



Better Business Management

TRACEABILITY MANUAL



Why is traceability so important to our industry?



As consumers demonstrate increased interest in the quality and provenance of their food, many industries are examining their traceability systems to understand how robust and reliable these protocols are.

The egg industry is no different. Consumer expectations and the risks associated with untraced disease outbreaks are combining to reinforce the importance of widespread adoption of traceability systems on egg farms across the country.

Ultimately, traceability is important because it protects the long-term viability and profitability of our industry. Whilst it keeps us accountable, it also protects us and provides egg farmers and their employees with the peace of mind that each egg is traceable, meaning any safety or quality issues can be identified and rectified swiftly.

Having trust in our industry-wide traceability protocols means we can bring clarity to the paths our eggs take and enables egg farmers to prove authenticity of eggs. It also adds strength to the overall value proposition of individual egg farms and of the industry as a whole.

Traceability is simple – it refers to having the mechanisms in place to follow the movement of eggs from lay, through to grading and in distribution. Much of this is already happening with current minimum requirements surrounding egg stamping (under *'Australia New Zealand Food Standards Code – Standard 4.2.5 – Primary Production and Processing Standard for Eggs and Egg Product'*), but it's imperative that the industry continues to evolve its traceability methods to a level of sophistication that matches the expectations of customers and consumers in light of the technology that is available today.

Australian Eggs understands that for many egg farmers, particularly those operating much smaller enterprises, the thought of establishing an on-farm traceability system may feel daunting, costly and complicated.

That's why, in consultation with a group of egg farmers from across the country as well as Egg Farmers Australia, Australian Eggs is developing a series of guides, a software tool, content hubs and advice on how to implement a traceability system to suit your business.

It is important that extension and adoption of traceability is egg industry-led and voluntary. To support this, we are working with egg farmers who run different types of operations, from smaller through to large scale, on a regular basis. With their input, we are designing tools and resources that combine learnings from other industries and newly available technology with the reality of today's egg farming.

This manual outlines the steps that all egg farmers can take to ensure their eggs are traceable. It covers techniques to bolster traceability in receivables, shed, grading, warehouse and in the office.

This manual is just the beginning of a longer-term focus for the industry on providing egg farmers of all sizes with the information, tools and guidance to invest in their own traceability systems.

Ultimately, a safe egg world means that sustainability and safety go hand in hand and Australian Eggs looks forward to working with you on this journey.

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MANAGING DIRECTOR, AUSTRALIAN EGGS

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1



What is traceability?

A traceability system is a series of simple steps which are integrated into existing processes to provide evidence of the path of produce through a supply chain, through disciplined data capture and record keeping.

For the egg industry, being able to trace the path of an egg from lay to sale to consumption ensures the sustainability and profitability of our sector.

What are the benefits of traceability?



ASSET PROTECTION

Flock health issues can be traced to specific production areas or sheds which could reduce the impact if culling is required.



BRAND PROTECTION

Sources of illness can be rapidly identified, you can rule your farm out quicker or instigate an effective recall quicker.



LICENSE TO OPERATE

Demonstrating responsible traceability processes encourages confidence in the industry.

What does traceability mean for the egg industry?

Egg farmers should adopt their own on-farm traceability system that suits their business. Whilst the components of this system may differ from farm to farm, the outcome is the same – the pathways of eggs within Australian egg farms becomes clear and traceable.

- ✓ **Simple** – On-farm traceability does not require an overhaul of current processes
- ✓ **Time-saving** – A disciplined traceability system will save time in the long run when records need to be consulted
- ✓ **In-house** – Traceability is about maintaining your own records, not sharing them with other third parties
- ✓ **Flexible** – No two farms are the same and farms can design a traceability system that suits them
- ✓ **Inexpensive** – Traceability should not incur significant costs to a business

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What other industries are doing

When Salmonella Enteritidis (SE) devastated the Australian egg industry in 2018, it reinforced that traceability must be prioritised at the individual farm level. The cost of the outbreak to the industry, and individual farmers continue today, but with improved traceability we can help reduce the spread and impact of any future outbreaks.

In recent years, traceability has been similarly prioritised by industries across the agriculture sector and food supply chain.

While the main drivers vary depending on the industry, widespread adoption of traceability is generally prioritised for one or more of the following reasons:

- **Product and/or brand integrity** – protecting against imitation and fraud.
- **Animal health** – limiting the spread of disease amongst animal populations.
- **Human health and food safety** – identifying and isolating human health issues.
- **Provenance and business profitability** – being able to prove the provenance of food, including breed, region of origin or production method, often enables a price premium to be added to produce.

