

APIQ[✓]® Reference Manual

For Producers and Auditors





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APIQ[®] is operated by Australian Pork Limited on behalf of the Australian Pork Industry

Australian Pork Limited

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1.0 INTRODUCTION

The Australian Pork Industry Quality Assurance Program (APIQ[✓]®) is the industry sponsored on-farm Quality Assurance (QA) program. APIQ[✓]® Certification allows producers to demonstrate that they meet legal requirements, industry standards and customer specifications. It requires producers to document procedures on-farm outlining how key tasks are carried out, monitoring the tasks, recording the results of those actions and checking that the results comply with the Standards.

APIQ[✓]® on-farm QA program manages farm risks by following good agricultural practices using the principles of Hazard Analysis and Critical Control Points (HACCP); and is designed to assist producers to identify and manage risks by providing tools, including diaries, example Standard Operating Procedures (SOPs)/Work Instructions (WIs) and recording systems.

APIQ[✓]® supports two (2) producer categories:

- **Small Holders** are producers who have 50 or fewer sows and sell or feed to slaughter 1000 or fewer pigs in a year.
- **Large Holders** are producers who have 51 or more sows, and sell or feed to slaughter more than 1001 pigs in a year.

The APIQ[✓]® Standards are the same for Small and Large Holders. However, Large Holders typically require more complex manuals and recording systems than Small Holders. The requirements for APIQ[✓]® Certification are based on a set of Standards which includes Performance Indicators, outlined in detail in the *APIQ[✓]® Standards Manual*.

Piggery production systems can be certified as APIQ[✓]® Indoor (IN) known as APIQ[✓]®, APIQ[✓]® Free Range (FR), or APIQ[✓]® Outdoor Bred, Raised Indoors on Straw.”

APIQ[✓]® has five (7) key areas of focus:

1. Management – helping producers manage their piggery in a systematic manner.
2. Food safety – helping to produce food that is safe.
3. Animal Welfare – helping producers maintain high standards of animal care.
4. Biosecurity – helping the producer manage the health risks to their pigs; other pigs they may have contact with when they leave the farm; and people who may be in contact with them.
5. Traceability – compliance with the National Livestock Identification Scheme (NLIS) Pig Pass National Vendor Declaration (PPNVD) requirements.
6. Environment - helping producers maintain a high standard of environmental management.
7. Transport - to help ensure pigs transported off farm arrive in good condition and transport risks are managed.

APIQ[✓]® helps producers manage their pig production by assisting them to:

- Document how they manage their operation in a *Piggery Management Manual*.
- Describe how they meet the APIQ[✓]® Standards in Standard Operating Procedures (SOPs) and/or Work Instructions (WIs).
- Record what happens in their piggery from day-to-day.
- Demonstrate to a producers customer(s) that they meet the APIQ[✓]® Standards in their production through an annual Compliance Audit.

The APIQ[✓]® Standards and Performance Indicators, outlined in the *APIQ[✓]® Standards Manual*, are the cornerstone of the program. The APIQ[✓]® Standards are outcome-focused and supported by Performance Indicators. Supplementary information is contained in this *APIQ[✓]® Reference Manual*, which is designed for use by producers, auditors and other interested industry stakeholders.

APIQ[✓]® certification is a valuable status conferred on producers who comply with the relevant prescribed Standards. The APIQ[✓]® system is critical to ensuring confidence in industry standards and quality and the industry's reputation more broadly. Producers who fail to comply with the APIQ[✓]® Standards or applicable laws at all times can expect their certification status to be reviewed and, if appropriate, suspended or cancelled.

2.0 GENERAL INFORMATION

2.1 Background

Customers and trading partners increasingly want assurance that pork and pork products are safe and wholesome. Customers are now requesting information on how pigs are raised, managed, transported and slaughtered. Therefore, providing assurance to customers through industry-wide QA programs is becoming important for individual pig producers and the pig industry as a whole, in order to sustain market access and consumer confidence.

APIQ[✓]® was introduced to demonstrate to domestic and export markets that the Australian pig industry is committed to providing a safe, wholesome product. APIQ[✓]® supports the Pig Pass NVD, the industry's traceability documentation, by providing the framework for industry QA.

APIQ[✓]® provides the key tools to enable producers to demonstrate that they are meeting relevant State and Federal legislation for food safety, animal welfare, biosecurity, traceability, environmental management and transport.

The scope of APIQ[✓]® includes on-farm quality standards for safe and efficient production of pigs to produce wholesome food, the implementation of systems to manage and control biosecurity risks, and the implementation of Standards that focus on the welfare of the animals throughout the farm production process. It also provides assurance that certified farms are meeting environmental compliance requirements and that producers are following good practices in relation to pig transportation.

APIQ[✓]® covers production within the boundaries of the producer's property or sphere of control. When an animal moves from control or possession of the producer to another party in the supply chain, the responsibility for the safety and well being of the animal is transferred to that party. Examples include the transport of the animal once the animal has been loaded or the care of an animal once consigned to an agent/buyer while held in saleyards or in the care of a processor pre-slaughter.

A wide range of stakeholders have provided technical and policy¹ input into APIQ[✓]®, including producers, scientists, veterinarians, QA and audit experts, retailers and customer organisations, government and supply chain members. The program was trialled nationwide on farms with varying herd sizes, production system types and QA knowledge and experience. In 2019-2021, the APIQ[✓]® QA program underwent a major review and was updated in a number of areas, with a particular focus on Biosecurity, to ensure it meets the current needs of all stakeholders.

¹ Refer APIQ[✓]® Certification Policy (CP)1.

2.2 APIQ[✓]® Administration

Australian Pork Limited (APL), as the national representative body of pig producers is the owner and managing agent of the APIQ[✓]® program and has stewardship of the APIQ[✓]® program on behalf of the industry.

APIQ Management (APIQM) role is to support producers to enable them to meet the APIQ[✓]® Standards, and to protect and enhance the integrity of APIQ[✓]® by managing the program in accordance with the Certification and Administrative Policies.

APIQM is responsible for facilitating and supporting producers foremost to enable them to implement QA on-farm; to support and engage actively with auditors; and to ensure the overall integrity of the APIQ[✓]® program is maintained.

APIQ[✓]® enquiries should be directed to:

APIQ Management

PO Box 4746
Kingston ACT 2604

Toll free	1800 789 099
Facsimile	02 6285 2288
Email	apiq@australianpork.com.au
Website	www.apiq.com.au

2.3 Roles of APL, the Australian Pork Limited Board Industry Integrity Committee, the APIQ Panel, APIQ Management

APL, the APL Board Industry Integrity Committee, the APL Board, the APIQ Panel (Panel) and APIQM each play important but different roles in the effective development and management of APIQ[✓]®.

1. Australian Pork Limited
 - APL, as the national representative body of pig producers, is the owner and managing agent of the APIQ[✓]® program.
 - APL has stewardship of the APIQ[✓]® program on behalf of the industry.
2. APL Board Industry Integrity Committee
 - The APL Board Industry Integrity Committee oversee the development of APIQ[✓]® policy and Standards on behalf of APL. It gives counsel and directions to APIQM, and recommends Certification Policies and Standards to the APL Board for endorsement.
3. APL Board, in addition to endorsing the APIQ[✓]® Standards and Certification Policies endorses the APIQ[✓]® decisions where the Panel has decided to Suspend or Cancel a producer's APIQ[✓]® Certification or auditor's APIQ[✓]® registration.

4. APIQP

- The Panel is a panel of experts from various fields. It is independent of the APL Board Industry Integrity Committee, which allows it to make assessments and rulings in regard to an individual's or organisation's performance against the prescribed APIQ✓[®] Standards. The Panel determines courses of action where incidents of misconduct, non-compliance to APIQ✓[®] Standards resulting in a Critical CAR, auditor non-performance of duties or conflict of interest exist or are perceived to exist; and when these decisions need to be an arm's length decision to APL to protect the integrity of the APIQ✓[®] program. Invited members of the Panel serve for a three (3) year term and are approved by the APL Board. Panel members can be renominated in consecutive terms and are required to repeat the approval process.
- The Panel consists of five (5) or six (6) members from the following organisations:
 - An intensive livestock veterinarian.
 - An independent specialist Auditor (preferably with an intensive farming background).
 - One (1) or two (2) independent producers (but not APL producer elected Board Director/s).
 - An APL Board appointed representative nominated by the APL Board. This position will act as panel Chair.
 - An individual from the supply chain (i.e. a customer representative).
- The Terms of Reference for the panel are endorsed by the APL Board annually.

5. APIQM

- APIQM is directed in its decisions by the APIQ✓[®] policies, procedures and framework. APIQM currently resides in, and is under the guidance of the APL Producer Relations Division, which hosts and administers the program as a service to the pig industry. The APIQ✓[®] framework and policies are reviewed annually and have been deliberately structured so that the current arrangement could be transferred to other entities as the needs of the industry change, subject to the findings of future reviews.
- The APIQM role is to facilitate and support producers to meet the Standards of the APIQ✓[®] program and to protect and enhance the integrity of APIQ✓[®] by managing the program in accordance with the APIQ✓[®] Standards, Certification and Administrative Policies, including annual verification and certification of the system by a suitably qualified Certifying Body (CB).

2.4 The Benefits of APIQ✓[®]

Providing confidence in industry practice is crucial to sustaining markets. If consumers and customer organisations are not confident that the integrity of the product is of a high standard, they may not purchase the product and/or it may not meet market access requirements.

APIQ✓[®] aims to demonstrate product integrity by:

- Providing a mechanism to demonstrate to regulatory authorities compliance with the provisions in relevant regulations and codes of practice for the industry.
- Providing a mechanism to validate the PigPass NVD.
- Providing a framework and tools for pig enterprises to demonstrate that they meet acceptable standards for management, food safety, animal welfare, biosecurity, traceability, environment and pig transport.
- Providing assurance to customers and trading partners that pork and pork products are safe and wholesome.

Whilst there is effort required by the producer to implement APIQ[✓]® on-farm, this is offset by other short and long term benefits, including:

- Ensuring the enterprise meets national and international food safety standards.
- Ensuring the enterprise can demonstrate compliance with other regulations and codes of practice for animal welfare, biosecurity, traceability, environment and pig transport.
- Developing a more efficient and effective on-farm enterprise and management system.
- Developing a system that enables continual improvement through monitoring, analysis and rectifying problems as they occur.
- Reducing the risks of chemical residues and disease outbreaks.
- Improving production by having a system to reduce skin damage, condemned carcasses or other production losses, and improve the consistency of production and meat quality.
- Demonstrating 'due diligence' for the business.

APIQ[✓]® can provide a valuable tool for monitoring and recording practices on-farm, enabling better production decisions to be made and managing risks and problems before they occur.

Most of the Standards and Performance Indicators provided in APIQ[✓]® are already common practice within the industry. Therefore, APIQ[✓]® is, in many cases, a framework allowing producers to demonstrate these practices to a third party or customer.

It is important that the industry is proactive in developing and promoting its own QA program, APIQ[✓]®, to meet supply chain requirements, as supply chain members are increasingly required to give assurances to their markets about product integrity.

2.5 Relationship Between APIQ[✓]® and PigPass NVD

The PigPass NVD has been developed by the industry to meet the requirements of the NLIS² Pig Standards and State legislation, which requires all movements of pigs (where a change of ownership or property takes place) to be accompanied by an official movement document. The only exception is where a movement occurs to another property with a separate Property Identification Code (PIC) and ownership does not change, (excluding movements to shows/events and saleyards), where pigs are exempt from being identified before movement, but the movement must be notified to the PigPass database within two working days and the property has an approved QA program (such as APIQ[✓]®). This provides traceability back to the last property of residence and ensures State regulations are met.

In addition, APIQ[✓]® requires all pigs processed for export to be accompanied by a 'valid' PigPass NVD. This is also a requirement of some domestic buyers and of domestic abattoirs in some States. To be considered 'valid', the information on the PigPass NVD must be backed up by an approved on-farm QA program. APIQ[✓]® is an approved on-farm QA program developed by the industry and accepted by processors and regulators for this purpose.³

Producers are required to state the QA program they use on the PigPass NVD for each pig consignment and the expiry date of their QA Certification.⁴

2 NLIS Pig Standards can be downloaded from https://australianpork.com.au/sites/default/files/2021-06/NLISpigStandardsFINAL_20170802.pdf

3 To be approved to validate the PigPass NVD, QA programs must meet certain requirements (for verification with the Australian Standard AS4696-2007 on the Hygienic Production and Transport of Meat and Meat Products for Human Consumption).

It must include:

- A Food Safety Risk Assessment or equivalent.
- Standards or Performance Indicators that relate to the provisions on the PigPass NVD.
- An approved verification arrangement, preferably including auditing by a JAS-ANZ (Joint Accreditation System of Australia and New Zealand) accredited certification body.

4 The APIQ[✓]® *Implementation Manual* Module 5 Traceability Standards contains further information on PigPass NVD requirements.

2.6 The APIQ[✓]® Standards and Operational Requirements

The APIQ[✓]® Standards are designed primarily to cover the day-to-day management of pigs on-farm. However, additional information and Standards are provided on the selection of pigs for transport, loading, unloading and transport. Whole-of-chain elements are also covered which require risk management from the farm to the processing plant, including food safety, animal welfare, biosecurity and traceability elements. In addition, compliance of the piggery site with good practices for environmental management is included.

APIQ[✓]® provides producers with detailed guidance and example recording templates for understanding, complying with and verifying compliance with the APIQ[✓]® Standards. The APIQ[✓]® requirements are provided in the manuals, guides and tools listed in Table 1.

Manuals and guides can be downloaded free from the APIQ[✓]® website www.apiq.com.au or by contacting APIQM on 1800 789 099 or email apiq@australianpork.com.au.

The Pig Management Diary (Diary) can be ordered via the APIQ[✓]® website.

Table 1: APIQ[✓]® Manuals and Guides

APIQ [✓] ® <i>Standards Manual</i>	The APIQ [✓] ® Standards are presented in six (6) modules, each with defined outcomes and Performance Indicators.
APIQ [✓] ® <i>Implementation Manual</i>	This manual is to assist Large Holders to implement APIQ [✓] ® on-farm.
APIQ [✓] ® <i>Small Holder Manual</i>	Guidelines to help Small Holders implement APIQ [✓] ® on- farm.
APIQ [✓] ® <i>Reference Manual</i>	Includes practical background information on on-farm practices and guidelines to ensure compliance to APIQ [✓] ®.
APIQ [✓] ® <i>Compliance Guide for Producers and Auditors</i>	A guide to APIQ [✓] ® Compliance for producers and auditors.
APIQ [✓] ® <i>Auditor Guide</i>	The <i>Auditor Guide</i> includes the Audit Checklist for use by auditors to complete the Compliance Audit report. It provides training and guidance to auditors on the conducting of Compliance Audits, the Standards and compliance options for producers.
APIQ [✓] ® <i>Express Audit Checklist</i>	APIQ [✓] ® audits are now conducted electronically. A printable audit checklist form is available from the APIQ [✓] ® website as a resource under the APIQ Information tab (www.apiq.com.au) for use by producers for their Internal Audit.
APIQ [✓] ® Pig Management Diary	

2.7 Relationship Between APIQ[✓]® and Government Regulations

APIQ[✓]® supports and assists producers in demonstrating compliance with government regulations for food safety, animal welfare, biosecurity, traceability, environment and pig transport, as outlined below.

Food Safety — Mandatory government food safety regulations are in place for all supply chain members, from the abattoir level to the point-of-sale, for all food products. APIQ[✓]® forms a logical extension to these requirements, resulting in farm-to-plate product integrity.⁵

Animal Welfare — The Standards in the *Model Code of Practice for the Welfare of Animals – Pigs* (3rd Edition, 2007) form the basis of the APIQ[✓]® Animal Welfare Standards. A copy of the *Model Code of Practice for the Welfare of Animals – Pigs* can be downloaded from the CSIRO website www.publish.csiro.au/book/5698 for free, or a hard copy can be purchased by contacting CSIRO Publishing on 1300 788 000 (cost of a local call). The *Model Code of Practice for the Welfare of Animals – Pigs* requirements are holistic, covering all aspects of raising pigs. They are also covered in detail in Sections 3.3 and 3.4 of this manual. Every State and Territory of Australia has its own legislation regarding animal welfare. The Standards in the *Model Code of Practice for the Welfare of Animals – Pigs* are regulated in all States and form the basis of State and Territory pig welfare regulations (Refer Section 3.3.1 for more information).

Biosecurity — The Emergency Animal Disease Response Agreement is an agreement existing between livestock industries, State governments and the Commonwealth Government, to share the cost of recovering from an outbreak of certain exotic diseases. Under this agreement, each livestock industry is responsible for developing and promoting an industry-specific on-farm biosecurity code. As a result, the key elements identified in the *Australian National Farm Biosecurity Manual for Pork Production 2013* have been integrated into APIQ[✓]® and form the basis of the APIQ[✓]® Biosecurity Standards.

Traceability — APIQ[✓]® supports the requirement for a QA system to validate the PigPass NVD, which, as explained in Section 3.5 of this manual, is required for all consignments of pigs being sent for sale or slaughter, as stipulated under the NLIS Pig Standards⁶ *Australian Standard for the Hygienic Production and Transport of Meat and Meat Products for Human Consumption* (AS4696:2007). This document can be downloaded from www.publish.csiro.au/book/5553.

Environment — APIQ[✓]® requires producers with piggeries established since 1 January 2017 to provide evidence that their piggery has a permit or licence to operate, in compliance with applicable State or Territory and local government environmental regulatory requirements. Producers with piggeries established prior to 1 January 2017 are required to provide either evidence of a permit/licence to operate OR provide evidence of their on-farm Environmental Management Plan.

Transport — APIQ[✓]® Version 4.1 10/2015 also supports compliance with the Australian Animal Welfare Standards and Guidelines, Land Transport of Livestock, Edition 1.1, 21 September 2012.

5 Food Standards Australia and New Zealand (FSANZ) is in the process of developing mandatory on-farm food safety standards for integration into regulation for the seafood, meat, dairy, grains, horticulture, honey, poultry and egg industries. These standards are expected to be met by industry through a QA, or other applicable program/process, and verified by the relevant controlling authorities. Refer <http://www.foodstandards.gov.au>.

6 Download the NLIS Pigs Standards from https://australianpork.com.au/sites/default/files/2021-06/NLISPigStandardsFINAL_20170802.pdf

APIQ✓® Certification Options

A piggery may be APIQ✓® Certified, APIQ✓® Free Range (FR) Certified or APIQ✓® Outdoor Bred, Raised Indoors on Straw (OB) Certified and may also be verified as Gestation Stall Free (GSF) and/or Customer Specifications for Coles (CSC) compliant.

A producer with pigs outdoors and is seeking APIQ✓® Certification can elect to be either APIQ✓®, APIQ✓® FR or APIQ✓® OB.

APIQ✓® FR and APIQ✓® OB are not mandatory for producers who have pigs outdoors, however, APIQ✓® Certified piggeries with pigs farmed outdoors must meet the same environmental management requirements. These Certification categories are designed to assist producers meet their customers' requirements where verification of their production system is required.

APIQ✓® FR and APIQ✓® OB Certified producers are required to meet:

- The general APIQ✓® Certification requirements;
- The APIQ✓® Definitions, Standards and Performance Indicators for FR and/or OB production; and
- Follow the same processes to achieve Certification as listed in this manual.

FR and OB Standards and Performance Indicators are listed in Section 3.1 of this manual.

Compliance Audits for APIQ✓® Certification

All piggeries seeking or maintaining APIQ✓® Certification must have a successful annual compliance audit conducted by the independent Third Party Auditing Organisation (TPAO). AUS-MEAT Ltd is the TPAO contracted by APL to conduct all audits for the industry.

- Third Party Auditing (TPA) became effective 1 January 2018.
- The APIQ✓® on-farm quality assurance system remains industry owned and APL has responsibility for its Standards, Policies and Procedures.
- APIQ✓® is managed and administered by APIQ Management on industry behalf.

Visit the APIQ✓® website www.apiq.com.au for greater detail on the Steps to Compliance for:

- Producers who are interested in obtaining APIQ✓® Certification.
- Producers with current APIQ✓® Certification on-farm who are renewing their APIQ✓® Certification.

APIQ✓® Compliance Audit Fees and Charges have been set in a Service Agreement agreed to by the APL Board and AUS-MEAT Ltd. These are available on the APIQ✓® website.

The Compliance Audit Process and Who is Responsible for What?

APIQ Management (APIQM)

APIQM is the first contact for: producers whose sites change ownership; any questions associated with the APIQ✓® Standards or Policies; and, assistance to implement APIQ✓® on-farm.

Phone - 1800 789 099

Email APIQM: apiq@australianpork.com.au

AUS-MEAT Ltd:

Phone - 1800 630 890

- will contact each producer when their compliance audit is due.
- will use the formula prescribed in APIQ[✓]® policy to determine which sites are to be audited each year under a joint certification.
- will assign an AUS-MEAT Ltd auditor who will contact the producer to schedule their compliance audit.
 - A compliance audit to achieve APIQ[✓]® Certification includes an opening meeting, desk audit, site audit, and closing meeting.
 - The APIQ[✓]® Manuals and Guides provide further information on the audit process.
- will invoice the producer directly for their audit services.

Producer Responsibilities:

- multi-site organisations must contact APIQM to ensure that the sites assigned to their organisation, within their Joint Certificate are current.
- work with the auditor to ensure that the audit is scheduled prior to expiry and at a time that suits both parties - note that the AUS-MEAT auditor aims to group audits in a given region to gain efficiencies in travel costs for you as a producer.
- be prepared and ready for your compliance audit, to assist in minimising audit costs - for example, conducting a detailed internal audit will assist your preparedness.
- pay AUS-MEAT Ltd on receipt of an invoice for audit services.

“AUS-MEAT Auditor:

The auditor will: conduct the audit; manage the close out of any corrective actions; inform APIQ Management when all APIQ[✓]® Standards are met; and, will do so in the timeframes set out in the APIQ[✓]® Certification Policies.

The AUS-MEAT auditor performs the following on-site functions as part of a Compliance Audit:

- **Desk Audit:** Having greeted the producer and/or their representative and signed into the site, the auditor meets with the producer or their representative in an opening meeting and reviews the audit plan. The auditor begins by conducting a review of the Piggery Management Manual (previously known as QA Manual) and recording system. This is best done by having the producer locate and outline key elements of the manual(s) and record(s), paying particular attention to issues that arose in the previous audit to see that they have been rectified and are not repeated. The auditor selects and checks other focus areas that arise through the course of the discussion.
- **Site Audit:** The Auditor conducts a Site Audit by walking through the facilities and piggery areas, observing the operations being carried out, discussing activities with workers, owners or management, and evaluating the practices being used against the APIQ[^{tick}]® Standards and the manuals and records reviewed in the desk audit.
- **Closing Meeting:** Having Completed the Desk and Site Audit, a closing meeting (Discussion) is convened with the producer or representative to:
 - Review the findings and observations of the Compliance Audit.
 - Agree to and sign off on Corrective Action Requests (CAR(s)) with the producer.
 - Outline further steps required for Approval.

