

REPORT TO
AUSTRALIAN PORK LIMITED

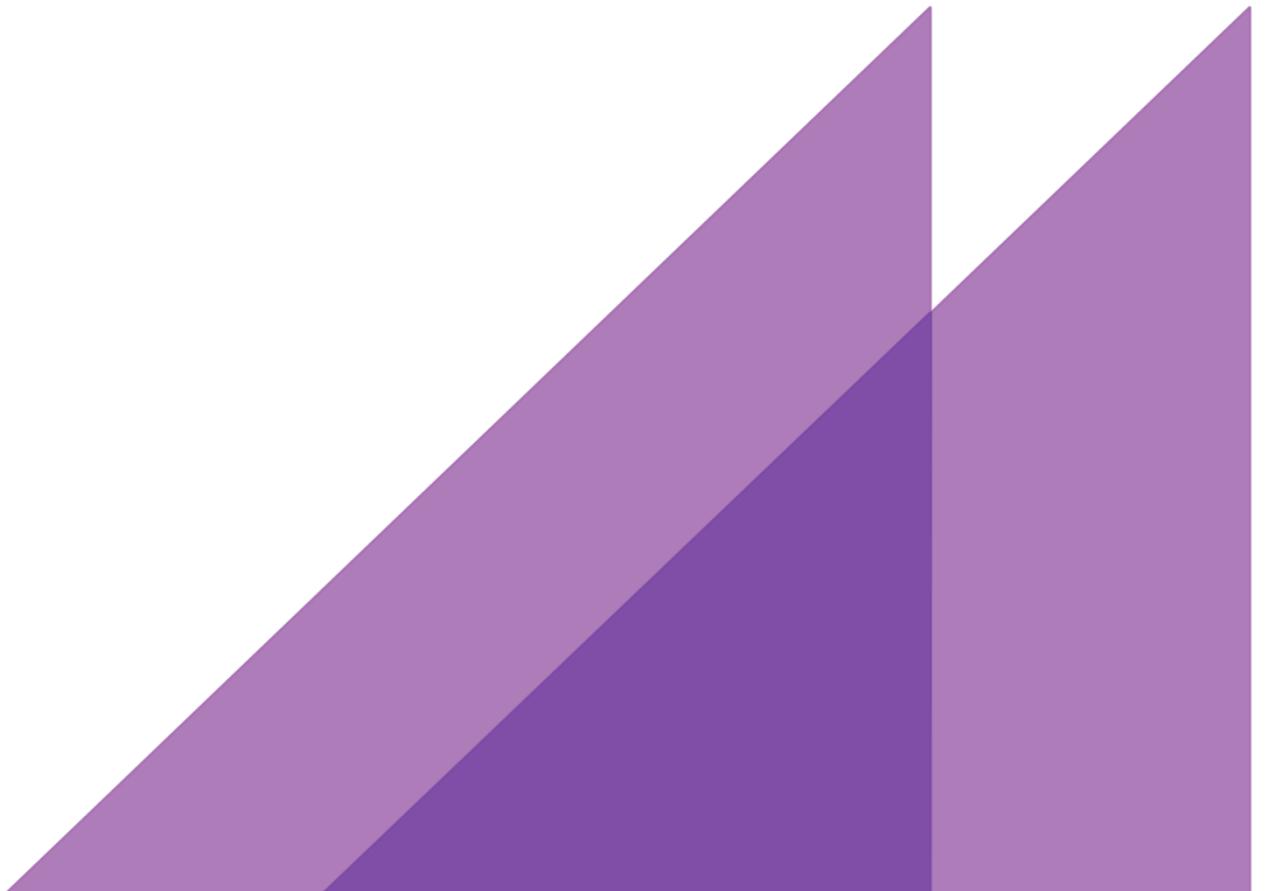
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PERFORMANCE REVIEW OF APL



THREE YEAR REVIEW

FINAL REPORT





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Executive summary

Australian Pork Limited (APL) is a producer-owned company operating as the Research & Development (R&D) and marketing services body for the Australian Pork Industry and peak policy body for Australian pig producers.

This report presents the findings of a performance review of APL that was conducted by ACIL Allen Consulting during 2014. The review is a requirement of the Statutory Funding Agreement (SFA) between APL and the Commonwealth Government.

Over the current review period (2010-2013) APL has performed well against its SFA obligations. APL's governance arrangements, practice and procedures meet each of the principles required by the ASX's *Corporate Governance Principles*, and the operational structure is well aligned with the Strategic Plan. APL has satisfactorily met all the SFA clauses bar one – acknowledgement of matching funding in publications – which it is currently addressing.

