg farming businesses is severe and can have long term consequences.

Risk management

Agriculture is plagued by significant risks and egg farmers are not immune to this. Production issues such as food safety, animal welfare and biosecurity can have catastrophic impacts on an egg farming business, collapsing supply or sales for an extended period. There are also industry-wide impacts from any serious incidents that could change public perceptions in relation to egg consumption.

Egg farmers also face market risks from changing consumer demand, community expectations, competition and customer market power. These factors create a cycle of fluctuating egg farm and industry profitability that requires long term planning and resilience. Egg farmers generally negotiate this dynamic based on experience although there is likely to be scope for more objective industry information to be produced to assist with this.

Progress

The egg industry puts a lot of effort into managing production risks in order to protect farming businesses and the reputation of the industry. In most cases these issues are not insurable and steps must be taken to avoid incidents occurring. A key element of this process is the egg industry quality assurance scheme, Egg Standards of Australia (ESA).

ESA sets out a broad range of production standards for rearing and laying hens and grading floor operation that relate to food safety, animal welfare, biosecurity and environmental management. ESA accreditation is done by independent certification bodies to allow egg farmers to demonstrate compliance with these standards.

Egg farmers have faced the pressure of competition since deregulation and this has played a significant role in driving efficient production. Some steps have been taken to increase transparency of egg markets but these are generally limited to monitoring the chicks hatched by hatcheries as an indicator of egg supply and the tracking of retail grocery egg sales. In addition, consumer and community research can be conducted to provide insights to egg farmers in planning their businesses.

Opportunities

- **Explore metrics for industry performance and analysis**
- **Develop enhanced risk assessment and management tools**

On the ground

Days Eggs has been supplying eggs to South Australians for over 30 years. The business runs free range, cage and barn-laid production systems and has a broad range of customers that includes major supermarkets, boutique greengrocers and food manufacturers.

Managing Director, Dion Andary, says the word ‘sustainability’ can mean many things to different people but, at its most simple level, it’s about acting in a way that ensures the long-term viability of an operation.

“We’re all fairly heavily geared in this business. We’ve had to spend a lot of money to get where we are and there’s still a lot more to be spent.”

“Over the last 5-7 years the egg industry has seriously transitioned to modernised free range systems but demand hasn’t picked up enough yet to absorb that extra production.”

“We need to understand what direction we’re being pointed as an industry, understand how we cope with that and how our financiers actually look at that. Because the investments we make are not disposable – they have to last for 20-30 years.”


R.B. SELLARS

Actions

The egg industry recognises that building and maintaining trust requires meaningful steps to be taken on the issues of interest to the community.

Australian Eggs' role is to provide a link between egg farmers and the community by facilitating engagement.

While engagement is valuable in and of itself, the ultimate goal is to provide additional inputs to egg farmers to inform their business planning.

The first important step in this process is to extend the knowledge generated by the CSIRO to egg farmers. This involves unpacking the insights on community attitudes with egg farmers to determine what they mean for the future state of the egg industry. Australian Eggs will implement an extension program across 2019 that uses multiple events and channels to reach the broadest possible range of egg farmers.

Australian Eggs has an important role to play as a funder of research and development (R&D) projects that can develop new knowledge and ultimately find solutions to industry challenges.

Where there are opportunities to progress the priority issues identified in the Sustainability Framework, new research projects will be incorporated into Australian Eggs' Annual Operating Plan for 2019-2020. While this is a continuation of Australian Eggs' ongoing R&D activities, the Sustainability Framework will ensure the work is more relevant to both egg farmers and the community.

The public engagement activities of Australian Eggs will also be expanded to drive increased understanding of egg farming and assist the community in developing informed opinions on priority issues. This process of directly responding to issues raised by the community is intended to improve the effectiveness of the research process over time.

Actions

- **Extend research findings to egg farmers**
- **Undertake new research to progress priority issues**
- **Expand public engagement activities to build community knowledge**

Philip Szepe

Australian Egg Industry Sustainability Framework

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