Notes:

- Auditors may during the course of an APIQ✓[®] Audit take digital photographs within the piggery to verify compliance or non-compliance to the APIQ✓[®] Standards. Any photographs obtained during an APIQ✓[®] Audit will be handled with the utmost confidentiality.
- APIQ Management will approve APIQ✓[®] Certification and provide confirmation of certification via email, or post (where the producer has no email address).
- Producers can download their APIQ✓[®] Certificate via the PigPass portal. Access details are provided with the certification notification.
- Producers with a TradeMark Licence Agreement allowing them to use the PorkMark and/or APIQ✓[®] logos, will need to renew this along with their APIQ✓[®] Certification. Please email the APL PorkMark Program manager at PorkMark@australianpork.com.au to obtain the required applications.

2.8 Steps to Becoming APIQ✓[®] Certified

There are several steps to becoming APIQ✓[®] Certified:

2.8.1 Producers with no current Quality Assurance (QA) on-farm

Producers, who wish to establish APIQ✓[®] on-farm, follow these steps:

Step 1: Contact APIQM to express interest in becoming APIQ✓[®] Certified:

Toll free – 1800 789 099
APIQ✓[®] Website – www.apiq.com.au
Email APIQM on – apiq@australianpork.com.au

Step 2: Download the relevant APIQ✓[®] Manuals and Guides from the APIQ✓[®] website:
www.apiq.com.au.

The manuals and guides will provide you with a complete overview of the APIQ[®] Program.

Step 3: Work Through the APIQ✓[®] Manuals and Guides and Create:

- a Piggery Management Manual or Quality Assurance (QA) Manual; and
- a record keeping system to meet the APIQ✓[®] Standards and performance Indicators in the APIQ✓[®] Standards Manual
 - records may include individual Standard Operating Procedures (SOPs) or Work Instructions (WI) - these explain your processes and procedures.
 - records may be developed using the APIQ✓[®] example templates (APIQ Information Tab of this website, Resources section), your own records, or the Pig Management Diary available for Small Holders (contact APIQM for free copy).
 - a review of the record templates is a good starting point if you are unfamiliar with the records to maintain on-farm.

Step 4: Manage the piggery as described in the *Piggery Management Manual*.

Step 5: Complete an Internal Audit using either your own internal audit template or the APIQ[✓]® Express Audit Checklist available from the resources section of this website.

- Small Holder producers can print and complete Section 3 of the Small Holder manual as the template for an internal audit report.
- The internal audit process will step you through the Standards and Performance Indicators relevant to the type of certification you are seeking (Indoor, Outdoor Bred Raised Indoors on Straw, or Free Range) as well as for the Verification options if you are seeking these as part of your APIQ[✓]® Certification (Coles Certification Standard or GSF).
- Through the internal audit, you have scope to identify opportunities for improvement and create personal corrective action requests that when implemented will drive improvements in farm operations and practices.
- The APIQ[✓]® Standards require producers to complete an internal audit once a year, ideally six (6) months after the site audit is conducted; however, you can do as many internal audits as you like.

Step 6: Create Corrective Action Requests (CARs) for non-compliances identified in your Internal Audit and complete the corrective actions to close each CAR.

- A CAR should outline the non-compliance, list proposed actions to be taken to remedy the non-compliance, specify a timeframe to close the CAR, and be signed off on completion.
- Once you are confident that your system is working in your piggery, you have records in place, and you have completed your first Internal Audit, you can arrange for a Compliance Audit to be conducted.

Step 7: The Producer contacts APIQM and / or AUS-MEAT Ltd (contracted to conduct annual APIQ Compliance Audits) to request an audit/s.

Contact APIQM, Phone 1800 789 099, Email apiq@australianpork.com.au

Contact AUS-MEAT Ltd, Phone 1800 630 890

- Your site details will be updated within the APL records management system to reflect that you are seeking APIQ[✓]® Certification and to enable the creation of an audit for your site. If you are new to the industry, a record will be created for your site. All site specific information should be confirmed with APIQM or AUS-MEAT Ltd - your PIC, tattoo, and site address details are necessary for Certification to occur.

Step 8: AUS-MEAT Ltd will assign your audit to an auditor.

Step 9: The assigned auditor will contact you to schedule your audit.

Step 10: You, or your representative/s, participates in the Compliance Audit process by attending the opening meeting, desk audit, site audit and closing meeting and also work with the auditor to close out any CAR's that are identified during the audit.

Step 11: The auditor records audit findings and creates a compliance audit report for your site. AUS-MEAT Ltd will provide you with a copy of this report and, where there are any CAR(s) identified they will also provide you with a Corrective Action Report specifying items for action. You work with your auditor to close out any CAR(s) within 60 days of the date of your audit.

Step 12: AUS-MEAT Ltd will notify APIQM that an audit has been conducted and the status of your audit.

- APIQM maintains the APIQ[✓]® Certification record for your site. APIQM will notify you of your APIQ[✓]® Certification status.
- For producers new to APIQ[✓]®, Current status is provided as soon as you have met all APIQ[✓]® Standards and Performance Indicators.
- If your site has CAR(s) still to be closed out, APIQM will determine whether it can issue Conditional Certification. In this case Current Certification will apply once all CAR(s) are closed.
- Your APIQ[✓]® Certificate (noting your site name, Certification Expiry Date, PIC, Tattoo details, production type and verification options) is available via the APL PigPass portal (access details included in your notification email), or through APIQM if you do not have internet access.
- If the auditor does not recommend Certification and/or APIQM determines that the producer is not meeting the APIQ[✓]® Standards and performance Indicators and/or is not agreeing to and signing off on CAR(s), then Certification is declined. Producers can contest this decision under APIQ[✓]® Certification Policy 15: Appeals/Dispute Resolution Process.

Once Certified, your APIQ[✓]® Certificate(s) is available via the PigPass portal, or through APIQM if you require assistance.

2.8.2 Producers with Current APIQ[✓]® Certification⁷ on-farm:

Prior to their APIQ[✓]® Certification expiry date, a producer's site/s (or selection of sites) will have an annual APIQ[✓]® Compliance Audit to have their APIQ[✓]® Certification approved for renewal.

Contact APIQM, Phone 1800 789 099, Email - apiq@australianpork.com.au

Contact AUS-MEAT Ltd, Phone 1800 630 890

Steps to maintain APIQ[✓]® Certification

Step 1: Complete an internal audit approximately six (6) months but no later than eight (8) months after your last APIQ[✓]® Compliance Audit; close any CARs identified in the internal audit; and review and revise on-farm manuals and records to ensure their systems remain current and are compliant to the current APIQ[✓]® Standards.

Step 2: APIQ Management will notify you at 12 weeks prior to expiry of your APIQ[✓]® Certification that your APIQ[✓]® Compliance Audit is due.

- An APIQ[✓]® Compliance Audit can be conducted no earlier than three (3) months prior to the current APIQ[✓]® Certification expiry date

Step 3: Within the following 4 weeks you will be contacted by an auditor assigned to you by AUS-MEAT Ltd (contracted by APL to conduct all APIQ[✓]® Audits from 1 January 2018) to schedule your audit(s) before your certification expires.

- As AUS-MEAT Ltd is arranging scheduling, any required extensions will be discussed with your assigned auditor or AUS-MEAT Ltd and APIQM advised. APIQM will update your Certification status to extended and provide notification of your extended expiry date. For non-scheduling related extensions, you must provide a written request to AUS-MEAT Ltd, who will refer your request to APIQM who will consider your request for an exception or extension and advise both you and AUS-MEAT of the decision.

⁷ This includes APIQ[✓]® FR and APIQ[✓]® OB Certification.

- Audit costs have been set in a Service Agreement agreed to by the APL Board and AUS-MEAT Ltd.

APIQ[✓]® Compliance Audit Fees and Charges are available on the APIQ website.

Step 4: You, or your representative/s, are to participate in the APIQ[✓]® Compliance Audit process by attending the opening meeting, desk audit, site audit and closing meeting with the AUS-MEAT Ltd auditor.

Step 5: The auditor records audit findings and creates a compliance audit report for your site. AUS-MEAT Ltd will provide you with a copy of this report and, where there are CAR(s) identified they will also provide you with a corrective action report specifying items for action. You work with your auditor to close out CAR(s) within 60 days from the date of your audit.

Step 6: AUS-MEAT will notify APIQM that an audit has been conducted and the status of your audit.

- APIQM maintains the APIQ[✓]® Certification record for your site.
- If your site has CAR(s) still to be closed out, APIQM will determine whether it can issue Conditional Certification.
- Current status is provided as soon as you have met all APIQ[✓]® Standards and Performance Indicators.
- If the auditor does not recommend Certification and/or APIQM determines that you are not meeting the APIQ[✓]® Standards and Performance Indicators and/or are not agreeing to and signing CAR(s), then Certification is declined. Producers can contest this decision under Certification Policy 15: Appeals / Dispute Resolution Process.
- Throughout to audit period, APIQM will notify you of your Certification status (Current, Conditional, Extended, Suspended, Cancelled).

Your APIQ[✓]® Certificate(s) is available via the PigPass portal, or through APIQM if you require assistance.

2.8.3 APIQ[✓]® Current Certification Status

APIQ[✓]® Current Certification requires the producer to have:

- Met all APIQ[✓]® Standards required for their enterprise (CP9, 14 and 17); AND
- Paid all costs concerning APIQ[✓]® Certification. Failure to pay audit costs will result in APIQ[✓]® Certification being refused or suspended (CP9, CP21).

All extension applications greater than three (3) months from the Certification expiry date must be submitted and approved by the General Manager responsible for APIQ[✓]® (GM). APIQM will advise the producer of the approval or disapproval of the extension within two (2) business days of receipt of application.

To be eligible for APIQ[✓]® Certification, producers must meet the APIQ[✓]® Standards by fulfilling each Performance Indicator in practice. The Standards and Performance Indicators are outlined in the APIQ[✓]® Standards Manual.

Producers may elect to engage the services of a facilitator/advisor to design and help them implement APIQ[✓]® on their farm. They may use any person they deem suitably qualified as a facilitator/advisor.

3.0 THE APIQ✓[®] STANDARDS

3.1 Module 1: Management Requirements

The APIQ✓[®] Management Standards ensure that the piggery enterprise demonstrates commitment to the principles of APIQ✓[®], and that staff are competent in their specific tasks and familiar with the requirements of the APIQ✓[®] system, as well as their role in meeting them. You will need to refer to the *APIQ✓[®] Standards Manual*, Module 1, Standard 1.1.

3.1.1 Production System Definitions

Standard 1.2 of the *APIQ✓[®] Standards Manual* defines the different production systems for which APIQ✓[®] Certification are available. This Standard also states that any communication or marketing material produced that describes or depicts the production system on farm must accurately reflect the system used. That is necessary to meet Australian Competition and Consumer Commission (ACCC) requirements and avoid any possibility that customers or consumers may be misled. Your APIQ✓[®] auditor will ask to see copies of such communication and marketing material at the time of audit. This could include letterheads, business cards, brochures, posters, websites and product labels.”

3.1.2 APIQ✓[®] Certification for Free Range Producers

Standard 1.3 of the *APIQ✓[®] Standards Manual* specifies the criteria for producers seeking FR Certification. You will need to meet all the requirements listed.

To be Certified FR, you first must meet the APL definition for FR, which is:

FR means that pigs are kept permanently outdoors for their entire life with shelter from the elements provided, furnished with bedding.

FR pork production consists of outdoor paddocks⁸, which include rooting and/or foraging areas, wallows (where State regulations and seasonal climates permit) and kennels/huts for shelter. The huts allow the animals to seek shelter from environmental extremes. They also provide additional protection for the piglets when very young.

The weaners, growers, and sows from which they have been bred have access to paddocks at all times for their entire life. Shelter, food and water must be provided and all pigs must be able to move freely in and out of the shelter and move freely around the paddocks, unless required to be confined for short amounts of time for routine husbandry or diagnostic procedures.

All pigs raised under FR conditions must comply with the Model Code of Practice for the Welfare of Animals – Pigs to show compliance with State animal welfare regulations and use good land management practices as per the National Environmental Guidelines for Rotational Outdoor Piggeries.

⁸ A paddock is defined as an enclosure of sufficient size and nature that a person unassociated with the farm would reasonably view it as such, in line with ACCC requirements – refer www.accc.gov.au/consumers/advertising-promotions/false-or-misleading-claims

Paddocks and soils are managed to meet the APIQ[✓]® Environment Standards for outdoor pig production including soil monitoring, nutrient management, promoting even nutrient distribution and land and water protection.

Note: *Shelters or sheds with verandas or small pens attached – are NOT considered FR as they do not comply with the APIQ[✓]® FR Standards. A producer with this setup does not qualify for FR or FR Conditional Certification. Under the National Environmental Guidelines for Rotational Outdoor Piggeries (NEGROP) they would be considered as a ‘Feedlot Outdoor Piggery’.*

3.1.3 APIQ[✓]® Certification for Outdoor Bred, Raised Indoors on Straw Production⁹

A producer seeking APIQ[✓]® OB Certification must meet specified Standards and Performance Indicators for OB production. Standards and Performance Indicators have been developed for breeding herd production as well as for growing and finishing production (Refer Standard 1.4 of the APIQ[✓]® Standards Manual).

You must also meet the APL definition for OB production, which is:

OB means that breeding pigs are kept permanently outdoors for their entire life with access to shelter from the elements provided, furnished with bedding. Outdoor paddocks provide rooting and/or foraging areas, wallows (where State regulations and seasonal climates permit), and kennels/huts for shelter. Bedding is provided in shelters and adequate feed and water is provided. Piglets are born and raised under these conditions until weaning.

At weaning piglets move to bedded grow-out housing with adequate feed and water provided where they remain until sale or slaughter. Housing can be permanent or portable structures or outdoor pens with shelter. The shelters must have an impermeable base and/or be located and moved regularly to minimise nutrient leaching and runoff.

Pigs may be temporarily confined to pens for routine health treatments and husbandry practices¹⁰, or when directed by a veterinarian.

Paddocks and soils are managed to meet the APIQ[✓]® Standards and Performance Indicators¹¹ for 6.3.1 Soil Monitoring; 6.3.2 Nutrient Management; 6.3.3 Promoting Even Nutrient Distribution; and 6.3.4 Land and Water Protection.

3.1.4 Land Management for Pigs Kept Outdoor

All farms with pigs kept outdoors must meet the APIQ[✓]® Environment Standards for outdoor pig production. This includes IN, FR and OB Certified piggeries.

⁹ In agreement with the Australian Competition and Consumer Commission (ACCC) as of the 30 August 2015; APL has revised the descriptor ‘Outdoor Bred’ to include the qualifying statement ‘Raised Indoors on Straw’ to ensure consumers are not deceived or misled in any way.

Production systems where breeding pigs are managed free range and where weaners are transferred to and grown/ finished to sale or slaughter in housing furnished in bedding, may be certified as ‘Outdoor Bred, Raised Indoors on Straw’ and in all instances the qualifier statement must be equally prominent and located with the ‘Outdoor Bred’ term.

¹⁰ Refer to specific husbandry practices for OB production in APIQ[✓]® Standard 1.4, Performance Indicator J and to APIQ[✓]® Standard 3.5 – Routine Health and Husbandry Practices.

¹¹ Refer APIQ[✓]® FR Standards and Performance Indicators are Standard 1.2.1 - Soil Monitoring, Standard 1.2.2 – Nutrient Management, Standard 1.2.3 – Promoting Even Nutrient Distribution, Standard 1.2.4 – Land and Water Protection.

For details of these Standards, refer to the APIQ[tick]® Standards Manual, Module 6, Standards 6.3.1 to 6.3.4. The purpose of these Standards is to ensure pig management outdoors manages soil nutrient loadings to acceptable levels. This is achieved by a range of means, including control of stocking rates and rotation of pig phases with cropping.

3.2 Module 2: Food Safety Standards

Module 2 of the APIQ✓® *Standards Manual* identifies Performance Indicators in relation to a, HACCP-based Food Safety and Biosecurity Plan, treatment of pigs, feed management practices and management of medications and chemicals.

3.2.1 On-farm HACCP Plan

Producers have the option to develop or maintain a full on-farm HACCP Plan or, as a minimum, to adopt the five (5) Critical Control Points (CCPs), as identified in the SARDI Final Report¹² and listed in Appendix II of this manual. HACCP is an internationally recognised food safety risk management system.

Within this context, a risk is defined as the probability of a hazard occurring. A hazard is defined as a biological, chemical or physical agent in, or a condition of, food with potential to cause harm to the consumer.

Hazards are prioritised within HACCP systems based on assessment of both their probability of occurrence and consequences if they do occur.

This is the hazard analysis stage. Once the hazards, and risks of those hazards occurring, are identified and prioritised, the next step is to determine the appropriate controls that must be put in place to manage them and where these controls should be implemented. These controls are referred to as Critical Control Points (CCPs). CCPs may include:

- Preventative measures to minimise the risks from a potential hazard.
- Corrective measures to correct a procedure where a hazard has occurred.
- Monitoring, through record keeping, to identify any problems that may be occurring.

Experience and research with HACCP on-farm in the Australian pork industry to date has indicated that expecting each producer to do their own individual HACCP Plan results in an unnecessary duplication of efforts in many cases, and is not always effective in maintaining control of the critical risk factors. This is because the pork production system is largely a generic system and the same process steps are followed by all producers; and also because there are relatively few food safety risks in pork products that are either directly attributable to on-farm practices, and/or where the CCPs are on-farm rather than further up the supply chain.

A key aspect for food safety on-farm in the pork industry is to prevent pigs entering the pork supply chain that contain hazards to consumers, or maintaining market access arising from chemical or physical contamination of the meat on-farm. Food safety also aims to reduce, as much as possible, the likelihood of microbiological pathogens entering the food supply chain.

A comprehensive analysis of these risks was carried-out at industry level. This analysis has resulted in the development of a generic master HACCP Plan for the Australian pork industry. The same analysis has been used in the subsequent development of the APIQ✓® Food Safety and Biosecurity Plan template that is available on the APIQ✓® website.

¹² Pork On Farm HACCP Plan, SARDI Final Report: Project No. 2009/2260.

The industry level HACCP analysis identified five (5) CCPs that need to be included in on-farm food safety plans. It also identified a number of other risks that may be mitigated by on-farm controls. These are listed in the tables in Appendix II of this manual. This analysis concluded that implementation of Good Agricultural Practice (GAP), in relation to the risk factors identified, are the most practical and effective way to manage the risks.

3.2.2 Good Agricultural Practice

The term GAP can refer to any collection of specific methods, which when applied to agriculture, produces results that are in harmony with the values of the proponents of those practices. There are numerous competing definitions of what methods constitute “Good Agricultural Practice”, so whether a practice can be considered “good” will depend on the standards you are applying. In the context of APIQ[✓]® GAP applies to soil, water, public health and animal husbandry (welfare).

The definition of GAP is “practices that address environmental, economic and social sustainability for on-farm processes, and result in safe and quality food and non-food agricultural products” (FAO COAG 2003 GAP paper).

GAP is used by producers and incorporated in APIQ[✓]® to create food for consumers or further processing that is safe and wholesome. In practical terms for food safety a GAP measure may eliminate a hazard or reduce it to a level where it poses minimal risk to consumers or can be effectively controlled by further processing.

The difference between GAP and CCP within a food safety program is that GAP interventions may not meet the criteria stipulated to qualify as a CCP. To qualify as a CCP, hazards:

- Need to be able to be monitored against critical limits;
- Which if exceeded can be detected immediately; AND
- Product (pigs) can be managed/processed to eliminate the hazard (i.e. held back to meet WHP/ESI periods).

Both GAP and CCP interventions can achieve the same outcome of elimination of a hazard and as such are as equally relevant within a food safety program.

Producers have the option to implement or maintain their own individual on-farm HACCP Plan. However, this is not a mandatory requirement for APIQ[✓]® Certification, provided the farm can demonstrate that GAP is in place through the use SOPs and/or WIs and are addressed in the farms Food Safety and Biosecurity Plan.

A more detailed explanation of GAP is provided in the *Review of Pork On-Farm HACCP Plan APIQ[✓]® No. 2013/2128*, Andrew Pointon (January 2014).

3.2.3 Managing Pig Treatments

APIQ[✓]® Standard 2.3 Pig Treatments requires that there is a system in place to ensure treatments provided to pigs are administered in a safe and appropriate manner that minimises the risk of chemical residues or physical hazards entering the food supply chain.

Incorrect injection and treatment procedures can have serious consequences, including:

- Undesirable local reactions.
- Failure to immunise.
- Site infection due to blunt or contaminated needles, or contaminated syringes and vaccines.
- Broken needles from incorrect injection method.
- Non-compliance with dose rates or WHPs can lead to residues in pork.

The first step in the process of developing a good system for pig treatments is to ensure staff administering the treatments are properly trained and competent, and then to keep accurate records of all pigs treated. Producers need to ensure that no pigs are sold within the WHP. Chemical treatments include injections, oral medication, pour-on's, water medication and feed medication. Each chemical or veterinary medication has a WHP stated in the label directions or the prescribing veterinarian specifies the WHP.

Keep in mind that the WHPs for some chemicals are longer for the export than the domestic market. For more information, go to the PigPass website www.pigpass.com.au.

Producers should also check their processors requirements for exporting pig meat.

3.2.3.(a) Preventing Chemical Residues

In many cases, chemical treatments form an important part of ensuring the welfare and health of pigs. Health organisations in most countries, including Australia, accept that chemical residues at very low levels cause no harm to consumers, and only become a concern if the concentration is greater than a certain limit, described as the Maximum Residue Limit (MRL).

The MRL for a particular antibiotic or chemical is the maximum amount of that chemical that is legally permitted in or on a food or agricultural commodity. MRLs are set to ensure the safety of consumers and they may vary between countries. Some countries have a zero tolerance for certain antibiotic residues, including some of our export markets. In Australia, MRLs are determined by Food Standards Australia and New Zealand (FSANZ) and are published in the FSANZ Food Standards Code.¹³

The period that an animal requires to eliminate chemical residues to below the MRL varies between different chemical substances and kinds of animals. This elimination period is used to determine the time that animals need to be held on-farm after treatment with the chemical before they can be slaughtered, hence the term WHP. The WHP specifies the time that must lapse after the last treatment before the animal is slaughtered for human consumption. They are printed on the label of all veterinary and agricultural chemicals. A producers' veterinarian will provide them with the appropriate WHP for each of the medications provided.

Some importing countries have different MRLs for substances to those required in Australia, some require longer WHPs; these are called Export Slaughter Intervals (ESI). If producers are producing pig meat to be exported to overseas countries, they should check with their veterinarian to ensure that these ESIs are being adhered-to. A list (List 1) of the Compounds registered for use on pigs that have, or require, an ESI in addition to a WHP are provided in the PigPass NVD book and can also be found on the PigPass website www.pigpass.com.au.

13 For more information visit the FSANZ website at www.foodstandards.gov.au.

3.2.3.(b) Avoiding Chemical Residues from Other Sources

Chemical residues can also be caused by any substances or products that are applied to pigs, or that they might have access to, including cleaning products for the piggery, pesticides (like fly baits and repellents) and rat baits. Ensure that these are kept away from pigs.