The movement towards widespread adoption of traceability systems is already reaping benefits for both consumers and producers across many industries.

For example, mass balance has been an important traceability issue for the cotton industry, with some interesting parallels for the egg industry. The cotton market has seen strong demand in sustainably produced fibres, with farmers required to report extensively on the sustainable conditions in which their product was grown.

The seafood industry is leveraging technology to help prove the provenance of products which are susceptible to

substitution and fraud. The citrus industry is also using technology to give its products ‘digital fingerprints’ which enables produce to be tracked and traced.

Whilst some traceability systems are high-tech, leveraging machine learning and artificial intelligence (AI), core traceability is simple. The red meat export industry and others are seeing major benefits from capturing simple data sets.

In fact, the meat export industry is saving up to \$200,000 a year through the development of an online tool to track and store information relating to the export of meat products.

Until recently, tens of thousands of meat cartons were rejected at the US border on account of damaged or missing shipping labels. However, through a relatively simple barcoding system that tracks the details of exported meat, these labels will soon no longer be required and the wastage of rejected meat will no longer occur.

There’s no playbook for what a successful traceability system looks like because each industry is unique, with diverse supply chains and individual businesses that operate differently.

But what is clear from an analysis of other industries is that by tracking a simple set of core data, the potential benefits for individual businesses and industries are significant.

That’s why Australian Eggs, with support from the Australian Government, is investing in a program to encourage greater adoption of traceability within the egg industry. With robust industry participation, as an industry we can stay ahead of the curve and protect the future of our industry.

This manual outlines some of the core data that, if collected and stored consistently, would greatly benefit the Australian egg industry.

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Traceability tools

3.1 Paper-based data capture



A legacy method for collecting data.

Barriers to adoption are close to zero and may be suitable for very small businesses.

Pros: Simple and potentially easy to use.

Cons: This method is prone to human error in the recording and reading of data. There are also risks associated with the physical storage of files.

3.2 Simple spreadsheets



Typically refers to the input of traceability data in simple spreadsheets (e.g. Microsoft Excel) following initial recording of data via manual process.

Pros: Digital records are less likely to be degraded or destroyed, particularly if backed up to the cloud.

Cons: This method is prone to human error due to the 'double handling' of data.

3.3 Technology-assisted data capture



Data collection apps and smart forms are simple, easy-to-use technologies that enable users to build custom forms for the collection of data from anywhere including in the shed, grading floor or dock.

Pros: Data is recorded and immediately logged in a database reducing the potential for human error at data entry.

This software is typically inexpensive, simple, and easy to set-up. Many systems can also provide productivity reports.

Cons: It does not completely remove the risk of human error at data collection points.

Australian Eggs is currently developing a software tool to support egg farmers on their traceability journey. The tool will streamline the data capture and record keeping for egg farmers, making traceability simpler and more efficient. The tool will be made available to all egg farmers in early 2022.

3.4 Track and trace technology



Track and trace tools can utilise elements such as barcodes, labels, QR Codes and RFID tags that are physically applied to the product or packaging.

Most medium-large egg farms will use a barcode or labelling system to provide data throughout egg pathways.

Pros: Digital elements drastically reduce the risks associated with human data entry.

Cons: These systems may not be compatible with the technology available to small egg farms.

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Traceability tools *cont.*

3.5 Distributed ledgers (blockchain)



Distributed ledgers are synchronised databases that are stored simultaneously on thousands of computers at any given time. Blockchain technology allows ownership or data regarding a product, such as product origin, batch numbers, factory and processing data, expiration dates and transport details, to be recorded through secure, distributed ledgers.

Pros: With this technology, the data gathering process for product recalls could theoretically be sped up from days or weeks, to mere seconds.

Cons: One drawback is that blockchain requires all parties in the supply chain to utilise the one system.

3.6 Summary

Typically refers to the input of traceability data in simple spreadsheets (e.g. Microsoft Excel) following initial recording of data via manual process.

	Pen and paper	Simple spreadsheets	Technology assisted data capture	Track and trace technology	Distributed ledgers
Cost	LOW	LOW	LOW	MEDIUM	MEDIUM
Ease of adoption	EASY	EASY	EASY	MEDIUM	HIGH
Risk of human error	HIGH	HIGH	MEDIUM	LOW	LOW
Risk of data loss	HIGH	LOW	LOW	LOW	ZERO



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Traceability principles

4.1 Overview

A traceability system is a series of simple data capture and record keeping steps which are integrated into existing processes to provide evidence of the path of product through the supply chain.