Note: The ingestion of housing materials, such as insulated panels, has led to residues in pigs from fire-retardant chemicals.

Residues can also result if slaughter-age pigs have access to the manure of medicated pigs. For example, when pigs are loaded on dirty trucks where manure from the top storey drops into lower pens.

Feed, even if not medicated, can still cause concerns even though these factors are more likely to cause production problems before they become food safety issues. Examples are:

- Pesticides used on grain can leave unwanted residues in pig feed. Treated grain has a WHP.
- Mycotoxins may be produced by mouldy grain and can cause increased mortalities, liver and kidney damage and abortions in sows, as well as leaving detectable residues.
- Alkaloids, which are present in ergot-affected sorghum, can reduce milk production, cause scours, reduce feed conversion rates in growing pigs and cause low feed intakes in younger pigs.
- Bedding materials used in deep litter systems may contain chemical residues that can be consumed or absorbed by the pigs.

It is strongly advised that producers seek assurance about the quality and safety of feed ingredients from vendors, wherever possible, by asking for information about vendors' commodity QA systems for feed and by-products and obtaining a Commodity Vendor Declaration (CVD) of fitness for purpose.

Outdoor producers should also be aware of the possibility of pigs picking up chemical residues from outdoor environments where pigs are raised on land that has been previously used for cropping or any industrial purposes, or where landfill disposal of industrial waste materials has been undertaken. If in doubt about this, soil and water tests should be conducted to check for contaminants and/or suspect areas should be fenced-off so pigs cannot gain access to them.

Most semen extenders contain antibiotics that could result in residues in meat, especially in organs such as kidneys. In other words, if a sow is culled shortly after she has been inseminated, she needs to be held back until the WHP lapses. A producer's semen supplier or veterinarian can advise on this.

3.2.3.(c) Recording of Pig Treatments

Pigs individually injected can be individually identified and recorded. Pigs treated in batches, can be identified by batch.

Records should include:

- The weight of the pigs to ensure they are receiving the correct dose.
- The medication used, the amount administered and both the WHP and ESI.
- The date of the treatment and the person that administered it.
- Label or off-label use.
- Needle removed intact.
- Date when the WHP or ESI is completed.

If pigs are accidentally sent off to market within their WHP or ESI, or with broken needles or other known retained foreign bodies, the abattoir must be notified immediately. Details of the risk must be provided, for example, the nature and location of the object, or the chemical and date the WHP expires.

3.2.3.(d) Off-Label Use: Including any Changes to WHPs and ESIs Prescribed by a Veterinarian

Off-label use refers to any usage of a chemical in a way other than described on its label. This includes:

- Dose rate that is different from the label.
- A change in the length of the treatment recommended on the label.
- The use of a medication that is not registered for pigs (for example, products registered for chickens, cattle or sheep).
- Off-label use normally affects the WHP and ESI and therefore, a greater risk resides. A veterinarian must prescribe any off-label use of medications. Where a veterinarian prescribes off-label use of a medication, they must provide the producer with written advice regarding the WHP and ESI (Refer APIQ[✓]® Performance Indicator 2.2 C of the APIQ[✓]® *Standards Manual*).

3.2.3.(e) Recommended Injection and Treatment Procedures

Producers need to follow good practice when they inject or treat pigs to ensure the best treatment results and to reduce the risk of pigs going to market within a WHP or with a retained foreign object. A veterinarian is the best contact to provide instruction on the use of medications to prevent and treat disease in your pig herd. For over-the-counter products, this advice may be obtained through a technical sales representative from the supplier.

It is important that everyone in a piggery who administers injections is trained in this area. There are a number of courses available throughout Australia that are designed to provide training in the correct use, storage and disposal of agricultural and veterinary chemicals. Producers should contact their local agriculture department or State pig producer organisation for further information.

3.2.4 Feed Practices and APIQ[✓]® Standards

Pig producers are responsible for ensuring that the pigs they supply do not contain unacceptable chemical residues. If residues are detected in pigs, valuable export and domestic markets are put at risk, along with the industry's reputation as a producer of safe, quality food.

APIQ[✓]® Standard 2.3 Feed Practices and Medicated Feed Management deals specifically with feed practices and provides guidance on the practices required to minimise residues in pork. The risks of residue violations are minimised by good feed mixing, delivery practices and record keeping. Medicated feed fed unintentionally to pigs close to slaughter is one (1) of the main causes of residue violations.

3.2.4.(a) Purchasing Feed and the Use of CVDs

Chemical residues in pig feed can cause residues in pork. This can be prevented if pig producers are well-informed about the feed they buy. Feeding pigs conventional stock feed is a sound practice to avoid feed problems.

When buying pig feed or feed ingredients, a signed VD should be obtained from the supplier, stating whether WHPs and ESIs have been observed for any chemical treatments applied to the feed or feed ingredients. This applies to proprietary feed as well as grains and feed ingredients bought directly from a producer or merchant.

Chemical treatments applied to feed might include grain protectants and insecticides used during storage, or herbicides and pesticides during crop production.

Feed purchased off-farm should come from a QA Certified feed supplier such as a supplier accredited with FeedSafe¹⁴ or equivalent.

A QA Certified feed supplier can provide a VD or CVD¹⁵ that states that the feeds do not contain any chemicals or residues of concern.

Note: Residues of concern to various pork markets are listed on the PigPass NVD or visit the PigPass website at www.pigpass.com.au.

If growing their own grain, producers should ensure that the WHP of all chemicals applied to the grain are observed before it is fed to pigs and keep a record of chemical applications used. APL strongly encourages producers to seek accreditation with grain QA programs, such as GrainCare¹⁶.

If a VD or CVD is not available, producers should ask the supplier for a copy of their Material Safety Data Sheet (MSDS) for each ingredient or for the batch ordered. Likewise, if producers buy grain directly from a grain producer or merchant, they are strongly encouraged to source grain from producers accredited under a QA program, such as GrainCare, that addresses chemical residues in grains.

If producers are supplying pork to markets that are sensitive to the use of genetically-modified grain or by-products, ensure that VDs/CVDs, supplied by the grain supplier, provides assurances in this regard.

3.2.4(b) PigPass NVD and Feed Practices

When selling pigs, customers expect that the feeding history of the pigs will be accurately recorded on accompanying PigPass NVD forms. The information provided on a PigPass NVD helps customers determine the residue risk of livestock offered for sale. The PigPass NVD requires producers to declare an answer to the question: *“Were all feed inputs fed to the pigs in this consignment prepared under an approved feed QA Program, or purchased with a Commodity Vendor Declaration (CVD) and if ‘yes’ name of program”*. This is why obtaining a VD or CVD or evidence of stock feed supplier QA programs is important. Producers need to contact their feed supplier and obtain a declaration or proof of QA Certification that provides assurance for the above requirements¹⁷.

3.2.4.(c) Record Keeping and Medicated Feed

Medicated feed that is fed unintentionally to pigs close to slaughter is the main cause of residue violations. It is important to ensure that the risk of residue violations is minimised through good record keeping and mixing procedures. To minimise the risk of the wrong medications being placed in feed, producers using proprietary feed need to keep track of medicated feed from the point that it is ordered.

14 For more information on FeedSafe: www.feedsafe.com.au.

15 For more information on supplier/commodity vendor declarations, visit www.safemeat.com.au.

16 For more information on GrainCare: www.graincare.com.au.

17 Farm milled ration procedures are outlined in example SOPs available on the APIQ[✓]® website, www.apiq.com.au.

The producer needs an ordering system that records all feed delivered from a commercial feed mill and the medications, if any, in those feeds. The record must clearly state the medications for each batch and which silo the feed is to be placed in by the delivery truck. Check that the feed delivered matches the order and that there is documented evidence of this process.

Silos need to be identified to allow easy recognition for feed transporters, even at night, to ensure they deliver feed into the correct silo. They should also be easily identifiable to piggery staff to ensure correct feed is being delivered to pigs. Identification of silos applies equally to home mixers.

There are various ways to identify silos. Producers should select and establish a system suitable to their individual enterprise. Examples include:

- Number the silos,
- Write the name of the feed on the silo (for example, weaners, growers, lactating sows),
- Mark silos with coloured squares, or
- Use a combination of these methods to assist piggery staff in their task, for example:
 - Numbered and red: medicated, danger if fed to wrong pigs.
 - Numbered and yellow: caution in mixing sequence (for example, don't feed this to growers).
 - Numbered and green: safe, no medication in this silo.

This prevents medicated feed being unintentionally either mixed with non-medicated feed or fed to pigs close to slaughter. It ensures that feed transporters and/or home mill/mix staff receive clear information about the ultimate destination for feed, and that there is no doubt with piggery staff about which feed needs to be provided to which pigs.

To comply with recording requirements, producers need to ensure they have a system in place that clearly records:

- All the feed ordered.
- Any medications contained in the ordered feed.
- The identity of feed silos.
- The silo in which each feed delivery is placed.

There is potential for carryover of chemicals to the next batch following the mixing or transport of medicated feeds or medicated premixes at commercial or farm feed mills. Similarly, this can occur during the mechanical feeding of pigs.

Carryover can be minimised by:

- Thoroughly removing all medicated feed from grinder, augers, bins and ancillary equipment.
- Flushing the equipment with an inert disposable substance or feed not destined for market animals.
- Sequencing, that is the practice of following a medicated feed with one (1) or more batches of feed not destined for market animals before feed-for-sale age pigs is processed through the system.

For further information, refer the *Australian Code of Good Manufacturing Practice for the Feed Milling Industry* (2009).¹⁸

18 A copy may be obtained from www.feedsafe.com.au/feedsafe-manuals-and-guides.

As an extra precaution, where VDs/CVDs for purchased ingredients and feeds are not available, producers are required to retain a 300–500 gram sample of each feed delivered for a period of six (6) months (regardless of whether it is specified as medicated or not). The sample must be labelled so that it can be correlated with the records (Refer APIQ[✓]® Performance Indicator 2.3 A).

Producers who mix rations on-farm must be able to provide samples for testing where VDs are not available. This can be done through bulk storage such as silos, bins or bunkers where the same feed is on-hand for a period greater than six (6) months. In some cases it may be necessary to take samples of individual Total Mixed Rations (TMR) to ensure that all ingredients used in the ration are available for testing. Where TMR samples are taken, accurate mixing and feeding records would be needed to track feed usage, as well as animals fed specific feed.

Collecting and storage of feed samples:

- Samples should be a blended representation of the feed being stored. This is best achieved by taking multiple random grabs from throughout the feed and not directly from a single chute or site.
- The final sample size should be 300–500 grams.
- If large samples need to be reduced in size, producers should follow the practices and principles of quartering as prescribed by Australian Fodder Industries Australia¹⁹ (AFIA).
- Samples can be stored in sealed containers or zip sealed bags where air is expelled. All samples should be protected from extreme weather (heat and cold) and protected from rodents.

3.2.4.(d) Management of Medicated and Non-Medicated Feed

APIQ[✓]® Performance Indicator 2.3 E also requires that feed mixing, storage and delivery procedures prevent contamination of non-medicated feed by medicated feed. This Performance Indicator applies to both home-mixers and users of proprietary feed. In home mixing situations, non-medicated rations for pigs can be contaminated by medicated rations mixed earlier.

This contamination occurs as a result of residual medicated feed remaining in the mixer and/or augers after the ration has been transferred to the appropriate feed silo or electrostatic medications clinging to metal in the mixer or augers.

Home mixers need to ensure that the mixing of medicated feed is followed by the mixing of feed that is not fed to slaughter-age pigs. If this is not practical, then ensure a flushing procedure follows the medicated feed, before non-medicated feed is mixed. For example, flush the mixer by mixing 20 kg of non-medicated milled grain for each tonne of the mixer's capacity. So, a mixer with a two (2) tonne capacity needs to be flushed with 40 kg of grain.

Users of proprietary feeds may also experience a cross contamination of non-medicated by medicated feed, for example, if only one (1) auger is used to deliver different kinds of feed and medicated feed is delivered before non-medicated feed. Residues of medicated feed remaining in the auger could end up in non-medicated feed. Producers can reduce this risk by incorporating the order of feed delivery into their feed order forms and requesting that the feed transporter flushes the auger between different farms.

Medicated feeds should be managed carefully to ensure records are kept of each batch delivered; the feed is placed into the correct silo and identified from other feed at all times. Care should be taken when pigs are fed medicated feed and that it is recorded to avoid pigs being unintentionally fed with medicated feed prior to being transported for slaughter, which will result in residues.

¹⁹ AFIA Laboratory Methods Manual, Publication No. 03/001.

3.2.5 Maintain Medication and Chemical List

Producers need to list all the medications/chemicals used in their piggery. Besides antibiotics, this also includes over-the-counter medicines, such as parasite treatments. This list must include the dose rates and WHP and ESI for pigs. For more information on WHP and ESI, go to the PigPass website at www.pigpass.com.au. It is advisable to file a copy of the manufacturer's guideline pamphlet that is included with the product.

All prescription veterinary medicines must be prescribed by a veterinarian and a copy of the prescription kept. Ideally, producers should ask their veterinarian to advise and approve the use of all chemicals that are used in/on the pigs, to reduce the risks of overlooking something important. An Approved Medicines List (AML) may be provided by the veterinarian, with details of how all medicines are to be used and their WHP/ESI as an option for ease of reference. The AML, if used, should be checked and re-approved annually by a veterinarian and be updated whenever a new medication is introduced.

3.2.5.(a) Storage and Disposal of Medications/Chemicals

Medications need to be stored appropriately in order to retain their efficacy. Vaccines that are left in the sun or frozen can lose their effectiveness and may become toxic to pigs. Agricultural and veterinary chemicals should be stored in the recommended way, as per the label, and be used before their use-by-date, unless otherwise authorised by a veterinarian. Unused medicines must be disposed of safely and according to label directions.

Medications must be stored at specified temperatures. As fridges used for storage on-farm often do not show minimum or maximum temperatures, it is advisable that a thermometer be placed in the fridge to allow producers to check and record temperature as evidence that storage is as per recommendations.

3.2.5.(b) Veterinarian's Responsibility

Veterinarians play a key role in protecting Australia's reputation as a supplier of high quality food. They do this directly by controlling the supply and use of S4 (vet-only) medicines; and advising producers on WHPs and ESIs for these medicines. Veterinarians should be familiar with their client's on-farm QA program and support them by prescribing best practice.²⁰

Veterinarians are responsible for:

- Identifying recurrent disease problems and developing strategies to prevent or control these.
- Prescribing of any S4 (vet-only) medicines for use in the piggery and provision of a copy of the prescription to be kept on file at the farm.
- Indicating precisely on medication labels the treatment regime, the dose, the dosage intervals, the duration of treatment and the WHP and ESI.
- Prescribing the conditions for any off-label use in writing (for example, the use of a chemical in a way other than outlined on the manufacturer's recommendations).

²⁰ AVA Code of practice for the use of prescription animal remedies (Schedule 4 substances) in the pig industry is available at www.ava.com.au/policy-advocacy/policies/use-of-veterinary-medicines/code-of-practice-for-the-use-of-prescription-animal-remedies-schedule-4-substances-in-the-pig-industry.

Veterinarians, under their right to prescribe, need to show a duty-of-care and demonstrate therapeutic need. Accurate veterinary medicine recording and labelling is an important role for veterinarians. Each State's legislation regarding veterinary chemical recording and labelling provides for safe use, protection of exports and prevention of medication abuse. While each State has different legislation, the basic requirements are similar for recording and labelling. In addition, advice notes should be used in relation to:

- Administering medication to livestock.
- Prescribing off-label treatment.
- Supplying or using an unregistered veterinary chemical.
- Supplying veterinary chemicals, where there is insufficient space on label for instructions.
- Supplying more than one (1) container.

Unregistered veterinary chemicals may only be used on single animals and must not be used to treat herds.

For more information on veterinarian guidelines, refer *AVA's Antimicrobial prescribing guidelines for pigs*.

3.2.5.(c) Producer's Responsibility: Adhering to Medication and Agricultural Chemical Labels

Product labels are legal documents and are the main method manufacturers communicate the information about the product to the user. The product label not only provides instructions on how the product should be used (such as dose rate and frequency of use), but also product storage and disposal directions.

All prescription animal remedies must also bear the dispensing label of the dispensing veterinary practice. The directions on such labels must be followed by the user.

Be careful with home remedies. Some historical home remedies, particularly those used for treating skin ailments and external parasites of pigs, may lead to violative chemical residues. It is strongly recommended that producers obtain medicines from veterinarians, pharmacies or reputable sellers/distributors only. Licensed animal remedies and other proprietary agricultural chemicals are required to be manufactured, stored, labelled and distributed in ways that assure their efficacy and safety when used according to label directions. In home remedy cases, producers would have no legal defence against prosecution, whereas proof of use of a licensed remedy according to label directions would provide a strongly defensible position.

3.3 Module 3 - Animal Welfare

The APIQ[✓]® Animal Welfare Standards can be found in Module 3 of the APIQ[✓]® *Standards Manual*. The key reference in regulation for the APIQ[✓]® Animal Welfare Standards is the *Model Code of Practice for the Welfare of Animals – Pigs*. The *Model Code of Practice for the Welfare of Animals – Pigs* is intended as a guide for all people responsible for the welfare of pigs under all forms of management systems. It promotes agreed Standards of animal welfare in the pig industry. The Standards are accompanied by supporting advisory content under the headings of *Recommended Practice* and *Guidelines*. APIQ[✓]® Certified piggeries are required to have a current copy of the *Model Code of Practice for the Welfare of Animals – Pigs* on file and accessible to all staff for reference at any time (Standard 3.2 D).

The Primary Industries Ministerial Council (PIMC) agreed to ensure that the *Model Code of Practice for the Welfare of Animals – Pigs* Standards would be progressed and implemented through regulations in a consistent manner across all States and Territories by April 2009. However, it was recognised by the government-established Implementation Working Group (IWG) that not all of the *Model Code of Practice for the Welfare of Animals – Pigs* Standards are appropriate for inclusion in regulation. Some are already provided for in existing Animal Welfare Acts or regulations in the States and Territories. It was intended that while the remaining agreed Standards would be mandated by regulation, the *Model Code of Practice for the Welfare of Animals – Pigs* itself may be used as a defence in alleged cases of breach of the regulation.

The *Model Code of Practice for the Welfare of Animals – Pigs* was revised in 2007 following consultation with industry, animal welfare groups, Australian government bodies, veterinarians, relevant State bodies and the general public covering the responsibilities of individuals managing pigs. Standards use the word 'must'.

The APIQ[✓]® Animal Welfare Standards reflect the Standards of the *Model Code of Practice for the Welfare of Animals – Pigs*. As the *Model Code of Practice for the Welfare of Animals – Pigs* is the basis of the State and Territory regulatory requirements, APIQ[✓]® therefore provides a mechanism for pig producers to demonstrate compliance with the *Model Code of Practice for the Welfare of Animals – Pigs*. APIQ[✓]® also includes a requirement for a producer to develop a *Model Code of Practice for the Welfare of Animals – Pigs* Compliance Plan. For APIQ[✓]® Certified producers, this may be used as part of a defence against any potential animal cruelty allegations.

The *Model Code of Practice for the Welfare of Animals – Pigs* contains standards for:

- Stockperson competence.
- Food and water provision.
- Accommodation and facility requirements.
- Husbandry practices.
- Emergency humane destruction (on-farm euthanasia).

3.3.1 Regulatory Requirements for Animal Welfare

The States and Territories have responsibility for the regulation of animal welfare in Australia, with legislation on the prevention of cruelty to animals managed by an appropriate government department in each jurisdiction.

States have legislative Acts covering animal welfare that places a legal *duty-of-care* on all persons in charge of animals, to provide for the needs of animals in a way that is appropriate. Each State government has an animal welfare agency responsible for the management of animal welfare regulation and compliance, including cruelty legislation, duty-of-care regulations, regulations regarding prohibited events/activities or surgical procedures, compliance with Model or State codes of practice and other related regulations, such as pig identification and registration.

The following table details the acts operating within each State and Territory jurisdiction for animal welfare:

Table 2: Animal Welfare Acts and Regulations Operating in Each State

State/ Territory	Principal Act	State Pig Welfare Regulations	Administering Department
NSW	Prevention of Cruelty to Animals Act 1979	The Animal Welfare Code of Practice - Commercial Pig Production is enforceable under the Act	NSW Department of Primary Industries
VIC	Prevention of Cruelty to Animals Act 1986, Livestock Management Act 2010	The Victorian Standards and Guidelines for the Welfare of Pigs, based on the <i>Model Code of Practice for the Welfare of Animals – Pigs</i> has been regulated under the Livestock Management Act	Victorian Department of Primary Industries
ACT	Animal Welfare Act 1992	No pigs farmed in the ACT	Environment ACT
QLD	Animal Care and Protection Act 2001	<i>Model Code of Practice for the Welfare of Animals – Pigs</i> has been regulated under the Animal care and Protection Regulation. Use the <i>Model Code of Practice for the Welfare of Animals – Pigs</i> directly	Queensland Department of Agriculture, Forestry and Fisheries
SA	Animal Welfare Act 1985	<i>Model Code of Practice for the Welfare of Animals – Pigs</i> has been regulated and is embedded in the Animal Welfare Regulations 2012	Department of Primary Industries and Regions SA
TAS	The Animal Welfare Act 1993	<i>Model Code of Practice for the Welfare of Animals – Pigs</i> Standards currently being drafted into State welfare regulations	Department of Primary Industries, Parks, Water and Environment TAS
WA	Animal Welfare Act 2002	<i>Model Code of Practice for the Welfare of Animals – Pigs</i> Standards have been regulated under the Animal Welfare (Pig Industry) Regulations 2010	WA Department of Agriculture and Food – Livestock Compliance Unit
NT	Animal Welfare Act March 2000	No domestic pigs farmed in NT	NT Department of Primary Industry and Fisheries

The welfare standards and guidelines for livestock aim to streamline livestock welfare legislation in Australia, ensuring that it is both practical for industry and results in improved welfare outcomes.

Standards are the legal requirements for livestock welfare and provide the basis for developing and implementing consistent legislation and enforcement across Australia.

The guidelines are the recommended practices to achieve desirable livestock welfare outcomes and are designed to complement the standards. Non-compliance with one (1) or more guidelines does not constitute an offence under law.

The Standards in the Model Code of Practice for the Welfare of Animals – Pigs have been incorporated into State animal welfare acts and regulations in all pig producing States. Refer to Table 3 below for information on new pig welfare regulations in each State.

Table 3: New State Pig Welfare Regulations (to regulate the Standards in the *Model Code of Practice for the Welfare of Animals – Pigs*)

South Australia	The key <i>Model Code of Practice for the Welfare of Animals – Pigs</i> Standards have been incorporated into South Australia’s Animal Welfare Regulations 2012 ²¹ (Refer Part 5 – Pigs).
New South Wales	The NSW Animal Welfare Code of Practice – Commercial Pig Production ²² is now enforceable under animal welfare legislation.
Victoria	Victoria’s Code of Accepted Farming Practice for the Welfare of Pigs (Revision 2) will be incorporated into Victoria’s Livestock Management Act 2010. ²³
Western Australia	Western Australia’s Animal Welfare (Pig Industry) Regulations 2010 ²⁴ have now been finalised.
Queensland	In Queensland, from the 16th December 2010 the key <i>Model Code of Practice for the Welfare of Animals – Pigs</i> Standards became law under the Animal Care and Protection Regulation 2002 ²⁵ .

3.3.2 Planning and Contingency Arrangements

Preventing injury to pigs is achieved by maintaining flooring and ground surfaces in a serviceable condition and ensuring there are no sharp protrusions in the penning facilities, feed and watering facilities, gates, gateways and races. Make sure the flooring in the housing area and mating pens is non-slip, well maintained and kept as clean and dry as possible. Facilities and equipment essential to pig requirements must be checked daily and maintained in good working order. Check readings for temperature and ventilation daily for fully-automated sheds. Take remedial action if they are outside recommended levels. Check all heating and cooling systems daily, as required for each season, including shed blinds/shutters, drip/spray systems and creep heating devices.

For deep litter systems, producers should take care that litter provided to pigs does not contain foreign materials that could injure or be retained in pigs. It is recommended that producers discuss this issue with their bedding material supplier. It is also important to avoid chemical residues in bedding materials. A Commodity Vendor declaration (CVD) should be collected from suppliers of bedding material where

21 SA Animal Welfare Regulations 2012 can be viewed at: www.legislation.sa.gov.au/LZ/C/R/Animal%20Welfare%20Regulations%202012.aspx.

22 The NSW Code can be viewed at: www.dpi.nsw.gov.au/__data/assets/pdf_file/0006/1321899/animal-welfare-code-of-practice-commercial-pig-production.pdf.

23 The Livestock Management Act can be viewed at: www.legislation.vic.gov.au/in-force/acts/livestock-management-act-2010/006

24 The Western Australian regulations can be viewed at: http://kirra.austlii.edu.au/au/legis/wa/consol_reg/awir2010388.

25 The Queensland regulations can be viewed at: www.legislation.qld.gov.au/view/pdf/asmade/sl-2012-0141.

possible, or tests conducted where material is suspect. As a minimum, where CVDs are not available, sufficient feed or bedding samples must be kept to enable residue testing when required. Samples must be kept for six (6) months.

Maintaining a safe and comfortable environment for pigs also requires these actions:

- Maintain a Piggery Maintenance Record to keep track of facility and equipment repairs that are completed and/or pending.
- Ventilation systems and procedures at the facility should ensure that the level of air exchange provides sufficient fresh air for pigs.
- There should be a system in place to monitor ventilation in completely enclosed houses. Monitoring should be focussed on areas suspected of having the least ventilation.
- Check ventilation system equipment in sheds daily:
 - For mechanical or automatic ventilation systems, there should be a fail-safe back-up system in place that enables the shed to be ventilated in the case of mechanical or power failure.
 - For natural ventilation systems that rely on automatic equipment, there should also be a fail-safe back-up system or alarm system to warn of power or mechanical failure.
- Airflow associated with mechanical ventilation should not cause chilling of the pigs as a result of draughts.
- For negative ventilation sheds relying solely on electrically-operated environmental controls, alarms should be installed to warn stock people of failures. It is recommended that alarms be tested regularly as part of a maintenance system.
- Electrical installations operating at mains voltage must be inaccessible to pigs. It is advisable that an annual inspection of such electrical systems be conducted by a suitably knowledgeable or qualified person to ensure they do not present a fire hazard.

3.3.3 Stockperson Competence

Staff competency and training is referred to in several APIQ[✓]® Standards and Performance Indicators including:

- APIQ[✓]® Standard 1.1: Management Requirements, Performance Indicator A.
- APIQ[✓]® Standard 3.2: Staff Competency Maintained, Performance Indicators A, B and C.
- APIQ[✓]® Standard 4.3: Staff are Trained in Emergency Disease Awareness and Follow Biosecurity Procedures, Performance Indicator A.
- APIQ[✓]® Standard 7.1: Pre-transport Selection and Preparation of Pigs Performance Indicator A.

Stockperson competency is a critical factor for the success of a piggery operation. Demonstration of competency for stockpersons is a core requirement of the APIQ[✓]® Standards, and a regulatory requirement under State and Territory animal welfare legislation. The industry definition of the term 'competent' is:

The term 'competent' for stockpersons means that they have been assessed by either a nationally registered training organisation, an equivalent external authority, or within an auditable on-farm assessment system that meets equivalent standards, to have successfully demonstrated the competencies required by the regulations.

Stockperson competency may be demonstrated by any of the following means: records of on-the-job

training, supervisor sign-off, industry or formal training, or observational demonstration. Producers should note that requirements vary slightly across States and therefore they should check the relevant regulations.

Table 4: The State Acts and Regulations that Cover Stockperson Competency

NSW	TAS	SA	WA	QLD	VIC ²⁶
<i>Animal Welfare Code of Practice – Commercial Pig Production</i>	<i>Animal Welfare (Pigs) Regulations 2013</i>	<i>Animal Welfare Regulations 2012</i>	<i>Animal Welfare (Pig Industry) Regulations 2010</i>	<i>Animal Care and Protection Regulation 2012</i>	<i>The Livestock Management Act 2010</i>

Stockpersons with more limited competencies may work in certain designated areas of the operation or carry-out other work under the supervision of a competent stockperson.

Competency of stockpersons is an important aspect of assuring the welfare of pigs. *Model Code of Practice for the Welfare of Animals – Pigs* Standards 2.1 and 2.2 state:

2.1 Persons responsible for the day-to-day needs of pigs must ensure animals under their control are cared for in accordance with the Standards in this Code.

2.2 Pigs must be cared for by personnel who are skilled in pig husbandry and are competent to maintain the health and welfare of the animals in accordance with the Standards listed in this Code, or are under the direct supervision of such personnel.


The *Model Code of Practice for the Welfare of Animals – Pigs* Standard 2.2 is a legal requirement as at March 2011²⁷ and has been incorporated into State pig welfare regulations.

The definition of suitably qualified varies among States. The industry defines that a person is *suitably qualified*, if the person:

- A. Is a veterinary practitioner.
- B. Holds a Certificate III in Agriculture (Pig Production) or an equivalent qualification; OR
- C. Has been assessed by a Registered Training Organisation (RTO) to have successfully completed units of competence within the Rural Production Training Package, in relation to working in pork production, which include units of competence in at least the following areas:
 - Move and handle pigs.
 - Care for health and welfare of pigs.
 - Comply with industry animal welfare requirements.
 - Administer medication to livestock.
 - Euthanase livestock; OR
- D. Has, for a period of at least 12 months, cared for pigs in a commercial pig establishment and had on-the-job training and experience in at least the following areas:
 - Moving and handling pigs.
 - Inspecting and assessing the health and well-being of pigs.

²⁶ APL was granted approval of the APIQ[✓]® program from the Victorian DPI as an approved Compliance Scheme under the LMA 2010. Now an Approved arrangement.

²⁷ As agreed by the Code Implementation Working Group 2008-09.

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- Carrying-out vaccinations, health treatments and the elective husbandry procedures.
 - Humane destruction of pigs suffering an incurable disease, untreatable injury or painful deformity.
 - Maintaining records of inspections and assessments of pigs.

This can be proven through either Recognised Prior Learning (RPL) or through appropriate farm records, such as QA records, which show that the stockperson has carried-out these tasks at an adequate level.

It is expected that all staff working in the piggery will also be competent in their particular roles, even where those roles do not involve direct contact with the pigs but are involved in supporting services (such as driving, feed milling etc).

The particular competencies required for stockpersons to meet the requirements of the *Model Code of Practice for the Welfare of Animals – Pigs* are contained in the Pork Production Stockperson Skill Set. The Stockperson Skill Set comprises seven (7) units of competency:

1. Comply with industry animal welfare requirements.
2. Contribute to Occupational Health and Safety (OHS) processes.
3. Move and handle pigs.
4. Observe enterprise QA processes.
5. Implement animal health control programs.
6. Care for health and welfare of pigs.
7. Administer medication to livestock.

In addition, APIQM strongly recommends that stockpeople are trained in euthanasing stock and/or that a farm enterprise has at least one (1) stockperson on-farm that is competent in euthanasing stock of all classifications.

In some States, 12 months of on-farm experience (Refer Table 6 below) in the above tasks is also considered adequate for the stockperson to be deemed competent.

Table 5: State Definitions of Adequate On-farm Experience

NSW	TAS	SA	WA	QLD	VIC
Animal Welfare Code of Practice – Commercial Pig Production	Animal Welfare (Pigs) Regulations 2013	Animal Welfare Regulations 2012	Animal Welfare (Pig Industry) Regulations 2010	Animal Care and Protection Regulation 2002	The Livestock Management Act 2010
<p>Has for a period of at least 12 months, cared for pigs in a commercial pig establishment, and had on-the-job training and experience in at least the following areas:</p> <ul style="list-style-type: none"> • Moving and handling pigs. • Inspecting and assessing the health and well-being of pigs. • Carrying-out vaccinations, health treatments and elective husbandry procedures. • Humane destruction of pigs suffering an incurable disease, untreatable injury or painful deformity. • Maintaining records of inspections and assessments of pigs. 	<p>Holds a tertiary qualification in veterinary science or agriculture; or holds a:</p> <ul style="list-style-type: none"> • Certificate III in Agriculture (Pig Production) issued by the Australian Qualification Network; or • a qualification that the Minister determines is equivalent to that certificate; or has, for a period of at least 12 months, cared for pigs kept for commercial purposes and is able to provide evidence, to the satisfaction of the Minister, of practical training and experience in all of the following areas: <ul style="list-style-type: none"> • moving and handling pigs; • inspecting and assessing the health and wellbeing of pigs; • carrying out vaccinations and other health treatments in accordance with regulation 12 • carrying out husbandry procedures in accordance with regulation 13; • humane destruction of pigs in accordance with regulation 16; • Maintaining records of inspections and assessments of pigs. 	<p>Has for a period of at least 12 months, cared for pigs in a commercial pig establishment, and had on-the-job training and experience in at least the following areas:</p> <ul style="list-style-type: none"> • Moving and handling pigs. • Inspecting and assessing the health and well-being of pigs. • Carrying-out vaccinations, health treatments and elective husbandry procedures. • Humane destruction of pigs suffering an incurable disease, untreatable injury or painful deformity. • Maintaining records of inspections and assessments of pigs.²⁸ 	<p>Experience must be at a business which has had a herd health program in place.</p>	<p>From June 2011, the person gives the Chief Executive a request, in the approved form, to be accredited as being suitably qualified to carry-out the procedure; and the Chief Executive gives the person the accreditation. This requires the Chief Executive to be satisfied the person has the necessary skills and experience to carry-out the procedure competently.</p>	<p>To be “suitably qualified” you must:</p> <ul style="list-style-type: none"> • Hold a Certificate III in Agriculture (Pig production) or an equivalent qualification; OR • Have been assessed by a RTO to have successfully completed the units of competence in the Pork Industry Stockpersons Skill Set (PISS); OR • Have worked for at least 12 months, caring for pigs in a commercial pig establishment and have received on-the-job training and experience and can demonstrate they are competent in the following skill set: <ul style="list-style-type: none"> – Moving and handling pigs. – Inspecting and assessing the health and well-being of pigs. – Carrying out vaccinations, health treatments and elective husbandry procedures. – Humane destruction of pigs. – Maintaining records of inspections and assessments of pigs.

²⁸ As advised by the Department of Environment and Heritage to take effect from late 2011 subject to Cabinet approval.

Simple task lists that are checked off by staff and audited by supervisors are recommended as a useful means for ensuring key tasks essential for maintaining the welfare of pigs, as well as other operational requirements, are covered on a daily basis, especially on larger units.

Personnel undergoing training are to be under the direct supervision of a *suitably qualified supervisor*. The industry defines this as a person who has a Certificate III in Agriculture (Pork Production), has completed the Pig Industry Skill Set or has over 12 months on-farm experience covering the seven (7) areas listed in the Stockperson Skill Set above.

For smaller owner-operated units, competency of the operator may be demonstrated by external assessment by an approved industry assessor. Such assessment should include a review of the curriculum vitae (portfolio of relevant experiences) of the operator, as well as oral and practical demonstration of knowledge and skills. This may be supported by a statutory declaration signed by the owner operator, if required.

For all staff, after initial training and competence assessment has been conducted, regular ('in-service') training and skills/knowledge updates may be achieved by attending relevant industry seminars or training courses and/or membership of professional societies. All training should be recorded.

The names of trained staff need to be listed as being competent in the administration of treatments in the piggery. The training courses that the staff members have attended should also be included. Owner-operators can simply list their years of experience and other qualifications.

3.3.4 Accommodation and Facilities Requirements

3.3.4.(a) Facilities and Equipment

Accommodation, including feed and watering facilities, must be designed, constructed and managed in a way that minimises risk to the welfare of pigs. Seek technical and expert advice on the construction or re-design of piggery facilities and accommodation. This also applies to FR and OB production (Refer APIQ[✓]® Standards 1.3 and 1.4). Make sure that pigs are protected from adverse weather, as far as practicable. A summary of design considerations as well as environmental considerations is provided in the *National Environmental Guidelines for Indoor Piggeries* and the *National Environmental Guidelines for Rotational Outdoor Piggeries*.

3.3.4.(b) Fire Protection

Fire protection measures must be in place in accordance with State regulations. Make sure there is fire-fighting equipment available to service all pig accommodation, as far as reasonably possible. For shelter type accommodation that is difficult to service with fire-fighting equipment, make sure there are gates to open for pigs to escape, and a procedure for staff to follow to let pigs out in an emergency.

Fire prevention measures are the most important aspect of fire protection for pig housing facilities, as in the event of a serious fire occurring it may be difficult to control without also potentially jeopardising human life. It is recommended that fire protection advice be sought from a suitably qualified advisor as part of contingency planning.

3.3.4.(c) Guidelines for Safe Levels of Common Pollutants for Pigs

The environment of pig housing must also be assessed by noting the temperature, humidity, ventilation and smell. Ammonia levels are particularly important and can be assessed by smell. At higher concentrations, ammonia in pig housing causes eye and breathing discomfort for both people and pigs. It is an important factor in causing swine respiratory disease, as well as depressed growth rates.

Table 6: Guidelines for Safe Levels of Common Pollutants for Pigs.

Pollutant	Maximum Recommended Level
Ammonia	11 ppm
CO ₂	1500 ppm
Carbon Monoxide	30 ppm
Hydrogen Sulphide	5 ppm
Inhalable Particles	0.23 mg/m ³

If a problem with ammonia is suspected, producers should check the level by using colour detector ('Drager') tubes; if in doubt or for further information, you should contact your State Department of Primary Industries (Agriculture) extension officer or a veterinarian.

There should be no, or only a very low, visible dust haze in enclosed sheds. Levels in straw-based shelters can be higher, provided the ventilation rate compensates by providing fresh air.

To aid ventilation, consider the following:

- Increase ventilation rates or purge sheds with fresh air at regular intervals to eliminate ammonia.
- Implement cleaning procedures in accordance with an all-in/all-out management system.
- Regularly flush effluent channels and ensure water is covering effluent channels in pull-plug systems.
- Hose aisles/races.
- Check that blinds, shutters or ridge vent flaps (if present) are operational.
- Ensure stocking densities do not exceed *Model Code of Practice for the Welfare of Animals – Pigs* recommendations.
- Minimise feed wastage and dried manure accumulation.

3.3.4.(d) Temperature

Facility design and other designated equipment for heating and cooling must be operational to minimise risks to pig welfare during extreme weather. Observe the behaviour of pigs daily to check that pigs appear comfortable in their environment. For example, when pigs are too cold they will huddle and change position to conserve heat. They will increase their feed intake. When pigs are too hot, they will begin to pant in an effort to cool down and reduce their food intake. Take action, as required, to provide pigs with protection against extreme or abrupt changes in temperature – particularly conditions that pre-dispose pigs to heat or cold stress.

Table 7: Suggested Ambient Temperature Ranges – for different classes of pigs at pig level are:

Animal Class	Model Code of Practice for the Welfare of Animals – Pigs ³⁹
Piglets (newborn)	27–35°C
Piglets (three (3) weeks of age)	24–30°C
Farrowing house	20–22°C
Weaners	20–30°C in the first week
Growers and Finishers	15–30°C
Sows and Boars	15–30°C

Provide operational heating and cooling mechanisms, such as evaporative systems, spray/drip systems, shade or wallows (subject to State and Territory requirements), creep heaters and blinds/shutters, to alter the pigs’ effective environmental temperature, as required.

Properly managed deep litter allows pigs to regulate their own thermal comfort, especially in cold conditions, without the need for additional intervention. This is particularly true for straw litter, but rice hulls and sawdust may require additional material, such as straw, to be provided in very cold conditions. However, litter must also be managed to avoid it becoming unduly wet or dusty, in order to fulfil its correct function of providing the pigs with a comfortable living environment. Make sure a balance is maintained in the sheds between the provision of fresh air and preventing draughts.

If climatic conditions are unfavourable to pigs, such as restricted ventilation or high ambient temperatures, provide additional space in pens. During very hot weather, pigs (especially lactating and gestating sows) should be inspected regularly to identify signs of heat stress. Action should be taken to minimise risks of overheating, such as increasing airflow, provision of mist sprays or drippers or access to wallows for outdoor systems. Mist sprays can have a tendency to increase humidity and not a lot of cooling effect. Sprays usually perform the task better if they are a droplet type sprinkler head. The use of individual drippers for sows in farrowing crates is recommended rather than sprays.

Chilling of newborn piglets should be avoided by maintaining the local zone temperature through the provision of bedding, insulation, heat lamps or pads.

Outdoor production systems should provide shade or shelter from sun, wind and rain. Huts for farrowing and rearing should be warm and draught-free. As a recommendation, and where State regulations allow, provide wallow space for at least five (5) percent of the herd (in each paddock) and running water to ensure wallows contain mud and water as per seasonal requirements.

3.3.4.(e) General Accommodation Requirements for Pigs

Pigs are currently raised in a variety of housing systems, including single or group housing on solid or slatted floors, deep litter systems and outdoor systems.

Whether pigs are kept indoors or outdoors they must have shelter that is designed, constructed and managed in such a way that it protects pigs from adverse weather, injuries or other harm. All accommodation for pigs must provide the minimum space allowances prescribed in the *Model Code of Practice for the Welfare of Animals – Pigs*.

²⁹ Model Code of Practice for the Welfare of Animals – Pigs, Appendix 4.

The current *Model Code of Practice for the Welfare of Animals – Pigs* requires that sows and boars accommodated individually in stalls must be able to stand, get up and lie down without being obstructed by the bars and fittings of the stall; lie with limbs extended, to stretch and to be able to freely undertake such movements. Specifically, check that:

- They are able to stand up at rest in a stall without simultaneously touching both sides of the stall.
- When they lie down in the stall, their snouts and hindquarters are not simultaneously touching the ends of the stall.
- If the stall has bars along the top, these do not touch their backs when standing at rest or when they have their heads down feeding.
- The placement of drinkers and/or feed/water troughs in the stall is easily accessible to them, but does not prevent ability to stand, stretch and lie down.
- When lying down, any contact with their neighbours in stalls on either side does not result in injury.

From 20th April 2017, the *Model Code of Practice for the Welfare of Animals – Pigs* requires that sows must not be confined in stalls for more than six (6) weeks of their gestation period, unless under veterinary advice or special care as demonstrated by the manager³⁰. In addition, any new stalls built from 20th April 2007 onwards, must comply with the new stall dimensions in the *Model Code of Practice for the Welfare of Animals – Pigs*. However, producers should give consideration to the industry commitment to become Gestation Stall Free³¹ by 2017 when planning any refit and/or new housing.

Space allowances for all other stock must comply with the specified minimum dimensions outlined in the *Model Code of Practice for the Welfare of Animals – Pigs* from 2012 onwards.

Facilities for farrowing and lactating sows must allow them to:

- Stand and lie down without obstruction by the bars or fittings of the crate.
- Give birth to piglets without obstruction, and minimise losses of piglets from crushing, trapping or injuries.
- Suckle piglets so that both sides of her udder are accessible.
- Access feed and water without obstruction.

Sows should not be confined in farrowing crates for more than six (6) weeks in any one (1) reproductive cycle, except in an emergency (such as fostering another litter after her piglets were weaned), in which case additional care should be taken to minimise risks to the sow's welfare.

In addition:

- Ensure that boars are released for use, mating or exercise at least twice per week.
- Monitor pigs in groups to ensure that action can be taken to prevent bullying and deprivation of food.
- Avoid overcrowding pigs (Refer to the space requirements in Tables 9 and 10 of this manual).

To measure stalls, crates or pens, take all distances as internal dimensions (for example, from the inside of one (1) bar to the inside of the opposite bar—not centre to centre—and inclusive of feed and water facilities and rear anti-crush rail (provided they do not impede movement or cause injury). This ensures that the space available to the pig is what is being measured, and allows for different methods of construction using different bar thicknesses to achieve the same results from an 'animal space' perspective.

³⁰ Refer to the *Model Code of Practice for the Welfare of Animals – Pigs* for specific requirements.

³¹ Refer to 3.8.1

Regarding the placement of feed and water facilities inside the required stall size, as a general rule it is advised that:

- If the stall is 2,200 mm long, as per the regulations for new stalls, a feeder of up to 150 mm in height can be placed inside the stall length, provided the edge of the feeder trough is flat or at least smooth and will not injure the sow.
- A feeder trough fully recessed into the floor can be positioned inside the measured length of the stall, regardless of the length of the stall. However, for larger sows in particular, producers should consider sow comfort when making judgment.
- A trough with a broad flat edge that is no more than 100 mm above floor level is deemed suitable in a stall that is 2,000 mm or longer.
- In a situation where a hopper-type feeder is hung inside the front gate or bars of a stall, the length of the feeder may need to be added to the internal dimensions of the stall if the stall is less than 2,100–2,200 mm long and is used to house mature sows.

Producers should base final judgements on observing what the sow can comfortably do in the stall. The sow should be able to lie down comfortably in the stall without being forced to rest with her head actually in the trough or at an uncomfortable angle.

The space allowances require consideration of group size, pen size, age, breed, temperature, ventilation and lighting. The space allowances for adult pigs (breeding gilts, sows and boars) housed indoors is provided in Table 9 of this manual. The minimum space requirements for weaners, growers and finishers (m² per pig) are provided in Table 10 of this manual.

If a producer's facilities are smaller than these dimensions, the producer needs to state in their *APIQ[✓]® Piggery Management Manual* how they will manage pig welfare in them. For example, by using smaller stalls for smaller sows whilst implementing an upgrade program to replace old facilities with new accommodation that meets *Model Code of Practice for the Welfare of Animals – Pigs* requirements.