For the egg industry, being able to trace the path of an egg from lay to sale to consumption ensures the sustainability and profitability of our sector.

Most egg businesses will already have some or all of these steps in place. A traceability system brings the essential data and records together to provide a clear picture of egg movements.

This manual outlines the principles and core components of traceability, what data needs to be captured and when, and provides egg farmers with guidance on how to implement a simple and effective traceability system as part of normal business operations.

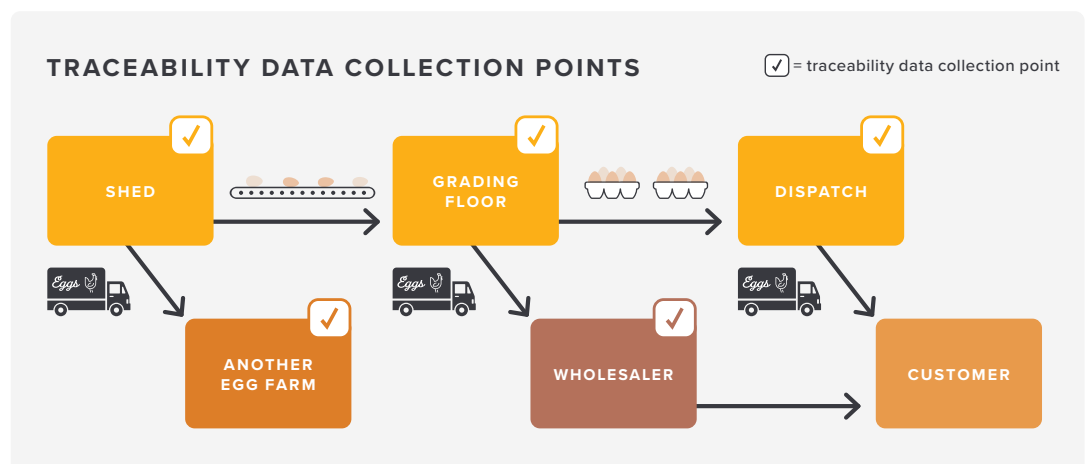
It should be noted that certain levels of traceability are already required under the Food Standards Codes and Egg Stamping Guide (August 2018, Australian Eggs). These regulations are not the focus of this manual and egg farmers should visit <https://www.foodstandards.gov.au/> for more information on legal requirements for stamping and labelling.

4.2 What does a traceability system need to show?

On-farm traceability means tracking every egg movement on a farm. This can be broken down into five routine events:

- **From the shed:** The collection of eggs
- **Within the farm:** The movement of eggs from the shed to a store room/cool room, grading/packing floor etc.
- **Grading/packing floor receivals:** The receipt of eggs from sheds or another supplier
- **Egg despatch:** Movement of eggs from the sheds, store room/cool room, grading/packing floor to another site
- **Farm gate sales:** the movement of eggs directly to consumers from the farm, or at a 'farmers' market'.

These movements of eggs are the data collection points in an effective traceability system – see the diagram below.



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Traceability principles *cont.*

4.3 Traceability principles

For on-farm traceability to be effective, the following principles are critical:

- **Comprehensive:** The traceability system must capture core traceability data at every functional routine event (see 4.2) on an egg farm (e.g. lay, grade, pack and despatch). To do so, it must be capable of capturing routine as well as unusual egg movements.
- **Flexible:** The traceability system must be capable of being modified or scaled up or down as the business changes or grows.
- **Efficient:** The traceability system must involve minimum labour and record keeping to be practical and cost-efficient.
- **Accessible:** The traceability data must be easily accessible so that queries or incidents can be investigated and responded to as soon as they arise.
- **Robust:** Data should be accurate and robust. Robust data means that information is recorded in a reliable and systematic way that can be confirmed against other records.



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Traceability components

5.1 Overview

Traceability is the simple capture of data at each routine egg movement:

- What is product being moved (individual eggs, carton, box, pallet etc.) including its identifying descriptors (free range/organic/caged/barn laid, from what location on what farm)?
- Where did their movements or events take place (shed, grading floor)?
- When did the movement or event occur?
- Who are the parties involved?

For example, the data captured when three pallets of eggs arrived on the grading floor could be:

- **What:** 3 pallets of free-range eggs from 'Farm A', 'Shed 1'
- **Where:** 'Grading floor B', 'Home Farm'
- **When:** 11am on 16 June 2021
- **Who:** Joe Bloggs, truck licence plate number GHT-000

This approach is explained in further detail in Section 6, which outlines the scope of information that needs to be captured for an effective traceability system.