Table 8: Minimum Space Allowances for Gilts, Sows and Boars Housed Indoors³²

Class of Pig	Minimum Space Allowance per Adult
Gilts in group housing (mated or selected for breeding and >100 kg LW)	1 m ²
Sows in group housing	1.4 m ²
Adult pigs in individual stalls	
All new installations:	
• Sows kept indoors	0.6 m x 2.2 m
• Boars kept indoors	0.7 m x 2.4 m
All stalls, including those installed prior to endorsement of the <i>Model Code of Practice for the Welfare of Animals – Pigs</i> .	Must provide the outcome-based standards stated in Section 4 of the <i>Model Code of Practice for the Welfare of Animals – Pigs</i> .
Boars in individual pens (living space only)	6.0 m ²
Sows in farrowing crates	
New crate installations:	
• Crate dimensions	0.5 m x 2 m
• Farrowing crate and creep area	3.2 m ²
	The minimum length must be two (2) metres. This is the internal measurement, inclusive of feed and water facilities and a rear anti-crush rail placed where required.
	The minimum width of 500 mm is to be taken at not more than 450 mm above the floor level.
	Where crates installed prior to the <i>Model Code of Practice for the Welfare of Animals – Pigs</i> are smaller than this, they must only be used for smaller sows to achieve the standards of Section 4 of the <i>Model Code of Practice for the Welfare of Animals – Pigs</i> .
All farrowing crates, including those installed prior to endorsement of the <i>Model Code of Practice for the Welfare of Animals – Pigs</i> .	Must provide the outcome-based standards stated in Section 4 of the <i>Model Code of Practice for the Welfare of Animals – Pigs</i> .
Farrowing pen	5.6 m ² per sow

Recommended Practice:

Sows, when housed in group pens with a group size of less than 10 sows, may need a greater space allowance than the stated minimum if persistent bullying and aggression occurs.

The minimum available floor area for weaners, growers and finishers is calculated as $m^2 \text{ per pig} = 0.030 \times (\text{liveweight (kg)} \text{ to the power of } 0.67^{33})$. This formula applies to indoor pens of all flooring types. Where there are a range of weights in a group, the minimum is based on the average weight of pigs in the group.

³² *Model Code of Practice for the Welfare of Animals – Pigs*, Appendix 3, Table 6.

³³ Spoolder, HAM. Edwards, SA., Corning, S. *Livestock Production Science* 64 (2000) 167–173.

Table 9: Minimum Space Requirements (m² per pig) for Weaners, Growers and Finishers³⁴

LW(kg)	m ²	LW(kg)	m ²	LW(kg)	m ²	LW(kg)	m ²
1	0.03	31	0.30	61	0.47	91	0.62
2	0.05	32	0.31	62	0.48	92	0.62
3	0.06	33	0.31	63	0.48	93	0.63
4	0.08	34	0.32	64	0.49	94	0.63
5	0.09	35	0.32	65	0.49	95	0.63
6	0.10	36	0.33	66	0.50	96	0.64
7	0.11	37	0.34	67	0.50	97	0.64
8	0.12	38	0.34	68	0.51	98	0.65
9	0.13	39	0.35	69	0.51	99	0.65
10	0.14	40	0.36	70	0.52	100	0.66
11	0.15	41	0.36	71	0.52	101	0.66
12	0.16	42	0.37	72	0.53	102	0.67
13	0.17	43	0.37	73	0.53	103	0.67
14	0.18	44	0.38	74	0.54	104	0.67
15	0.18	45	0.38	75	0.54	105	0.68
16	0.19	46	0.39	76	0.55	106	0.68
17	0.20	47	0.40	77	0.55	107	0.69
18	0.21	48	0.40	78	0.56	108	0.69
19	0.22	49	0.41	79	0.56	109	0.70
20	0.22	50	0.41	80	0.57	110	0.70
21	0.23	51	0.42	81	0.57	111	0.70
22	0.24	52	0.42	82	0.57	112	0.71
23	0.25	53	0.43	83	0.58	113	0.71
24	0.25	54	0.43	84	0.58	114	0.72
25	0.26	55	0.44	85	0.59	115	0.72
26	0.27	56	0.45	86	0.59	116	0.72
27	0.27	57	0.45	87	0.60	117	0.73
28	0.28	58	0.46	88	0.60	118	0.73
29	0.29	59	0.46	89	0.61	119	0.74
30	0.29	60	0.47	90	0.61	120	0.74

LW = Live weight

Recommended Practice:

Pigs housed for more than one (1) or two (2) weeks in deep litter systems should be provided with at least 30 percent more space per pig than the standards listed for group housing with other flooring and waste management systems. This is required to assist with litter management.

³⁴ Model Code of Practice for the Welfare of Animals – Pigs, Appendix 3, Table 5.

3.3.5 Feed and Water Requirements

The design and operation of feeding and watering systems are key components of farm management that have important food safety, animal welfare, and biosecurity impacts.

Feed and water requirements are referred to in:

- APIQ[✓]® Standard 3.3: Facilities and Environment Meet the *Model Code of Practice for the Welfare of Animals – Pigs* Requirements, Performance Indicators A–G.
- APIQ[✓]® Standard 3.4: Adequate Feed and Water is Available, Performance Indicators A–E.

The provision of adequate food is covered in *Model Code of Practice for the Welfare of Animals – Pigs* Standards 3.1 and 3.2 as follows:

- 3.1.1 *Pigs must be provided with daily access to feed that maintains their health and meets their physiological requirements.*
- 3.1.2 *A stock-person responsible for pigs must take remedial action if persistent bullying is leading to deprivation from food.*
- 3.1.3 *Automatic feeders must be checked daily.*
- 3.1.4 *Weaners must be provided with access to feed at least twice daily.*
- 3.1.5 *If body condition score of a pig is two (2) or below (on the scale of 1–5, Refer Appendix I³⁵) action must be undertaken to improve body condition. If remedial action fails to recover them to a score above two (2) they must be culled.*

Adequate water is covered in the *Model Code of Practice for the Welfare of Animals – Pigs* Standard 3.2 as follows:

- 3.2.1 *Drinking water or another wholesome liquid must be easily available to pigs at all times to meet their physiological water needs.*
- 3.2.2 *Automatic watering systems must be checked daily.*
- 3.2.3 *A stockperson responsible for pigs must take remedial action if persistent bullying is restricting access to water.*

For the purpose of interpreting these standards on-farm, the industry has provided definitions of the following:

- **Health** – freedom from any (recognisable) disease or ailment.
- **Physiological requirements** – maintenance of normal bodily functions, growth and reproduction parameters in line with age, breed and type (Refer to industry guidelines/benchmarks, such as *Measure to Manage Program*³⁶).
- **Remedial action** – action taken to lessen or alleviate/eliminate a problem or stress.
- **Persistent bullying** – repeated aggressive attacks on a pig by others in the herd leading to injury, deprivation of food or water (and/or restricted voluntary movement caused by fear).
- **Persistent aggression** – as for bullying above, but not necessarily accompanied by physical injuries.
- **Deprivation of food (due to persistent bullying)** – a situation where a pig is unable to approach its feed source or spend adequate time at the feed source, to consume its normal ration due to intimidation (fear and/or physical obstruction) by others in the herd.

35 In the *Model Code of Practice for the Welfare of Animal – Pigs*.

36 Australian Pork Limited, Queensland Department of Primary Industries and Fisheries, *Measure to Manage Program – Notebook Series* – available from APL.

- **Injury** – physically obvious cuts, bruising or lameness.
- **Wholesome liquid** – a fluid such as whey, which may provide both water requirements and some component of nutrition.

The *Model Code of Practice for the Welfare of Animals – Pigs* states remedial action must be taken where poor body condition score occurs. APIQ[✓]® Standard 3.4 A outlines the APIQ[✓]® body score requirements and stipulates remedial action must be taken and may include:

1. Examine pigs for any signs of illness or disease.
2. Administer treatment where required.
3. If individual pigs only are affected in the herd, remove to single accommodation (or isolation if needed) and give extra feed.
4. If generalised, examine, diagnose and correct health status/management/feeding of the herd.
5. If no response to these steps, seek advice from a suitably qualified adviser.

Condition scoring of pigs is a core competency incorporated in stockperson training. It is also recommended that farms have SOPs regarding condition scoring and remedial actions to be taken when condition scores are inadequate.

Condition scoring of sows in and out of farrowing accommodation needs to be backed up and cross referenced with reproductive data, especially the weaning to service interval, to establish if feeding levels are appropriate.

The *Model Code of Practice for the Welfare of Animals – Pigs* recommends that boars and pregnant sows should be given some bulky or high-fibre feed to satisfy appetite. Feed provided for dry sows needs to satisfy appetite without causing the sow to become over-fat. A qualified nutritionist should be consulted on how to meet these requirements.

3.3.5.(a) Managing Feed Requirements

Correct operation of automated feeding systems relies on producers following specifications provided by the supplier in relation to the number of pigs to be serviced by each feeder; the form of the feed to be put through the feeder; and the technical function of the feeder. The *APL Weaning to Sale Manual*³⁷ contains useful information on feeder space required for grower pigs.

There must be contingency plans for the provision of feed and water, including an alternative means of ordering and providing feed and water to pigs in the event of mechanical or power failure, feed or water quality issues or other emergencies.

For producers using formulated feeds, wholesomeness of feed generally relies on commercial feed mills to be accountable through contractual arrangements with mills to ensure that farm systems are suitable. Palatability of rations and spoilage issues, however, need to be considered within the scope of farm management systems in these situations. Palatability issues (caused by things such as excessive dust, staleness and alkaloids in feed) will reduce voluntary intakes of feeds. Further information about this, and other useful information including guidelines on feed sampling, is contained in the APL publication *Producers' Guide to Pig Nutrition*³⁸.

Feedstuffs can be contaminated with disease-causing organisms. An example is *Salmonella spp*, the

37 van Barneveld, R., Mullan, B., Slade, J. Pig Research and Development Corporation, Canberra 1998, ISBN 0-642-30514-5.

38 van Barneveld, R., Edwards, T., Mullan, B., Slade, J. Pig Research and Development Corporation, Canberra 1998, ISBN 0-642-30514-3.

risk of which is reduced if meat and bone meal is not included in the diet. Rodents can contaminate all stored feed with *Salmonella spp.*

There are many more variables to consider when feeding home mixed feed. SOPs should be put in place for milling and mixing based on manufacturers' specifications for the equipment. Staff need to be trained and competent in feed mixing, and ration formulation advice should be sought from a suitably qualified nutritionist. Testing of feed ingredients should be undertaken (such as moisture content in grain). Proprietary mineral premixes and/or any other additives should only be used according to manufacturers' specifications.

In all cases, silos for storage of feeds or feed ingredients need to be well-maintained and checked regularly for water leaks and the presence of vermin that can cause spoilage. Silos should be emptied regularly between feed deliveries.

3.3.5.(b) Managing Water Requirements

The Standards for managing feeding systems (as described above) apply to the operation of watering systems. In particular, the problem of persistent bullying causing deprivation, and the need for contingency plans in the event of supply failures, applies equally to water systems. Water supplies should be monitored regularly to confirm suitability, especially in times of drought when water tables can become very low, allowing ingress from other water tables or salinity to occur in previously tested sources.

Information on drinking water quality for livestock is contained in the *ANZECC Water Quality Guidelines*³⁹. The *APL Weaning to Sale Manual* provides useful reference information on drinker allocation, design, and position and flow rates for growing pigs.

3.3.6 Routine Health and Husbandry Practices

The *Model Code of Practice for the Welfare of Animals – Pigs* states “pigs must be inspected at least once each day by a competent stockperson”. The APIQ✓[®] Standards state that pigs are adequately inspected at least once daily and more frequently when required (Refer APIQ✓[®] Standard 3.5 C)

Recognition of early signs of distress or disease is a core competency for a stockperson. At supervisor-level, the ability to take effective action is also important. A minimum competence level for those inspecting pigs would be the ability to identify problems and seek advice.

It is strongly recommended that records of daily inspection are maintained in the form of operational checklists or in the Diary, along with any significant issues found and corrective actions taken.

The records should identify who did the stock inspection on any given day, where the piggery is operated by more than one (1) person, and in the case of owner-operator units, the names of any relief staff or contractors employed carrying-out this task when the owner is away.

³⁹ Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC & ARMCANZ), paper 4 – Vol 3 October 2000, ISBN 09578245 0 5.

A daily, regular time should be set aside for the examination of all pigs. Allow enough time to observe each pen of pigs. Those inspecting pigs should identify behavioural vices. The industry considers a behavioural vice as: *behaviour that is not part of the normal everyday habits of pigs and is distressing or destructive to the pig performing the behaviour and/or its herd mates*. Examples of behavioural vices that may be seen in pig herds include ear, flank or tail biting; vulva biting; excessive mounting and ‘stereotypies’.

Stereotypies are characterised as: *movements or behaviours that are abnormal, repetitive and seemingly have no function or goal*, such as pacing, bar biting, vacuum chewing (chewing when nothing is present), or chain chewing⁴⁰. Such behaviours are considered by some animal welfare commentators to be an indication of poor pig welfare.

However, in practice, it can be difficult to determine whether a particular behaviour is a welfare problem that needs management attention, or simply a relatively harmless way of pigs adapting to their environment. If unsure, expert advice should be sought.

A suitably qualified adviser to consult on behavioural vices and bullying would be a veterinarian or professional pig consultant. Other professionals may also need to be consulted as part of developing a solution, for example, a nutritionist or agricultural engineer.

The recommended remedial action for persistent bullying/aggression is to remove the pig from its environment and put it in an environment where it can no longer be bullied (for example, in an individual stall/pen or with compatible herd mates).

3.3.6.(a) Herd Health Plan/Program

The *Model Code of Practice for the Welfare of Animals – Pigs* states that all piggeries must have a HHP in place to manage the risk of disease. APIQ[✓]® Standards 3.5 require the implementation of a HHP and outline the need for daily inspections, managing boars, treatments and surgical procedures.

Plans need to be tailored to the particular management situation. Therefore, it is recommended that, as a minimum, all piggery operators should discuss the disease risks likely to be faced in their particular operation with a pig veterinarian, and apply risk management measures accordingly.

A HHP means a documented management program that identifies potential health and biosecurity risks to pigs and specifies actions to prevent or minimise those risks.

To assist producers and veterinarians less familiar with pigs to meet these regulations, the Australian Association of Pig Veterinarians (AAPV), APL and the Department of Industry and Investment NSW⁴¹, have developed a HHP Checklist which has these components:

- Biosecurity – preventing introduction of new diseases.
- Maintaining good herd health – disease recognition and control.
- Risk management – recording chemical treatments and medication.

The checklist can be downloaded at www.apiq.com.au/resources/example-templates-for-piggery-management-manual and has been included in the *Diary for Small Holders*.

40 Anon. (2006) An HSUS Report: Welfare Issues with Gestation Crates for Pregnant Sows. The Humane Society of the United States.

41 APL would like to acknowledge the work of Dr Trish Holyoake (of the Department of Primary Industries Victoria, previously of NSW Department of Industry and Investment) in the ongoing development of a HHP for the pork industry.

Pig owners who do not currently have a HHP can use the checklist to conduct a self-assessment on their herd, with face-to-face or over-the-phone support from their veterinarian. It is recommended that the completed checklist be kept on file by both the producer and their consultant veterinarian.

The *Model Code of Practice for the Welfare of Animals – Pigs* states: “vaccinations and other health treatments must be administered to pigs only by persons competent in such procedures or by persons under the direct supervision of a person experienced in conducting the procedure”. The industry considers that, in this context, *experienced* has the same meaning as *competent*; i.e. if the stockperson has 12 months’ experience or more on a commercial pig farm. Formal training for administering vaccines and other animal health treatments is suggested as core requirements at supervisor-level and for all stockpersons, as part of the Skill Set. Otherwise, such procedures need to be undertaken by persons specifically trained and signed-off for the task or working under direct supervision of such a person.

Animal health records should include time/date of treatment and/or date of euthanasia, as well as details of diagnosis, any treatments given (including WHP) and the name of the person giving the treatment.

3.3.6.(b) Farrowing and Weaning

Sows may need special care around farrowing time. A particularly stressful time for the pig during the production cycle is weaning. This is a time when both sow and piglets need special care and attention. Inadequate nutrition of piglets and/or lack of colostrum are most likely going to be evident due to excessive piglet mortalities and/or piglets that are drawn and emaciated in appearance.

Management and diet formulation for early weaning of pigs (under three (3) weeks of age), if undertaken, should be based on the advice of a veterinarian and professional nutritionist, respectively. A useful reference on this subject is the *APL Weaning to Sale Manual*.⁴²

3.3.6.(c) Boar Management

The *Model Code of Practice for the Welfare of Animals – Pigs* states that: “boars run in groups must be monitored daily and must be managed to ensure that subordinate boars are not seriously injured or subjected to persistent aggression by other boars” (Refer APIQ[✓]® Standard 3.5 D).

Piggeries that run boars together for prolonged periods need a SOP to ensure appropriate caution is taken at all times.

It is important to note the occupational health and safety aspects as well, because mature boars can not only injure each other seriously, or be killed in fights, but can also be dangerous to the stockperson trying to intervene.

3.3.6.(d) Castration

The *Model Code of Practice for the Welfare of Animals – Pigs* requires ‘appropriate and effective restraint’ for this procedure. In the context of castration, that means that the pig should be restrained for the operator to perform the procedure quickly, cleanly and safely, without physically injuring the pig by the restraining method used.

42 van Barneveld, R., Mullan, B., Slade, J. Pig Research and Development Corporation, Canberra 1998, ISBN 0-642-30514-5.

Effective restraint is easier when pigs are castrated at the recommended age of two (2) to seven (7) days old. Where management reasons dictate that castration is done later (eight (8) to 21 days of age), this must be done by a veterinarian and additional restraints should be considered (Refer APIQ[✓]® Standard 3.5 G).

3.3.6.(e) Other Husbandry Procedures

Husbandry practices used, should be included in the HHP and/or SOPs or WIs and be conducted by a suitably qualified person (defined within Standard 3.2 of the APIQ[✓]® Standards Manual).

Within the APIQ[✓]® Standards, both the standards for outdoor production and the CSC verification (optional verification) are above and beyond the *Model Code of Practice for the Welfare of Animals – Pigs*.

The following husbandry practices are based on the *Model Code of Practice for the Welfare of Animals – Pigs*.

To be APIQ[✓]® Certified you will need to use the following information as a guide for the husbandry practices that are carried out on your piggery. Importantly, *the Model Code of Practice for the Welfare of Animals – Pigs* requires that all the procedures listed are only carried out by persons who have been deemed competent to carry them out.

If you are wishing to become CSC compliant you will need to meet the CSC Standards and Performance Indicators as included in the APIQ[✓]® Standards Manual.

To meet APIQ[✓]® Free Range Standards, the following husbandry practices are not permitted: Nose ringing, teeth clipping, tusk trimming, tail docking and surgical castration.

To meet APIQ[✓]® Outdoor Bred Raised Indoors on Straw Standards, Nose ringing, teeth clipping, tusk trimming, tail docking and surgical castration are not permitted. However, where tail docking is deemed necessary by a veterinarian for welfare purposes, it can be carried out by a suitably qualified person before seven (7) days of age.

Future Standards regarding elective husbandry procedures may be incorporated into APIQ[✓]® as customised modules, where a producer and their customers have agreed to these Standards.

Teeth Clipping

The *Model Code of Practice for the Welfare of Animals – Pigs* states: “qualified advice should be sought to determine if teeth clipping is necessary”. In this context, *qualified advice* should be from a veterinarian. This procedure is recommended when *unacceptable injury* is occurring to litter mates and the sow’s udder. Such injury generally would be evident as multiple lacerations on either the sow’s udder or litter mates. The *Model Code of Practice for the Welfare of Animals – Pigs* recommends that only the tips (no more than a quarter of the teeth) should be removed if the procedure is necessary.

Tail Docking, Nose Ringing, Ear Notching

Tail docking, nose ringing and ear notching of piglets, if needed, are procedures that must be carried out in accordance with the requirements of the *Model Code of Practice for the Welfare of Animals – Pigs*. Tail docking of piglets should be done when the piglets are less than seven (7) days of age, and no more than two thirds of the tail should be removed.

Pregnancy Testing

Use of ultrasonic scanning is the recommended method for pregnancy testing and back fat measurement. These procedures should be carried out by a competent operator and according to the manufacturers’ instructions for the use of the equipment.

3.3.7 Emergency Humane Destruction/On-Farm Euthanasia

APIQ[✓]® requires that on-farm euthanasia meets the *Model Code of Practice for the Welfare of Animals – Pigs* requirements as stipulated in:

- APIQ[✓]® Standard 3.6: On-farm Euthanasia of Pigs Meets the *Model Code of Practice for the Welfare of Animals – Pigs*, Performance Indicators A, B and C.
- APIQ[✓]® Standard 3.3: Facilities and Environment Meet the *Model Code of Practice for the Welfare of Animals – Pigs* Requirements, Performance Indicator D.

Euthanasia is defined as causing a sudden unconsciousness followed by death, occurring without distress, pain, fear or anxiety. Key points to consider about euthanasia include:

- Human safety — staff must be trained to avoid possible injury to themselves or others.
- Pig welfare — the method must minimise pain and distress to the pig and other pigs.
- Practicality — the method must be affordable, easy to learn and repeatable.
- Suitability — the method must be suited to the size of the pig.
- Location — the procedure must be done in a safe location.

The euthanasia process can be divided into three (3) stages. First, the pig may need to be physically restrained in a way that minimises pain and distress. This may include placing the animal, if small, into the container in which it will be euthanased. Larger animals may be restrained using a rope snare or placed in a race to restrict the animal's movements. It is then euthanased in a quick and painless way. Finally, the pig is checked to ensure it is dead.

A pig should be euthanased if it is suffering from an incurable disease, deformity or painful condition that cannot be immediately and successfully treated, or is not responding to treatment and the pig is in obvious distress. There are various methods of euthanasia, which are described below⁴³.

3.3.7.(a) Methods of Euthanasia

Carbon Dioxide

Carbon dioxide (CO₂) can cause rapid onset of anaesthesia, with subsequent death due to respiratory arrest if a concentration of over 80 percent can be maintained. It is very safe for personnel and relatively inexpensive.

The main disadvantage is that pigs can become distressed if the gas is not correctly applied. They also have transient muscle spasms before death. However, this is a physiological response after the onset of anaesthesia rather than an indication of stress. The spasms are less intense in stress gene negative pigs than stress gene positive pigs. CO₂ is heavier than air; therefore, when constructing a container for pig euthanasia, the outlet valve should be located at the top so the container can be completely filled with CO₂ while air is allowed to escape.

For small pigs, use a rubbish bin or similar container with the inlet and outlet valves installed in the lid, plus a plastic bag liner, or a cut-off inner tube can be used. After checking that the pigs are dead, the bag containing the animal can be removed.

43 For more information refer to APL's *Care of the Compromised Pig Manual* (first edition, 2011) available on the APL website.

Anaesthetic Overdose

Anaesthetic overdose depresses the central nervous system causing deep anaesthesia leading to respiratory and cardiac arrest. Veterinarians must perform this procedure as it requires intravenous or intracardiac administration. The medications involved can only be used by veterinarians.

Gunshot

The most efficient and common way to humanely destroy pigs is by a close-range gunshot to the brain. There may be legal restrictions on discharging a firearm in certain areas. Police permission may be necessary.

Note: The use, storage and maintenance of firearms are subject to State gun licensing laws. Producers should therefore ensure that all persons using firearms are licensed according to State laws.

A small calibre firearm is most suitable to reduce the risk of projectiles exiting the head. A 0.22 calibre magnum rifle is adequate if the shot is correctly positioned.

Note: 0.22 calibre rifle should only be used on young pigs.

The range should be less than five (5) metres and the muzzle must not be placed against the animal's head. Alternatively, a .410 shotgun may be used at close range, but again, the muzzle must not be placed against the animal's head. The use of this weapon is preferred rather than a 0.22 calibre rifle. The .410 is a much safer firearm to use in pens/sheds, as there is little chance of any projectile travelling through the pig.

The pig must be still and properly restrained. Shooting at a moving animal is extremely hazardous to the animal and to bystanders. Other staff should be well clear of the area. Never fire while the animal is moving its head.

Figure 1 below demonstrates the position and angle of the shot or bolt to humanely euthanise pigs of different size or weight.

Firearms or captive bolts should be directed at a point midway across the forehead, and between 2 cm and 4 cm above the level of the eyes. Aim downwards into the skull.

Note: The *Model Code of Practice for the Welfare of Animals – Pigs* states the aim should be horizontal into the skull, but this is not practical.

Penetrative Captive Bolt

The penetrative captive bolt is safer than a firearm since a blank cartridge is used. The captive bolt gun is positioned as for a firearm, in the middle of the forehead, approximately 1.25 cm above the eye level, as shown in Figure 2 below⁴⁴. The muzzle is firmly pressed against the animal's skull before firing. It must, however, be assumed that the animal has only been stunned and a follow-up method of ensuring death, such as bleeding out, is required. This requires the severing of blood vessels to induce effective bleeding. It is often necessary to follow-up a neck cut with a thoracic stick to sever the larger blood vessels at their origin near the heart, because the blood loss from the neck cut alone is not sufficient to ensure the animal does not regain consciousness.

⁴⁴ (Adopted from Pork Checkoff's 'On-Farm Euthanasia of Swine – Recommendations for the Producer', 2008, National Pork Board, Des Moines USA).

As a pig ages, the sinus cavity becomes larger and the skull becomes thicker. It is important to select the bolt length and cartridge combination appropriate to the age and size of the pig that is being euthanased to ensure the bolt is long enough to penetrate the pig's skull.

The manufacturer's directions should be followed on the most appropriate blank cartridge to use for the size of the pig and for storage. Regular maintenance of the captive bolt stunner is essential for efficient stunning. As penetrative captive bolts do require gun licences in some States, producers should check permit requirements with their local authorities.

Two (2) types of captive bolt gun are available. The concussion stunner has a wide mushroom-shaped head that delivers a knockout blow to the skull. The penetrating stunner has a narrow bolt that is driven a short distance into the brain. The penetrating type of captive bolt gun is recommended, as it is more reliable at delivering an effective stun in pigs. The concussion stunner (non-penetrating) is not recommended.

Figure 1: Position and Angle of the Shot or Bolt to Humanely Euthanase Pigs of Different Size or Weight

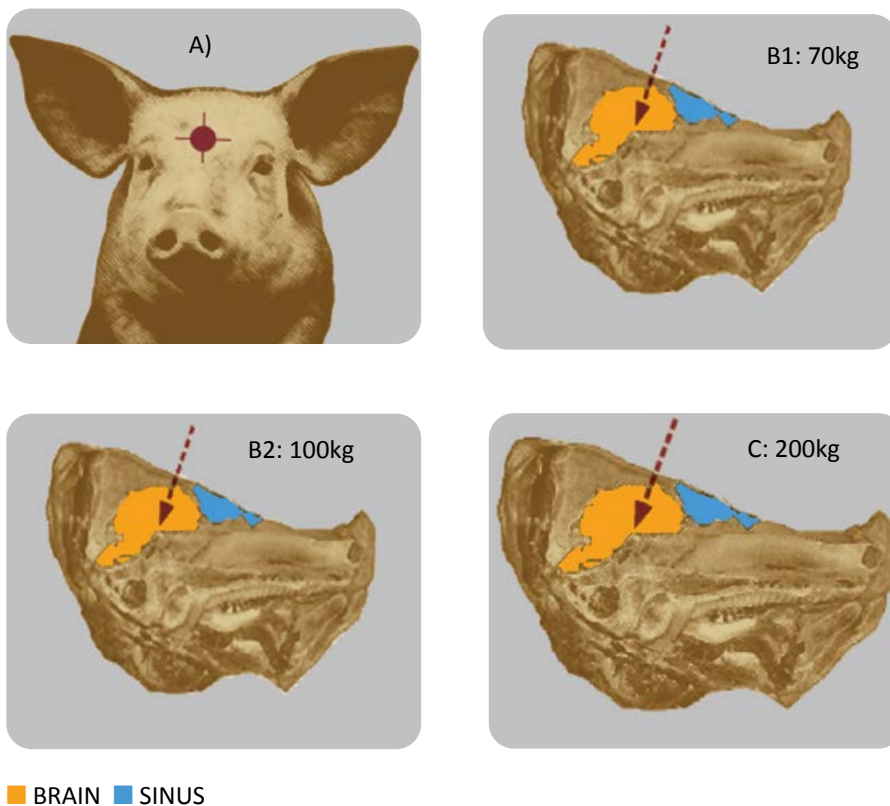


Figure 2: Captive Bolt Gun in Use



Stunning by Blunt Trauma to the Head

Blunt trauma to the head using a hammer or other suitable solid heavy object may be used to render unconscious, small and easily controlled piglets (up to 15 kg). The blow should be aimed at the centre of the forehead in the position as indicated for frontal shooting in Figure 2. The unconscious piglet should then be immediately bled-out to ensure death.

Table 10: A Summary of Recommended Euthanasia Methods for Each Class of Pig

	Piglets < 3 weeks old	Nursery pig < 10 weeks	Growing pig	Finishing pig	Mature
	Birth – 6 kg	6–30 kg	30–75 kg	75 kg +	
Carbon dioxide	YES	YES	Not practical	Not practical	Not practical
Gunshot	NO	YES (above 15 kg)	YES	YES	YES
Penetrative captive bolt	NO	YES (above 15 kg)	YES	YES	YES
Blunt trauma	YES	NO (pigs less than 15 kg may be euthanised using blunt trauma)	NO	NO	NO

FOR VETERINARIAN USE ONLY

Anesthetic overdose	YES	YES	YES	YES	YES
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3.3.7.(b) Evidence of Instant Death

The following is a list of signs of instant death:

- The standing animal will collapse.
- The tongue will hang out and be straight and limp.
- There will be no response to a nose pinch.
- There will be no vocalisation.
- When a captive bolt is used, the eyes will be wide open with a blank stare.
- The animal will not blink or have an eye reflex in response to touch.
- There will be no evidence of rhythmic breathing or heartbeat.

If any signs of life are still present, the same procedure must be repeated, or an alternative approach must be used, to euthanase the animal in a rapid and humane manner.

3.3.7.(c) Disposal of Dead Stock

The safe disposal of carcasses and other infected materials is a good management practice to prevent disease from spreading further. Whatever method is used, ensure that feral animals, especially feral pigs, foxes and birds, do not have access to pig carcasses⁴⁵.

During an emergency (exotic) animal disease outbreak, the safe disposal of carcasses and other infected material will be critical. In such an event, the euthanasia and disposal of animals will be under the control of State officials and information will be provided to producers.

⁴⁵ The *National Farm Biosecurity Manual for Pork Production* contains information on carcass disposal.

3.4 Module 4: Biosecurity Requirements

The Australian pork industry has a well-earned reputation as a supplier of safe, wholesome pork. The industry has comprehensive systems in place to ensure the quality of Australian pork, and to prevent the risk of serious quality or safety problems, as well as outbreaks of serious pig diseases.

The key elements of these systems, as far as biosecurity is concerned, are:

1. The *Australian Pork Industry National Biosecurity Manual for Pork Production version 2.1*⁴⁶ which describes a program of risk reduction measures to reduce the risk of entry and spread of emergency animal diseases, and forms the basis of the current APIQ[✓]® Biosecurity Standards.
2. This code was developed by APL in accordance with clause 14 (a) of the *Government and Livestock Industry Cost Sharing Deed*⁴⁷ in relation to emergency animal disease risk management. APIQ[✓]® Biosecurity Standards cover on-farm production only.
3. PorkSAFE, the industry's emergency management plan, is structured to reflect the Government's Incident Control System (ICS). The ICS is a way of managing emergency situations using a systematic approach that integrates all the activities that are required. The type and scale of the incident does not affect the principles of the system. The ICS can be used in a wide range of situations that may impact on the industry. PorkSAFE contains industry agreed guidelines to assist in responding to a crisis event, and would be utilised in association with relevant Federal and State response plans, which cover incidents from paddock to plate. In many cases, PorkSAFE activities will be in support of other broader government plans, through the provision of advice and input to the lead government agency on industry aspects and feedback of information to industry.
4. The AUSVETPLAN contains detailed information about various animal diseases, how to deal with them and how to prevent them from spreading further. The AUSVETPLAN is developed under the auspices of Animal Health Australia (AHA) and is jointly endorsed by the Federal and State governments and impacted industry. They describe specific activities to be undertaken in the event of an emergency disease outbreak, and form the basis for State and Federal responses⁴⁸.

3.4.1 On-farm Systems to Minimise the Risk of Contamination or Spread of Disease

3.4.1.(a) Prohibition of Swill Feeding for Pigs

Pigs must not be fed prohibited pig feed; commonly referred to as swill. Swill feeding is illegal in Australia because of the serious risk of introducing diseases that are not present here. Swill feeding caused the 2001 outbreak of Foot and Mouth Disease (FMD) in the United Kingdom. APIQ[✓]® Standard 4.1, Performance Indicator A, requires that pigs are not fed prohibited pig feed i.e. swill or any food scraps that contain meat or other matter from animals, or any other substance prohibited by State or Territory legislation. Running a few pigs and using swill as a cheap source of stock feed is an illegal and dangerous practice that puts our national agricultural industries at risk.

46 The original Australian National Pork Industry Farm Biosecurity Code was reviewed in 2009, resulting in an updated version known as the National Farm Biosecurity Manual for Pork Production (November 2019), currently under review. Refer www.farmbiosecurity.com.au.

47 Government and Livestock Industry Cost Sharing Deed In Respect Of Emergency Animal Disease Responses, Variation no 10/01 – 08/07/10 www.animalhealthaustralia.com.au.

48 To view the AUSVETPLAN: <https://animalhealthaustralia.com.au/ausvetplan>.

Swill is defined as material of a mammalian origin, not including milk or milk by-products and includes anything which has come into contact with this material. A common example of swill is table scraps.

Diseases that can be introduced as a consequence of swill feeding include:

- Foot and Mouth Disease (FMD).
- African Swine Fever.
- Classical Swine Fever (Hog Cholera).
- Aujeszky's Disease.
- Swine Vesicular Disease.
- Vesicular Stomatitis.
- Transmissible Gastroenteritis.

Disease causing agents could be found even in small amounts of meat or dairy product and, if included in swill and fed to pigs, could establish an exotic disease in our livestock. Many viruses are highly resistant to chilling, freezing and curing. Experience has shown that even boiling swill may not destroy all disease organisms. Once a disease agent is introduced in this way, it could spread rapidly amongst different types of livestock.

If an exotic disease is detected in Australia, then countries importing our livestock products would close their markets and ban our product until freedom from the disease is proven. Regaining markets is then a difficult and long-term process.

A person must not feed swill to pigs or possess swill for the purpose of feeding it to pigs. This means that food or food scraps containing, or contaminated by, animal matter from any source, such as leftovers from restaurants, hospitals, supermarkets and domestic households or from visitors' lunches, must not be fed to any livestock. A person must not supply swill to another person for the purpose of feeding it to pigs. A business owner who permits another person to collect food wastes containing, or contaminated by, animal matter from their business for feeding to animals, could be prosecuted.

Any material from animal carcasses or meat must not be fed to pigs. Vegetables and vegetable matter served on the same plate as meat, or discarded into the same containers as animal matter, are considered to be contaminated materials and should not be fed to pigs. Vegetable oils that have been used to cook meats could harbour viruses in food particles, and are regarded under the law as animal matter⁴⁹. All commercially prepared by-product meals of animal origin, such as blood meal, meat and bone meal, meat meal, bone meal, fish meal and poultry meal, cannot be fed to ruminants (cattle, sheep, goats etc.). However, these meals can be fed to non-ruminants, such as pigs, where they have been sourced from a reputable supplier and are approved for pig feed.

Milk and milk products of Australian origin, which are processed in Australia (such as calf milk powder) or legally imported dairy products, may be fed to pigs. It is also permissible to feed rendered animal fat and gelatin produced by licensed renderers to animals. Grain, bread and vegetable waste from bakeries and markets may be fed to livestock, provided they have not come in to contact with animal matter or animal-contaminated matter at any time⁵⁰.

49 There is variation under State laws regarding this point. Producers will need to check with their State regulatory authority on the exact definition criteria that apply to edible oils in their State, if they are planning to include these products in their feed.

50 **Note:** Some States prohibit the deliberate feeding of afterbirth and stillborn pigs as part of the definition of swill feeding. Producers should check with their State regulatory authority to see what rules apply in their State.

A person must take reasonable precautions to prevent animals from having access to swill materials. Discarding contaminated food waste into the environment where stock can feed on it is prohibited, including feral animals such as pigs. Disposal into waste bins or securely fenced dumps or compost heaps are appropriate ways of dealing with food wastes contaminated by animal matter.

Note: Individuals require a by-product license from State regulators to allow for disposal of approved waste to non-ruminants/pigs.

3.4.1.(b) Hygiene Practices and Equipment

Biosecurity procedures provide for mandatory cleaning and disinfection of any equipment that is moved by consultants from farm-to-farm (Refer APIQ[✓]® Standard 4.1 D). Equipment used by consultants and veterinarians can carry disease from one (1) farm to another. This includes:

- Snares or ultrasound pregnancy detection equipment—these should be disinfected between visits.
- Syringes used for injection or blood collection—these should remain on the farm and be destroyed after use.
- Post-mortem implements used by veterinarians—these should remain off-farm or be used in areas not in direct contact with the main herd.
- Other service providers and contractors should take care if moving equipment and materials from farm-to-farm and should adhere to the biosecurity requirements of the property.

3.4.1.(c) Truck Cleanliness

Trucks collecting or delivering pigs must comply with APIQ[✓]® transport Standards, and specifically from a biosecurity point of view, must comply with Standard 7.2 B in regard to truck cleanliness and disinfection (refer section 3.7.2 of this manual).

3.4.1.(d) Controlled Entrance for Visitors and Staff

A piggery is required to have a controlled entrance through which visitors are admitted (Refer APIQ[✓]® Standard 4.1 in the *APIQ[✓]® Standards Manual*). This needs to be away from the pig sheds so producers can ensure that visitors meet their biosecurity conditions prior to any contact with the pigs or their living environment.

People can carry infectious agents on contaminated boots and clothes and their skin can be contaminated. However, basic common sense and personal hygiene, together with a change to farm boots and clothes, is sufficient to reduce the movement of disease between pig farms to very low risk levels. Research shows that hand-washing can reduce bacteria and that this is increased with hand-drying.

As a minimum, it is important to provide clothing, boots and hand-washing facilities for all visitors, to reduce the risk of disease or pathogen transmission. A shower and clean clothing and boots for visitors are ideal.

Footbaths have been shown to be of limited value in eliminating bacterial contamination. For them to provide any useful degree of protection, boots must be free of organic matter and spend in excess of five (5) minutes in the disinfectant solution. For most farms, it will be enough for the farm boots to be clean.

Signage and locked doors and gates are measures that can take to discourage pig and feed truck drivers, or unauthorised visitors, from entering sheds.

Clearly designated clean and dirty areas reinforce the biosecurity principles associated with people movement. Designated areas permit people to remove their off-farm 'dirty' clothes and footwear on one (1) side of a barrier, and put on 'clean' farm boots and clothing and wash their hands on the other side.

All sites must have written biosecurity protocols and maintain a visitor log which records the name, date and time of contact with pigs (prior to entering the farm), contact phone number, reason for access being given and who granted access. Small Holders maintain this record in their Diary. This allows trace-back in the event of a disease. Recent experiences with the Swine Influenza virus suggest that this rule should also be extended to include contact with poultry.

The *familiarity breeds contempt* phenomenon means that staff movement may be as much a risk as visitor movement. The farm biosecurity program should be designed to keep piggery staff aware of the risks entailed in off-site contact with other pigs and poultry. The rules for staff entry should be similar to the rules for visitors. Staff exit is as important as entry, for example, 'clean' clothing should not be worn into the 'dirty' area, or into town to do a few jobs. It is an APIQ[✓]® requirement that all staff sign a Personnel Biosecurity Declaration that confirms they are aware of the piggery biosecurity procedures and will adhere to them. A suitable template for this declaration is available on the APIQ[✓]® website, www.apiq.com.au.

Transmission of Swine Influenza virus to human caretakers, despite the use of biosecure containment practices (coveralls, boots, goggles, gloves, hairnets and dust masks), has been recorded, as has infection of pigs by infected pig workers. Therefore, a farm policy for staff and visitors with influenza is now a necessary adjunct to biosecurity requirements. Producers need to be vigilant with on-farm biosecurity to protect their pigs against strains of influenza. It is recommended that the following be implemented on farm:

1. Establish and enforce strict sick leave policies for on-farm workers with influenza like illness.
2. Influenza vaccinations for workers.

3.4.1.(e) Movement Records

Records should be kept of the movements of animals, people and vehicles onto and off the farm; this will assist in tracing pig/people movements in the event of an emergency disease outbreak or food safety trace-back. This information is vital to ensure that the disease or source of product contamination is rapidly and effectively tracked and contained. Small Holders can keep their movement records in their Diary. APIQ[✓]® Standard 2.1 specifies the need for movement records.

3.4.1.(f) Isolation Practices for Pigs Taken to Shows

Exhibiting of pigs at shows can present some unique challenges in maintaining biosecurity on-farm. Pigs at shows may come into contact with infections from other animals of unknown health status over a period of days. The stress of travel and handling may also reduce immunity levels, promoting virus or bacterial shedding by infected animals and making uninfected animals more susceptible to infection.

Even when all the stock appears clinically healthy, there is no way of knowing whether they may be incubating infectious diseases. Viral diseases, in particular, are often highly transmissible during the disease incubation period.

Most importantly, the usual practice is for exhibitors to return their pigs to their property and, therefore, they may bring infections acquired at the show with them.

Where a producer takes pigs to shows, they should:

- A. Maintain complete and accurate records of all pigs exhibited.
- B. Returning pigs are quarantined and observed for any signs of disease before being introduced to the herd.
- C. The quarantine period should be the the minimum period specified in the piggery's on-farm Biosecurity Plan and/or Herd Health Plan, developed in consultation with the farm's veterinarian, or at least 30 days if no veterinary direction to the contrary has been obtained.

3.4.2 Introducing New Stock

Maintaining a closed herd is the safest biosecurity measure, but not always possible. Purchased pigs should be sourced from piggeries with a known and demonstrable health status. If it is necessary to change suppliers, use a careful process of matching health status, or reduce the risk by increasing disease prevention strategies.

Ask vendors for evidence of the health status of their herd and when checks have been done, also:

- Discuss the health status of suppliers with a veterinary adviser.
- Buy unmated pigs in preference to pregnant sows or mated boars that have had the opportunity to contract a venereal disease.
- Inspect stock on arrival and record all pig introductions to enable trace-back.
- Incoming stock must have been bred and raised in accordance with the APIQ✓® standards.
- The quarantine period should be the the minimum period specified in the piggery's on-farm Biosecurity Plan and/or Herd Health Plan, developed in consultation with the farm's veterinarian, or at least 30 days if no veterinary direction to the contrary has been obtained.

A basic quarantine facility located away from the main sheds, and a simple introduction protocol for new stock, will protect the herd against disease that could be introduced by incoming breeding stock.

A quarantine facility must provide

- A. Inability for introduced pigs to co-mingle with existing pigs;
- B. Suitable buffer distances to prevent the spread of contamination by aerosol; and
- C. Appropriate isolation as prescribed by the veterinarians in the piggery's on farm Food Safety and Biosecurity Plan and/or Herd Health Plan

It is recommended that the quarantine facility is located at least 500 meters away from the main sheds. However, a lesser distance where space is limited is still worthwhile. Isolation facilities for reduction of disease spread may include walled off areas or areas with separate ventilation within existing buildings, where it is not possible to have a standalone separate building for the purpose. Producers should seek advice from their veterinarian on the appropriate quarantine arrangements for their own individual piggery operation.

Boots and overalls should be kept at the isolation facility, and staff must be vigilant in hygiene measures. Purchased pigs may be vaccinated, treated for internal and external parasites and washed down with disinfectant during this quarantine period.

While isolation facilities are useful for the introduction of new breeding stock, it is impractical to apply these conditions to farms which regularly introduce growing pigs as part of multi-site operations. However, 'all-in, all-out' systems, or other measures, should still be in place to reduce risk of disease spread between batches or groups of pigs.

3.4.2.(a) Buying Stock at Saleyards

Buying pigs from unknown sources at a saleyard is not recommended, as it is the surest way to introduce disease, especially Swine Dysentery. If it is necessary, only healthy looking pigs should be considered and they should come from a small number of piggeries whose health status is known. It is strongly recommended that weaners or stores be purchased on the property of origin and taken direct to their destination. Pigs transported to a saleyard, penned and then moved to another piggery are subjected to considerable stress. This may cause the onset of disease, for example, scouring or pneumonia. They may also pick up harmful bacteria from other pigs, and although healthy when purchased, become sick later.

If pigs are purchased from saleyards, they must be quarantined and observed for any signs of disease before being introduced to the herd. The quarantine period should be the minimum period specified in the piggery's on-farm Biosecurity Plan and/or Herd Health Plan, developed in consultation with the farm's veterinarian, or at least 30 days if no veterinary direction to the contrary has been obtained.

Where weaners are regularly bought in for growing-out to slaughter weight, it is a good policy to purchase them in batches, grow them out together and then clean and disinfect housing before bringing in the next batch (for example, use an 'all in, all out' system).

3.4.2.(b) Artificial Insemination

Use of AI is common in the pig industry. It reduces the need to buy-in boars with the inherent risk of introducing disease. Semen must be sourced in compliance with biosecurity requirements, and with the APIQ[✓]® standards and Australian Law.

Semen can transmit viruses; however these are mainly exotic to Australia. The major disease risk with semen is *Leptospirosis*, so producers need to check that their semen suppliers add an antibiotic to protect against this bacterium.

3.4.3 Emergency Disease Awareness

3.4.3.(a) Training Staff in Emergency Disease Awareness

Piggery staff must be aware of important exotic diseases, endemic diseases and major emergency diseases (Refer APIQ[✓]® Standard and Performance Indicator 4.3 A). If an exotic disease occurs, individuals may not recognise which specific disease is present, but should be able to detect that something unusual is affecting the pigs and be aware of the procedures to follow when such signs are present. Outbreaks of any unusual illness in pigs must be investigated as early as possible to limit its spread. A copy of an Emergency Disease Awareness and Action poster⁵¹, showing signs of important emergency diseases and contact phone numbers to report any suspicious signs must be maintained in a prominent location readily accessible and visible to all staff.