5.2 Product identification

The core purpose of traceability is the ability to identify the origin (farm, shed, time) of a product that's left the business.

In most circumstances, the product is usually the egg, but it could also refer to egg products such as liquid or powdered egg.

For all products despatched from the farm, a unique identifier is required so that a meaningful link can be created between the product and farm traceability records.

Egg products should be identified at a level that is commercially relevant and integrates with the way products are identified in the business more broadly.

As eggs are typically traded in units like cartons, catering trays, boxes or pallets, an egg business' traceability system needs to be able to tie all other traceability data to that unit's identifier.

The identifier may contain the following data:

- **Class level:** identification by the type of product, such as caged, barn laid, free range or organic.
- **Batch level:** where the product is identified by the group in which it was created or arrived, such as eggs graded on a particular day or with a particular use by date.
- **Instance level:** where each product is identified separately, such as by a bar code for each carton of eggs.

The business will decide which level or combination of levels is appropriate based on its needs and resources.

5.3 Time and time cycles

For traceability data to be meaningful, the data needs to be recorded on a routine basis.

At almost all farms, eggs will be collected daily, so where possible traceability data should also be recorded daily. This ensures that records are up-to-date and immediately accessible.

Traceability data can then be logged into a central system at regular intervals such as daily, or weekly, whichever timeframe is applied in existing business systems.

If records are generally kept daily there will be greater efficiency in using this approach to traceability records. For example, many egg farms use a Julian calendar which counts each day of the year from 1 to 365/6.

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Implementing traceability on your farm

6.1 Core egg traceability data

The following records are required for an effective egg business traceability system and should be included, as applicable to your business:

- **Shed Collection Record:**
 - Shed number/code
 - Flock size (and any bird losses)
 - Production method
 - Collection date
 - Quantity
 - Person responsible
- **On-farm Movement Record:**
 - Origin and destination
 - Units and quantity
 - Person responsible
- **Grading floor – Receival Record:**
 - Delivery vehicle identifier (if applicable)
 - Batch/pallet number
 - Production method
 - Origin
 - Person responsible for receiving
- **Despatch Record:**
 - Batch/ pallet numbers or product identifiers
 - Product details: origin, production type, brand, size, grade, use by date
 - Date and time of grading
 - Destination
 - Despatch vehicle identifier (if applicable)
 - Person responsible for despatch
- **Farm gate Sales:**
 - Products and quantity sold, identifiers as relevant
 - Customer (if applicable)
 - Salesperson

Collectively, these records will show the path eggs take through the business. This can enhance business management because you can retrieve key business information such as how many eggs are moving through the farm, where they are going and when these events take place.

With this minimum data capture in place, egg farmers should be able to identify the following for every unit that leaves the farm:

- When and in which shed the egg was originally laid
- The production type
- When and where it was graded
- The next and/or final destination of the units

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Implementing traceability on your farm *cont.*



6.2 Sources of data

It's likely that much of the core traceability data will already be collected for other business processes, but for others, additional processes may be required.

In an egg business, egg movements happen in several places (e.g. in the laying shed, packing room, grading floor) and depending on the environment and processes in each location, records may be captured differently at each location. For example, it may be possible to capture records on a digital in the packing room but not in the laying shed.

It is critical that information can be brought together to demonstrate the path that an egg product takes through the business.

6.3 Existing systems

In implementing a traceability system, egg farming businesses should consider utilising any existing records as part of:

- Production management systems
- Quality assurance systems
- Compliance systems
- Transport and logistics systems
- Customer management systems
- Business management systems

The most efficient traceability system will be one that:

- Enables interaction between each source of data within the business, so that sources of data can be shared rather than duplicated in developing an effective traceability procedure.
- Uses a common approach to capturing individual records across the business. This will ensure that the traceability system complements other business systems and can be used as an additional business management tool.

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Getting started

Step 1

Consider how the core traceability information required relates to your farm.

Step 2

Identify the products that are moving across the farm and the appropriate level and units to identify them (e.g. ungraded pallets or free range 700g cartons).

Step 3

Identify the unique identifier the business will use for product units despatched from the farm (e.g. batch number)

Step 4

Identify the units for each part of the farm from production origin (e.g. sheds) to despatch (e.g. product sales).

Step 5

Identify a common time cycle in which records will be kept (e.g. daily).

Step 6

Determine where and how records will be kept (e.g. on-farm computer system with cloud-based storage).

Step 7

Integrate record keeping into existing processes through staff training, updating of operating procedures and roll-out of any associated technology.

Step 8

Develop processes to test your record keeping systems to ensure they are reliable (e.g. mass balance or mock recall exercise).