51 Available on the APIQ[✓]® website www.apiq.com.au/Resources

3.4.3.(b) Typical Signs of Disease in Pigs

The rapid recognition of a disease is the single most important element for prompt diagnosis and management of an emergency disease. There are various signs that would indicate the possible presence of disease in pigs, including, but not restricted to, the following:

- **Inappetance** (loss of appetite) is obvious where an animal is housed and fed as an individual, such as a sow in confinement. But in group housed animals, this is less easy to detect. The failure to eat, or a drop in feed intake in a pen of apparently normal pigs, must immediately arouse suspicions. The initial check should be for lack of water, which is usually the most important sudden cause of inappetance involving all pigs in a group. If the water supply is normal, look for signs of disease.
- **Listlessness or a dull appearance** of the pig will be quickly detected by a good stockperson as early signs of illness.
- **Shivering** and raising of hair over the body is an important feature of disease, and is one (1) of the very early signs of *streptococcal meningitis* or joint infections in the sucking pig. Producers should look for this sign when examining each individual in the litter. A pig lying on its belly and shivering with its hair-on-end, compared to the rest of the group, may be suffering from a *generalised septicaemia* (bacteria in the blood stream).
- **Loss of body weight** is a first indication of inappetance or dehydration due to diarrhoea or pneumonia.
- **Discharges** from the nose or eyes indicate an upper respiratory infection.
- **Excess salivation** from the mouth may indicate an exotic disease, such as *vesicular disease*.
- **Vulva discharge** in sows could indicate Vaginitis, Cystitis, Pyelonephritis or Endometritis.
- **Faecal changes** can indicate a wide range of diseases, but sloppy faeces can also be quite normal. Look for signs of mucus or blood indicative of Swine Dysentery, *Salmonella* infections, Gastric Ulceration or Proliferative Haemorrhagic Enteropathy. Constipation may be important in the development of Udder Oedema and Agalactia at farrowing.
- **Vomiting** can be a sign of diseases such as Transmissible Gastro-Enteritis, or in individual pigs it may indicate Gastric Ulceration. In the sucking pig, Gastro-Enteritis associated with *E. coli* infections is often seen. Injections with long-acting penicillin may also cause pigs to vomit, as can mycotoxins in the feed.
- **Skin changes** help in identifying diseases, typified by acute or chronic lesions of mange and lice, although the latter are now uncommon. *Erysipelas* may not be evident by sight, but running the flat of the hand over the skin will indicate tell-tale lesions of raised areas. A blueing of the extremities could indicate acute viral infections, acute bacterial Septicaemia or a toxic state, as seen in flu, Porcine Reproductive and Respiratory Syndrome (PRRS) infections or acute Mastitis and Metritis. Acute Pneumonia or pneumonia associated with heart sac infection can give a similar picture.
- **Respiration rates** if any of the above changes have been identified, producers should cast their eye across the pen of pigs and compare the respiratory rates of both the normal and the suspect animals. Assess whether the breathing is a deep chest movement, due to consolidation of the lungs and a shortage of oxygen, or very shallow abdominal breathing indicative of pleurisy and pain.

Additionally, the circumstances surrounding the death of a pig are an important observation, especially when backed-up by post-mortem examination. The timing and place where pigs die in a herd, relative to clinical observations, can often help in identifying and understanding a problem.

Being vigilant for signs of disease in pigs is not only important as an earlier indicator of herd health problems and/or possible emergency disease outbreaks, but also is important in order to attend to the welfare of the animals concerned.

Pigs with signs of disease should be isolated from herd mates wherever possible, given appropriate treatment and monitored closely to see how they respond. In cases where the pig is judged to be in severe pain and distress and/or the disease condition is considered incurable, such animals must be promptly and properly euthanised. Refer to Section 3.3.4 of this manual concerning euthanasia procedures.

The APL publication *Care of the Compromised Pig Manual (First edition, 2011)*⁵², provides useful additional information on this topic.

There are a number of diseases, known as endemic diseases that exist within Australia's pig population. For instance, the bacteria causing Erysipelas and Leptospirosis are widespread amongst the pig population, but can be adequately controlled by routine vaccination programs. Both of these organisms can infect humans (zoonotic diseases), causing serious illness in the case of Leptospirosis.

The costs of these diseases to the producer and the industry will vary from farm to farm, and are dependent on the strain involved. Increased costs may result from medication or vaccination costs, including labour for treatments, and the effects on growth rate and individual animal performance.

Endemic diseases can impact on the profitability of piggeries in several ways, including:

- Mortalities.
- Reduced feed efficiency and growth rates.
- Carcass condemnation.
- Reduced reproductive rates.
- Increased costs of medication.
- Increased time commitment in treatment, feed medication, animal isolation and disposal.

It is therefore important to control the spread of endemic diseases within the industry and prevent incursion of any new diseases onto farms, wherever possible. Maintaining sound on-farm biosecurity practices (Refer Section 3.4 of this manual), and staff vigilance to detect any signs of new or unusual disease patterns, are key aspects of on-farm biosecurity management systems.

3.4.3.(c) Responding to an Emergency Disease Outbreak

In the case of an emergency disease outbreak, the AUSVETPLAN will be used to address the emergency. This plan involves authorities and emergency management organisations at a national, State/Territory and district level.

If a producer notices unusual disease symptoms, abnormal behaviour or unexpected deaths with their pigs, they, or their staff, should immediately call a veterinarian, stock inspector, or the **Emergency Disease Watch Hotline on 1800 675 888 and report the problem to APIQM on 1800 789 099.**

APIQ[✓] Standard 4.5 requires that the farm has an Emergency Animal Disease Contingency Plan and contingency procedures in place to provide for stock movement restrictions in the event of an Emergency Animal Disease. This must include documenting the maximum animal movement restriction period that the farm can adequately manage, in number of days.

⁵² This manual can be found on the APL website at <http://australianpork.com.au/wp-content/uploads/2013/10/COFCP-FINAL-lowRes.pdf>.

3.4.3.(d) Isolation Practices During Endemic Disease Outbreaks

If an outbreak of disease occurs in a herd, assuming it is an endemic disease (for example, already present in Australia) the producer's veterinarian will be their best and primary source of advice on how to manage it. This may include measures to isolate or confine affected animals or groups of animals, preventive vaccination or medication measures for at-risk stock and internal hygiene measures to limit disease spread.

3.4.4 Protection of Pigs from Wild Animals, Feral Pigs and Other Animals of Risk

A secure perimeter fence should be erected around the piggery and/or domestic pigs are securely contained in buildings to prevent access by feral pigs and/or other animals. Strict measures should also be in place to ensure that all gates are kept closed when not in immediate use. (Refer APIQ[✓]® Standard and Performance Indicators 4.4 A and B).

Feral pigs, wild birds and other animals can all carry diseases that can be passed to the herd, including emergency animal diseases. Feral pigs are of particular concern since they are susceptible to all diseases that infect domestic pigs. Feral goats are also a concern, but they are less likely to attempt to break into a piggery.

Birds have historically posed a low biosecurity risk in Australia, unless feed and water become significantly contaminated with bird droppings. However, increasing public health concerns about interspecies transfer of influenza viruses between birds, pigs and people, and also increasing concerns about *Salmonella spp.* prevalence in the food supply chain, make the separation of pigs from birds a sensible precaution. Pig carcasses and spilt feed encourages the expansion of bird populations. Therefore, producers should limit bird access to carcasses and feed on the property.

Controlling the access of cats to the pig production environment, specifically feed stores and bedding, is necessary, as cats have the potential to infect pigs with *Toxoplasma gondii* (*T.gondii*). This organism is a concern to pregnant women and people with a low immunity. When ingested by pregnant women, it can cause serious malformation of the foetus, and for people with low immunity, it may cause death.

Pigs that have access to cat faeces have the potential to become infected with *T. gondii* and pass this infection down through the food chain to consumers. The APIQ[✓]® Standards do not expect producers to exclude cats from the piggery environment, as cats can be used as part of a rodent control program. The APIQ[✓]® Standards require a commitment to prevent cat access to pig bedding and feed.

Rodents carry organisms such as *Salmonella spp.*, which have the potential to enter the food chain if a pig ingests rat faeces or the rodent itself. Insect pests can have a range of negative impacts, which depend on the particular insect involved. Impacts can vary from discomfort to pigs to the direct transfer of disease in the herd. Pest and insect control programs should be in place for the piggery, including physical barriers for the animals and/or insects that pose a risk.

Insect and rodent pests may also cause spoilage of feeds, and therefore require control measures in feed silos and feed stores. However, it is important to note that whatever methods are used, they must not result in contamination of pork with unacceptable chemical residues or toxicity to pigs. If producers have an insect pest problem affecting their pigs' living environment, good hygiene practices may help, particularly removing or limiting materials or environments that favour the survival and breeding of the insect pests involved. However they may also need to seek further specific advice from a pest control specialist.

As a minimum, each piggery will need a rodent control plan and procedures, which should include:

- The type of bait used.
- Bait station maps showing location and distance from pig pens.
- Assessment of bait consumption.
- Frequency of replacement of baits.

The APIQ[✓]® Standards do not expect producers to completely eradicate rodents from the piggery, but to be able to demonstrate commitment towards reducing rodent populations within the piggery environment.

Keeping areas neat and tidy could further discourage rodent breeding. It is important to ensure that pigs do not have access to rodent baits, as these can be detrimental to pig health and/or may cause residues in pork.

Rubbish and long grass should be kept away from buildings and litter and scraps should be disposed of in rodent-proof rubbish bins. Feed spills should be cleaned up as soon as possible.


3.5 Module 5: Traceability

3.5.1 Pig Identification Requirements

In all States, pigs over a specified weight or age must be identified (with an approved pig identifier, being either a registered swine brand or an NLIS pig ear tag, depending on the State) before being moved off property where a change of ownership takes place, such as for sale or slaughter. Producers can obtain a registered swine brand number by phoning the Department of Primary Industries in their State, or in NSW, the Local Land Services. NLIS pig ear tags can be ordered online from a number of ear tag suppliers or locally via a rural livestock supplies store.

Pig branding requirements differ slightly in each State as follows:

- **QLD** – All pigs 30 kg and over must be tattoo/branded (on both shoulders) and pigs under 30 kg must be ear tagged with an NLIS pig ear tag. Owners of two (2) or less pigs (including the pigs in the consignment) are exempt from tattoo/branding requirements, however, an ear tag must be applied (as for pigs under 30 kg) to maintain traceability, except for ‘owner kills’ for personal consumption.
- **NSW** – All pigs 25 kg and over must be tattoo/branded (on one (1) or both shoulders) or an NLIS pig ear tag. Pigs less than 25 kg must be identified with an NLIS pig ear tag.
- **VIC** – All pigs 25 kg and over must be tattoo branded (on the left shoulder). Pigs less than 25 kg must be ear tagged with a tag displaying their registered swine brand number.
- **SA** – All pigs 25 kg and over must be tattoo/branded (breeder brands left shoulder, subsequent owners brand right shoulder) or an NLIS pig ear tag. Pigs less than 25 kg must be identified with an NLIS pig ear tag or branded with a special weaner striker that is pressed into the weaner pig’s skin.
- **WA** – All pigs 25kg and over must be tattoo/branded (breeder brands left shoulder, subsequent owners’ brand right shoulder). Pigs less than 25 kg must be identified with an NLIS pig ear tag.
- **TAS** – All pigs 10-weeks-of-age and over must be tattoo/branded (on either shoulder). Pigs less than 10-weeks-of-age do not legally have to be identified.



For more information on the pig identification requirements in a State, producers should contact their local Department of Primary Industries (Local Land Services in NSW). For tips on tattoo application refer APL's Fact Sheet on *Pig Identification* available on the APL website: www.australianpork.com.au.

3.5.2 Movement Documentation

A movement document is required in all States to accompany all movements of pigs for sale or slaughter where a change of ownership takes place. The recommended and preferred movement document is the PigPass NVD. The PigPass NVD must be used as the movement document for Certification under APIQ[✓]®. For more information about accessing PigPass NVD, visit www.pigpass.com.au or phone the PigPass Helpdesk on 1800 001 458 (Mon–Fri, 8am–5pm).

3.6 Module 6: Environment

3.6.1 Compliance with Regulatory Requirements

From 1 July 2017, APIQ[✓]® Certified piggeries that were established on or after 1 January 2017 must provide evidence that their piggery has a permit or licence to operate, in compliance with applicable State or Territory and local government environmental regulatory requirements.

Documentation showing applicable State or Territory and local government environmental regulatory requirements for the site must be available on farm and the piggery must be able to demonstrate evidence of compliance at the APIQ[✓]® audit. Evidence of compliance may include:

- A Licence to Operate (required in some jurisdictions but not others);
- Records of an environmental audit by a qualified third party – such as an a recognised environmental audit firm or consultant;
- Certification or correspondence from the responsible local Government body; and/or
- A producer declaration stating the site is compliant.

If there are any compliance matters pending, documentation must be present showing actions being taken and the likely time frame for resolution. Conditional APIQ[✓]® Certification may be provided in such cases until the matter is resolved, provided the non-compliance is not considered to be of a Critical nature.

Producers with piggeries established prior to 1 January 2017, are required to provide either evidence of a permit/licence to operate OR provide evidence of their on-farm Environmental Management Plan. Where an EMP does not exist, this is to be developed.

An EMP is a tool for producers to use to assess and evaluate their compliance to environmental requirements, with note, that compliance to the APIQ[✓]® environmental standard does not remove a producer's responsibility to comply with any government (State, Territory or local) requirements.

Producers are to provide evidence to an auditor that they have considered environmental management issues, have risks covered and are following their EMP. Where a risk is identified, an action plan will need to be put in place by the producer for them to demonstrate to the auditor that progress is being made to address/overcome the risk.

3.6.2 Piggery Upkeep

Standard 6.2 of APIQ[✓]® requires that the piggery and its surrounding environment are maintained in a condition that is consistent with good function and effective risk management.

The purpose of this Standard is to ensure that APIQ[✓]® Certified piggeries are not only managing food safety, biosecurity and environmental risks well, but also that their upkeep and appearance is consistent with that which would be reasonably expected as an appropriate standard for a well-managed farm facility.

To achieve this Standard, key factors are:

- Maintaining the piggery premises in a clean tidy state;
- Carrying out repairs and maintenance to buildings and equipment in a timely manner;
- Having designated controlled areas for temporary holding of accumulated rubbish, redundant equipment or scrap metal separate from livestock, feed storage and public access; and
- Averting unintended build-up of weeds, through appropriate rotational management of outdoor pigs and weed control around indoor sheds.

3.6.3 Management of Environmental Impact for Pigs Outdoors

Standards 6.1-6.4 of APIQ[✓]® cover land management requirements for outdoor pigs. The detailed requirements of these Standards are in the APIQ[✓]® *Standards Manual* and background information on the basis of these Standards as well as the means to comply with them is contained in the *APL National Environmental Guidelines for Indoor Piggeries (NEGIP)* and the *National Environmental Guidelines for Rotational Outdoor Piggeries (NEGROP)*⁵³.

Soil nutrient testing is a key component of compliance with these standards as well as rotational management on pig sites. To facilitate soil test requests and assist the interpretation of soil test results, two new forms have also been added to APIQ[✓]® Version 4.0 7/2015. They are the APIQ[✓]® Soil Test Request Form and APIQ[✓]® Soil Tests Interpretation Form. They are available on the APIQ website under the resources Tab (www.apiq.com.au).

3.7 Module 7: Transport

3.7.1 Preparation for Transport and Slaughter

Pigs should be prepared and transported in accordance with the *Australian Animal Welfare Standards and Guidelines, the Land Transport of Livestock*, Edition One, Version 1.1 (21 September 2012)⁵⁴. For animal welfare reasons, pigs that are in pain, injured or suffering in any way should not be transported and must be promptly and humanely treated or destroyed on-farm.

APIQ[✓]® Standard 2.6 requires that systems are in place to ensure that pigs are selected for transport in accordance with the specified requirements on the PigPass NVD, as well as relevant animal welfare and biosecurity procedures and regulations.

53 <https://australianpork.com.au/environmental-practices/environmental-guidelines>

54 Refer <http://www.animalwelfarestandards.net.au/land-transport/>.

Staff managing and handling pigs must be aware of the pre-transport provisions in their respective State legislation.

On-farm ante-mortem inspection of pigs is critical to identify any pigs that may not be suitable for human consumption and to ensure that the welfare of individual pigs is protected. Pigs with minor problems can be transported and slaughtered separately as suspects. Pigs that are unfit for transport can be detected and treated or destroyed humanely without delay.

Pigs with an incurable illness should be promptly and humanely destroyed on-farm. For example, a pot-bellied pig (emaciated pig with bloated gut) will not respond to treatment and is unfit for transport. Pigs with minor problems, such as mild lameness or prolapse, may be loaded last and penned separately on the truck to protect them from injury or aggression during transport. Upon arrival at the abattoir, these pigs will be unloaded first and classified either as emergency slaughter or placed separately for slaughter in accordance with processing establishment standards and licensing requirements. Ante-mortem inspections are also conducted in lairage (holding) facilities at each processing plant prior to slaughter. By identifying problems on-farm and treating pigs successfully prior to transport, once the WHP/ESI has passed, the pig may be successfully consigned for slaughter at a later date.

On-farm pre-transport inspection is a management tool to prevent unnecessary animal suffering through the avoidance of consigning pigs to slaughter that are unfit to travel. It also prevents unnecessary condemnations of animals at the slaughter plant and infringement of animal cruelty laws. The key goal in terms of pre-transport inspection is to understand which conditions are acceptable and unlikely to cause pigs stress, injury or pain if loaded for transport, together with understanding conditions that impact food safety and meat quality.

The following table is a summary of APL's *Is it fit for the intended journey? Second Edition 2016* and is available from www.australianpork.com.au.

Table 11: Summary of the APL's *Is it fit for the intended journey?* Guide

These pigs are suitable for routine slaughter: do not mark	<ul style="list-style-type: none"> • Small hernias • Minor vaccination lesions • Single, small abscesses • Mange – usually only noticed after slaughter • Bursitis • Runts in good condition
Suspects, or to improve animal welfare: mark	<ul style="list-style-type: none"> • Hernias, if less than the size of a football and no sign of infection or gangrenous wounds
Pen separately on the truck	<ul style="list-style-type: none"> • Fresh minor injuries • Sore feet • Rectal prolapses • Severe or infected or chronic wounds • Arthritis/foot abscess/ulcerated/crippled limb (pig still in reasonable condition and able to walk)
Treat and hold on-farm until WHP is complete	<ul style="list-style-type: none"> • Fever (dull, breathing heavily, diarrhoea) • Erysipelas (diamond skin)
Humanely destroy on-farm	<ul style="list-style-type: none"> • Severe tail bite (stump infected or completely bitten off leaving an open wound) • Pigs that cannot walk unassisted (even where there is no visible cause) • Severe lesions/cruelty cases (extensive wounds, severe arthritis) • Pigs that are unlikely to recover • Emaciation • Polyarthritis/pressure sores, if emaciated • Pot belly • Fractures, split pelvis, dislocations • Uterine prolapse

3.7.2 APIQ✓[®] Standards for Pig Movements

The *Model Code of Practice for the Welfare of Animals – Pigs* prohibits the use of electric prodders to move pigs on farm. Generally, the best aids to be used by pig handlers to move pigs are pig paddles, backing boards and hands.

The *Australian Animal Welfare Standards and Guidelines*, the Land Transport of Livestock, Edition One, Version 1.1 (21 September 2012) permits the limited use of electric prodders in the loading, transport and unloading of pigs, under strict conditions. Those conditions are:

- A. Individual pigs weigh 60 kgs (live weight) or more;
- B. Other reasonable action to cause movement have failed; and
- C. There is reasonable risk to the safety of the driver or the pig(s).

Additional specific guidelines for use of electric prodders are as follows⁵⁵:

- Electric prodders must only be used for the minimum amount of time necessary to achieve movement, and must not be used on genital, anal or facial areas.
- If regular use of an electric prodder is required, producers should evaluate their handling and loading facilities.

Facilities that are well designed to facilitate pig flow are of great benefit in moving pigs. *'Plan It - Build It'*, a book on pig housing design published by the NSW State Department of Agriculture⁵⁶, provides a useful reference in this area.

3.7.3 Truck Hygiene

Trucks collecting pigs should have been cleaned and disinfected when required and ideally not contain pigs from another property, as airborne transmission of pneumonia and other diseases can occur. Further details on truck cleanliness are in the pig transport section of this manual (section 3.7). Slaughter pigs transported on a dirty truck are in contact with manure just before slaughter, which may cause carcass contamination, depending on the abattoir's hygiene procedures. Common sense also suggests that the truck should be cleaned after each delivery if pigs have been unloaded at the abattoir lairage and between different farm enterprises. Producers that use contract transporters to truck their pigs should communicate this requirement to the driver and/or owner. In some cases a producer may require assurance in writing from the transporter that they clean their truck regularly. Where possible, use pig transporters that are quality assured, such as TruckCare certified transporters.

Practices designed to minimise the spread of harmful bacteria between transport batches and, to some extent, minimise the spread of disease-causing agents between farms, that can be implemented to minimise contamination through trucks include:

- Loading/unloading facilities and silos should be located outside of the perimeter fence of the piggery and ideally at least 20 m from the nearest pig house.
- Encouraging the transporter to collect pigs at a property first thing in the day, after their truck has been cleaned the night before, will help minimise the risk of diseases being transferred to high health piggeries.
- Keeping trucks outside the boundary of the piggery.
- Keeping the truck loading area clean.

⁵⁵ APL *Is it fit for the intended journey? A Guide*, Second Edition, (2016).

⁵⁶ Taylor, G., Kruger, I., Ferrier, M. NSW Agriculture, Tamworth 1994, ISBN 0-7305-6740-0.

3.7.4 Other Transport Requirements

Time off water and feed must meet the Standards outlined in the *Australian Animal Welfare Standards and Guidelines, Land Transport of Livestock*, Edition 1.1, 21 September 2012.

Those Standards are:

Class of animal	Maximum time off water (hours)	Minimum spell duration (hours)
Pigs (except classes below)	24	12
Lactating sows and piglets	12	12
Weaners	12	12

If pigs have been off water for the maximum time permitted, the person in charge must ensure the pigs are provided with a spell for 12 hours before starting another journey.

Journey time may be extended to 72 hours only if each of the following conditions are satisfied:

- A. Pigs must have access to water and food on the vehicle within every 24 hours;
- B. There must be space for all pigs to lie down journey;
- C. Pigs must be assessed regularly to be fit for the remainder of the intended journey; and
- D. Pigs must be provided with water, food and rest for 24 hours before starting another journey.

Feeding close to the time of transport may increase transport stress from travel sickness. The duration of transport and the time pigs will be held in lairage before slaughter needs to be considered when deciding the timing of the last feed before transportation to slaughter. Ideally the time from last feed to slaughter should not exceed 24 hours (ideally it should be 12-18 hours), so the conflicting needs to minimise hunger, travel sickness during transport and potential contamination from gut spillage during processing are balanced. However a readily accessible supply of drinking water needs to be available until loading.

The time that pigs were removed from feed and water must be recorded and communicated to the saleyard, abattoir or next owner using the PigPass NVD (Refer APIQ[✓]® *Standards Manual* Performance Indicator 5.1 B).

Loading densities outlined in the *Australian Animal Welfare Standards and Guidelines, Land Transport of Livestock*, Edition 1.1, 21 September 2012 must be adhered to. For ease of reference they are reproduced below:

Average live weight (kg)	Space allowance (m ² /head) ^a	Number of head per 12.5 m x 2.4 m deck
5	0.04	750
15	0.09	333
25	0.12	250
50	0.22	136
75	0.29	103
100	0.35	85
125	0.42	71
150	0.48	62
175	0.55	54
200	0.61	49
225	0.68	44
250	0.74	40
275	0.81	37
300	0.87	34

^a Based on the standing position

Care should be taken to provide adequate space so that pigs can lie down on transport, particularly when planning for extended journeys.

All pig transport journeys must be planned, scheduled and conducted to minimise delays and protect pigs from sunburn and/ or extreme weather conditions in transit.

3.8 APIQ[®] Verification Options

The following Verification Options are available to APIQ[®] Certified producers, who elect to take them and meet the relevant requirements for each option, as outlined in the APIQ[®] *Standards Manual*. Compliance with these options can be assessed and verified by your APIQ[®] auditor at time of your APIQ[®] audit.

3.8.1 Gestation Stall Free (GSF) Verification

Standards and Performance Indicators for GSF have been developed and approved by the APL Board to give APIQ[®] Certified producers a means to show that their farm(s) have phased out use of gestation stalls. This option is in line with the industry's *Shaping our Future commitment* of November 2010 where APL Delegates voted to pursue the voluntary phase out of gestation stalls by 2017.

The Australian Pork Limited (APL) "Gestation Stall Free" Definition as voted by APL delegates, Nov 2010, and which producers are required to meet in APIQ[®] Verification Option A, as shown on the APL website is:

“Sows and gilts should be kept in loose housing from five (5) days after service until one (1) week before farrowing, where service refers to the last mating. In loose (group) housing, sows and gilts – either singularly or in groups – have freedom of movement i.e. they can turn around and extend their limbs. The housing of one (1) or more animals must meet the Model Code of Practice for the Welfare of Animals – Pigs for space allowance requirements. Where a pen is used to confine a pig individually during gestation (up to one (1) week prior to farrowing), it must meet the definition of loose housing, i.e. the animal must be able to have freedom of movement, to turn around and extend its limbs.”

Exceptions include:

- Hospital/Special Care Stalls used to individually house pigs temporarily to allow sufficient time to provide special care for sickness, injury, medications and other health treatments under veterinary advice, or under special care by a competent stockperson.
- Feeding stalls used to confine an individual pig for feeding and/or animal husbandry reasons, such as vaccination, pregnancy confirmation etc for a time of up to three (3) hours in any one (1) day.

Systems in which individual sows are confined individually during gestation, but which meet the definition of loose housing, include:

- Free access pens, which contain individual feeding accommodation, but which allow the individual pig to go in and out at will.
- Electronic sow feeding systems, which contain individual feeding accommodation, but which allow the individual pig to go in and out at will.

Complying with the APIQ[✓]® GSF Standard allows producers to demonstrate that they have followed through on this commitment.

Only APIQ[✓]® Certified producers that are fully compliant with these Standards and Performance Indicators at relevant sites and facilities may be verified as GSF. Producers with sites and facilities that are in transition to GSF cannot be GSF verified.

To be verified GSF compliant producers need to revise their Piggery Management Manual, SOPs, WIs, maps and plans to reflect the necessary changes to their on-farm systems to meet the GSF requirements and then:

- Ensure that their auditor audits against the APIQ[✓]® GSF Standards in their next APIQ[✓]® Compliance Audit; OR
- Where verification is required earlier than their next Compliance Audit, have a registered APIQP® Auditor visit the piggery at any time to complete an audit⁵⁷ against the GSF Standard and Performance Indicators; OR
- Have a vet provide a detailed report to APIQM to show that they meet the GSF Definition, Standards and Performance Indicators. (This option is only available until 30 May 2014).

The reports are sent to APIQM and when compliance is verified in writing, APIQM will revise the producer's PigPass registration to show that they meet GSF requirements and provide a revised APIQP® Certificate.

It is the producer's responsibility to notify their customers, retailers and other third parties of their GSF verification unless APIQM has been authorised in writing to do this on the producer's behalf.

57 Note: Verification is valid to the current APIQ[✓]® Certification expiry date unless a complete Compliance Audit is undertaken and Certification approved, in which case a new expiry date will be issued as at the month of the audit.

When communicating GSF status, it is important that the following qualifying statement is added to added to any external communications in order to meet ACCC requirements and avert any possibility of misleading customers, consumers or the general public:

“(Under its GSF program) the Australian pork industry is moving voluntarily and swiftly to a gestation stall free production system, whereby the sows are not individually confined for at least 90 per cent of their pregnancies, as outlined in the APL GSF definition.”

3.8.2 Customer Specifications Verification for Supply to Coles Supermarkets (CSC)

As at the 4th February 2014, APIQ[✓][®] introduced new Standards and Performance Indicators for pig producers wanting to supply to Coles Supermarkets Australia Pty Ltd (Coles). These Standards and Performance Indicators are above and beyond what is stated in the *Model Code of Practice for the Welfare of Animals – Pigs*.

The APIQ[✓][®] Standards Manual contains the relevant Standards and Performance Indicators and the APIQ[✓][®] Compliance Guide Verification Guide outlines the procedures and evidence options for pig producers to meet these Standards and Performance Indicators. This guide is available from the APIQ website, www.apiq.com.au.

4.0 GLOSSARY

This Glossary of Terms is principally based on that being used by government agencies in developing animal welfare regulations for the pig industry, with the added inclusion of some additional terms and abbreviations used in APIQ[✓]®.

Adult	Any pig over the age of nine (9) months.
Approved Medication List	A list of medications prescribed or recommended for use in the piggery by a veterinarian.
Biosecurity	The process associated with preventing diseases from entering an area, whether it is a country, State/Territory or an individual piggery.
Boar	An uncastrated male pig over nine (9) months-of-age.
Colostrum	Milk secreted by the sow for the first few days after farrowing, characterised by high protein and antibody content.
Competent	For stockpersons, this means that they have been assessed by either a nationally Registered Training Organisation (RTO), an equivalent external authority, or within an auditable on-farm assessment system that meets equivalent standards. It is necessary to have successfully demonstrated specified competencies OR for staff in a supervisory role (where they are in sole charge, or line control of one (1) or more stockpersons) to have the competencies contained in Certificate III in Agriculture (Pig Production) or equivalent qualification.
Elective Husbandry Procedures	Includes castration, tail docking, clipping of needle teeth, nose ringing, identification, backfat measurement, pregnancy diagnosis and tusk trimming.
Export Slaughter Interval (ESI)	Withholding periods for some chemicals administered to pigs are longer for the export than the domestic market. Where this applies, this is known as the Export Slaughter Interval (ESI). (Also see Withholding Period WHP).
Euthanasia/On-farm Euthanasia	The process of causing a sudden unconsciousness followed by death occurring without distress, pain, fear or anxiety.
Farrowing	Giving birth to piglets.
Farrowing Crate	An enclosure closely related to the sow's body size, in which sows are kept individually during and after farrowing and lactation.
Farrowing Pen	An enclosure for confining individual sows and their litters during and after farrowing and lactation. Such pens should contain a creep area for the protection of the piglets from overlying and crushing by the sow.

Finisher	Pigs generally above 50 kg live weight, until they are sold or retained for breeding. The same meaning applies for pigs referred to as 'finishing'. The term 'finisher' usually refers to pigs that are in the final phase of their growth cycle and may include pigs from 50–120 kg.
Foster	A management practice whereby a piglet is moved soon after birth so that it is fed by a sow that is not its mother.
Gilt	A young female pig that has been selected to join the breeding herd but has not had her first litter.
Grower	A pig generally with a live weight between 20 and 50 kg. The same term can apply for pigs referred to as 'growing' (for example, throughout the entire growth period cycle from weaning to finishing).
Good Agricultural Practices (GAP)	Practices that address environmental, economic and social sustainability for on-farm processes, and result in safe and quality food and non-food agricultural products" (FAO COAG 2003 GAP paper) (html).
Gestation Stall Free	"Sows and gilts should be kept in loose housing from five (5) days after service until one (1) week before farrowing, where service refers to the last mating. In loose (group) housing, sows and gilts – either singularly or in groups – have freedom of movement i.e. they can turn around and extend their limbs. The housing of one (1) or more animals must meet the <i>Model Code of Practice for the Welfare of Animals – Pigs</i> space allowance requirements. Where a pen is used to confine a pig individually during gestation (up to one (1) week prior to farrowing), it must meet the definition of loose housing, i.e. the animal must be able to have freedom of movement, to turn around and extend its limbs." Refer Section 3.3.7 above for a full definition of GSF.
HACCP/HACCP-based Food Safety Plan	HACCP, defined as Hazard Analysis and Critical Control Points, is an internationally recognised system designed to assist enterprises/businesses to identify and manage key risks associated with food safety.
Health Treatment	Any medication administered by oral dosing, injection, topical application to the skin or any other means.
Herd Health Plan/Program (HHP)	A structured and documented management program to identify potential health risks to the pigs, and take relevant action to manage and prevent or minimise those risks.
Lactating Sow	A sow that has given birth and is producing milk to feed her piglets.
Mated Gilt	A female pig that has been mated, but has not had a first or gilt-litter.
Quality Assurance (Program)	Those planned and systematic actions necessary to provide adequate confidence that a product or service will satisfy given requirements for quality and/or regulations.
Risk Management System	A documented procedure for identifying, monitoring, mitigating and effectively managing hazards to the food and water supply and environmental conditions for pigs. It includes daily inspection of mechanical equipment essential for provision of food, water and environmental needs.
Standard Operating Procedure (SOP)	The approved procedure required to carry-out defined tasks in the operation.
Sow	An adult female pig which has had one (1) or more litters.

Special Care	Includes an individual nutritional regime required for a limited period to restore health and body condition and/or administration of health treatments to the sow that require her to be confined, such as treatment of injuries and poor body condition resulting from bullying by herd mates.
Stall	An enclosure, closely related to the pig's body size in which gilts, sows and boars are kept individually. Stalls are normally joined together in rows and may be used for total confinement or allow the pig free choice of access.
Stockperson	A person who undertakes the day-to-day husbandry tasks associated with looking after pigs.
Swill	Food or food scraps that contain animal matter or vegetable waste that has been contaminated by animal matter (termed animal-contaminated matter). Animal matter is defined as any meat or meat product and any illegally imported dairy products. It also includes chicken meat. Swill cannot be fed to livestock, including pigs.
Tether	A method of restraining pigs whereby a neck or girth collar is attached to a short length of chain, which is in turn fixed to the floor or the front of a pen.
Weaner	A pig after it has been weaned from the sow up until approximately 30 kg live weight.
Withholding Period (WHP)	The time that must lapse between the last exposure to a chemical and the slaughter of the animal. Chemical exposure includes injections, oral medication, pour-ons, water medication, feed medication and chemicals that have been used on grain, pastures or bedding material.

5.0 INDEX OF COMMONLY USED ABBREVIATIONS

AHA	Animal Health Australia—a not-for-profit public company established by Australian State and Territory governments, and major national livestock industry organisations, to manage national animal health programs.
AML	Approved Medication List.
APIQ✓®	Australian Pork Industry Quality Assurance program.
APVMA	Australian Pesticides and Veterinary Medicines Authority—a government regulatory body dealing with pesticides and veterinary medicines.
APL	Australian Pork Limited—peak body of Australian pig producers responsible for the management of the APIQ✓® program.
AQIS	Australian Quarantine Inspection Service—a government body responsible for export certification of pork and quality supervision of export abattoirs.
ESI	Export Slaughter Interval (Refer glossary).
GAP	Good Agricultural Practices (Refer glossary).
GSF	Gestation Stall Free (Refer glossary).
HACCP	Hazard Analysis and Critical Control Points (Refer glossary).
PigPass NVD	PigPass National Vendor Declaration—the official form that must be filled in when consigning pigs for sale or slaughter or when transporting pigs from a property.
PSE	Pale Soft Exudative—a meat quality defect caused by pre-slaughter stress on pigs.
Land Transport Code	<i>Australian Animal Standards and Guidelines for the Land Transport of Livestock</i> Edition One, version 1.1 (21 September 2012).
QA	Quality Assurance (Refer glossary).
SOP	Standard Operating Procedure (Refer glossary).
WHP	Withholding Period (Refer glossary).
MRL	Maximum Residue Level.
FSANZ	Food Standards Australia and New Zealand.

Appendix I – *Model Code of Practice for the Welfare of Animals – Pigs*

Copies of the *Model Code of Practice for the Welfare of Animals – Pigs* can be downloaded for free from the CSIRO publishing website (www.publish.csiro.au/book/5698) or a paperback book may be purchased at the same link or by phoning CSIRO Publishing on 1300 788 000 (cost of a local call).

Appendix II – HACCP Tables (Source: Pork On-Farm HACCP Plan, SARDI, Final Report Project No. 2009/2260).

Table A1.5: Hazard Analysis, Control Measures and Justification for Control Measures [Critical Control Points (CCPs) are Highlighted, Other Hazards are Managed by Good Agricultural Practices (GAP)]

Process Step	Associated Activity	Husbandry Differences	Hazard	Hazard Analysis			Control Measures		Justification for Control Measures
				Likelihood (1 = most likely)	Severity	Significance			
Selection of Breeding Stock	Select breeders – identification, traceability, vaccination, oestrus stimulation	Natural/induced oestrus							
	Purchase breeders – biosecurity, identification, traceability		<i>Salmonella</i>	2	Serious	Y	No effective control measure at this time	Quarantine practiced, but not effective against <i>Salmonella</i>	
[CCP1]			Broken needles	3	Serious	Y	NVD	NVD contains declaration of status	
			Chemical residues greater than MRL	3	Serious	Y	NVD	NVD contains declaration of status	
	Acclimatisation – vaccination, animal treatments								
Breeding	Transfer breeders								
	Mating	Natural, AI							
	Gestation		<i>Sparganosis</i>	4 (outdoor only)	Moderate	N			

Process Step	Associated Activity	Husbandry Differences	Hazard	Hazard Analysis			Control Measures	Justification for Control Measures
				Likelihood (1 = most likely)	Severity	Significance		
	Cull breeders	Sale	<i>Salmonella</i>	2	Serious	Y	Feed to slaughter interval	Optimise dressing hygiene
	Housing	Pens, stalls, outdoor, shelters, bedding systems	Abscess (with <i>Salmonella</i>)	4	Serious	N		
Farrowing	Production system	Continuous/batch						
	Teeth/tails/identification	Ear notch, tattoo, RFID						
	Wean/foster							
[SOP2]	Vaccination		Non-recovered broken needles	3	Serious	Y	SOP – identify pig to point of slaughter	Enables removal at slaughter
	Health treatments		Non-recovered broken needles	3	Serious	Y	SOP – identify pig to point of slaughter	Enables removal at slaughter
	Housing	Crates/outdoor						
	Castration							
Growing Stock	Transfer stock							
	Production system	Continuous/batch	<i>Salmonella</i>	2	Serious	Y	GAP – limited effectiveness	Some GAP counter – productive
[CCP3]	Vaccination		Non-recovered broken needles	3	Serious	Y	SOP – identify pig to point of slaughter	Enables removal at slaughter

Process Step	Associated Activity	Husbandry Differences	Hazard	Hazard Analysis			Control Measures	Justification for Control Measures
				Likelihood (1 = most likely)	Severity	Significance		
	Housing	Off-site, pens, shed, shelters, bedding systems, outdoor	<i>Sparganosis</i>	4 (outdoor only)	Moderate	N		
	Health treatments		Non-recovered broken needles	3	Serious	Y	SOP – identify pig to point of slaughter	Enables removal at slaughter
	Transport preparation	Tattoo, brand						
	Transport							
Inputs	Feed	Home mixed, pelleted, by-products	<i>Salmonella</i>	2 (protein meals only)	Serious	Y	Protein meals meet Australian rendering standard	Minimises major pathway
	- grain							
	- protein meals							
	- supplements							
	Water	Mains, bore, dam, river	Mycotoxins	2	Serious	Y	VDs – grain production and storage	Minimises toxin production
			Pyrrrolizidine alkaloids	3	Severe	Y	VDs – grain harvesting	Minimises contamination
			<i>Salmonella</i>	4	Serious	N		
	Agricultural/veterinary chemicals	Animal health	AMR	3	Serious	Y	GVP – minimised and targeted antimicrobial usage	Limits emergence of resistant bacteria

Process Step	Associated Activity	Husbandry Differences	Hazard	Hazard Analysis			Control Measures	Justification for Control Measures
				Likelihood (1 = most likely)	Severity	Significance		
[CCP4]		Animal health, grain treatments	Chemical residues above the MRL	3	Serious (trade)	Y	SOP – compliance with labels or authorised off-label use	Labels or instructions for off-label use are comprehensive enough to achieve MRL
		Sanitisers, pest control, herbicides	Chemical residues above MRL	3	Serious (trade)	Y	Compliance with label use	Minimise inadvertent exposure
	Bedding	Straw, rice hulls, sawdust	<i>Salmonella</i>	4	Serious	N		
			Mycotoxins	2	Serious	Y	VDs – straw production and storage	Minimises toxin production
	Semen							
	Premises/facilities	Prior land use – outdoor, pest exposure, chemical drift, foreign bodies	<i>Salmonella</i> (pests)	3	Serious	Y	Pest control programs, limit pest access to feed and bedding	Reduces pathway of contamination
			Foreign bodies	3	Serious	Y	Maintain facilities and clean-up after maintenance	Reduces pathway of contamination
	Pre-requisite programs							
	Personnel	Personal hygiene	Pork measles	5	Moderate	N		
	Treatments							
Outputs	Effluent disposal	Recycling mulch from shelters	<i>Salmonella</i>	3	Serious	Y	Composting	Heat from composting reduces organism to acceptable level
	Dead pig disposal							

Process Step	Associated Activity	Husbandry Differences	Hazard	Hazard Analysis			Control Measures	Justification for Control Measures
				Likelihood (1 = most likely)	Severity	Significance		
Sale Pigs	Selection of pigs for sale		<i>Salmonella</i>	2	Serious	Y	Last feed to slaughter interval	Optimise dressing hygiene
			Abscess (with <i>Salmonella</i>)	4	Serious	N		
[CCP5]	Pre-loading check		Agricultural/veterinary chemical residues above MRL, foreign bodies	3	Serious (trade)	Y	Check animal status records	Prevent non-compliant animals entering the food chain NVD



Table A1.7 – HACCP Table Identifying CCPs and Application of Remaining HACCP Principles

Process Step and Activity	CCP No.	Hazard	Control Measure	Critical Limits	Monitoring Procedure	Corrective Action	Verification Methods
Selection of Breeding Stock Purchase breeders – biosecurity, identification, traceability	CCP1	Foreign bodies – non-recovered broken needles	Identify pig(s) with foreign body to enable notification to customers and inspection and removal at slaughter	100 percent identification of animals with foreign bodies	100 percent check of records of affected animals recorded for identification and subsequent notification	Exclude non-conforming animals Investigate the cause of breakdown and alter procedure if ineffective Re-train operators	Regular review of on-farm procedures, records and competency of operators Feedback from processors
	CCP1	Chemical residues >MRL	SOP – compliance with labels or authorised off-label use	100 percent of animals released within WHP and ESI if applicable	100 percent monitoring of release of animals in accordance with treatment and exposure records	Exclude non-conforming animals from consignment or notify customer of correct status Review procedure for identification and traceability, assessment and selection	Regular review of on-farm procedures, records and competency of operators Feedback from processors National Residue Survey results and follow-up by State departments Producer independent testing as required
Farrowing Vaccination and health treatments	CCP2	Non-recovered broken needles	Identify pig(s) with foreign body to enable notification to customers and inspection and removal at slaughter	100 percent identification of animals with foreign bodies	100 percent check of records of affected animals recorded for identification and subsequent notification	Exclude non-conforming animals Investigate the cause of break down and alter procedure if ineffective Re-train operators	Regular review of on-farm procedures and competency of operators Feedback from processors

Process Step and Activity	CCP No.	Hazard	Control Measure	Critical Limits	Monitoring Procedure	Corrective Action	Verification Methods
Growing Stock Vaccination and health treatments	CCP3	Non-recovered broken needles	Identify pig(s) with foreign body to enable notification to customers and inspection and removal at slaughter	100 percent identification of animals with foreign bodies	100 percent check of records of affected animals recorded for identification and subsequent notification	Exclude non-conforming animals Investigate the cause of break down and alter procedure if ineffective Re-train operators	Regular review of on-farm procedures and competency of operators Feedback from processors
Inputs Grain treatments	CCP4	Chemical residues >MRL	SOP – compliance with labels or authorised off-label use	100 percent of animals released within WHP and ESI if applicable	100 percent monitoring of release of animals in accordance with treatment and exposure records	Exclude non-conforming animals from consignment or notify customer of correct status Review procedure for feeding, identification and traceability, assessment and selection	Regular review of on-farm procedures, records and competency of operators Feedback from processors National Residue Survey results and follow-up by State departments Producer independent testing as required
Sanitisers, pest control, herbicides	CCP4	Chemical residues >MRL	SOP – compliance with labels or authorised off-label use	100 percent compliance with label directions or authorised off-label use	100 percent monitoring of procedures and chemical use records (if appropriate)	Exclude non-conforming animals from consignment or notify customer of correct status Review procedure for chemical use	Regular review of on-farm procedures, records and competency of operators Feedback from processors National Residue Survey results and follow-up by State departments Producer independent testing as required

Process Step and Activity	CCP No.	Hazard	Control Measure	Critical Limits	Monitoring Procedure	Corrective Action	Verification Methods
Sale Pigs Pre-loading check	CCP5	Agricultural/ veterinary chemicals >MRL	Determine the treatment status of animals prior to release	100 percent of animals released with known status	100 percent monitoring of treatment and exposure records	Exclude non- conforming animals from consignment or notify customer of correct status Review procedure for identification and traceability, assessment and selection	Regular review of on-farm procedures, records and competency of operators Feedback from processors National Residue Survey results and follow-up by State departments Producer independent testing as required
		Foreign bodies -non- recovered broken needles	Notification to abattoir of identified pig(s) to enable inspection and removal at slaughter	100 percent notification of animals with foreign bodies	100 percent check of records of affected animals recorded for identification and notification	Exclude non- conforming animals Investigate the cause of break down and alter procedure if ineffective Re-train operators	Regular review of on-farm procedures, records and competency of operators Feedback from processors

Integration of Animal Welfare in the Food Quality Chain: from public concern to improved welfare and transparent quality, in short, Welfare Quality® — A 17 million Euro project undertaken by the European Union (EU) over the period from May 2004 to May 2009. Contributing countries include, but are not limited to, Austria, Belgium, Denmark, France, Germany, the Netherlands, Australia and the United Kingdom (UK), including 44 institutes and universities.

^[1] For more information go to www.welfarequality.net/media/1018/pig_protocol.pdf.



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