APL's Strategic Plan clearly identifies core objectives and accompanying strategies, as well as internal champions and external (intended) beneficiaries. The Annual Operating Plan (AOP) expands on and aligns with the high level direction provided in the Strategic Plan. APL's activities align strongly with National Research Priorities. There is variable performance reported against the objectives, with performance most variable in the areas that APL has lower levels of influence over actual outcomes.

APL is delivering benefits to industry and the community through its strategies. These benefits are not isolated to one stakeholder group; most strategies developed by APL have at least two key beneficiaries. The value of these benefits varies by project, with the examples presented indicating diverse quantified benefits that should be considered as lower limits.

Since the previous performance review, APL has successfully implemented all but two recommendations from the review, with one partially implemented recommendation potentially beyond the reach of full implementation.

Overall, APL is meeting its obligations to Government and delivering efficient and effective results to levy payers. There is ample evidence to suggest that APL is a strategically focused and well organised organisation that is accountable to producers, industry and Government. The review has identified four recommendations to strengthen APL and its future performance:

1. Develop a "small producer-focused group" within or alongside the delegate system – to strengthen APL's reach and accountability with all producers.
2. Ensure Key Performance Indicators (KPIs) drive the organisation but are meaningful measures of performance – to increase APL's ability to track and demonstrate progress using relevant and defensible measures.
3. Develop an extension map for the pork industry – to accelerate the rate at which producers can benefit from adoption of frameworks, practices and technologies.
4. Explore new initiatives aimed at further improving operational efficiency – to maximise the level of resources available for investment.

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1 Introduction

1.1 Context

In February 2014, Australian Pork Limited (APL) commissioned ACIL Allen Consulting to conduct an independent performance review of its operations since 2011.

Reviews are conducted regularly under the Statutory Funding Agreement (SFA) between APL and the Commonwealth Government. The reviews play an important role in informing stakeholders about APL's performance and providing accountability to levy payers and Government (who provide matched funding for R&D) that APL's investments are generating value.

This is the fourth review since APL's establishment.

1.2 Australian Pork Limited

APL is one of 15 Research and Development Corporations (RDCs) responsible for rural research and development (R&D) in Australia. The RDCs commission rural research and development on behalf of primary producers, some processors and government.

APL is a unique producer-owned company that operates as an industry-based R&D corporation, marketing services body, and policy peak body for Australian pig producers. It is a company limited by guarantee.

APL was established in May 2000 following the amalgamation of three separate bodies (the Australian Pork Corporation, the Pig Research and Development Corporation and the Pork Council of Australia). This amalgamation followed considerable industry consultation and "overwhelming" stakeholder feedback about the need for a single peak body to represent the diverse needs of Australian pig producers.

APL's framework was established under the *Pig Industry Act 2001* (the Act). The Act sets out APL's functions as a Statutory Authority, its obligations with respect to the use of Commonwealth funding, and its declaration as the services body for the Pork Industry.

Under the Act, APL's operating and reporting guidelines are provided for in the SFA with the Commonwealth Government. This SFA enables APL to use marketing levies to fund strategic policy development and related activities for the "benefit" of the Australian Pork Industry, in addition to R&D and extension.

APL's operations are also guided by the Company's Constitution. The Constitution establishes the 'objects' of the Company (see Box 1 below). It outlines key aspects that are crucial to APL's operations and performance including, the rights of Members, the appointment and role of Delegates, the obligations, responsibilities and powers of its Board Directors, and the appointment of the Chief Executive.

Box 1 Summary of APL's object under the Company's Constitution

- Leadership on the provision of strategic policy development, marketing and R&D
- Receive funds from the Commonwealth from the Pig Slaughter Levy and Government
- Seek funds from other persons for Marketing, R&D, innovation and other activities
- Manage funds
- Investigate and evaluate the requirements for strategic policy development, marketing, R&D and innovation
- Provide funds for or carry out strategic policy development, marketing, R&D and innovation
- Provide cost-effective services that enhance the competitiveness of the Australian pig industry
- Facilitate the dissemination, adoption and commercialisation of the results of marketing, R&D and innovation
- Manage, develop and exploit intellectual property from marketing and R&D activities, and to receive the proceeds of such development and exploitation
- Provide services to Australian pig producers
- Engage in any other activities in the interests of the Australian Pig Industry

Source: Australian Pork Limited Constitution, 2011.

APL's values are derived from its obligations under the Act, the SFA, and its Constitution, and reflect the needs of Pork Industry stakeholders. The Company's current values are:

- passion and dedication to the cause of our farmers
- deliver what we promise, when we promise it
- respect and support colleagues
- create the future our farmers need
- celebrate achievement (APL, 2010).

These values are supported by the Company's vision and purpose statements:

A competitive, responsible and sustainable Australian Pork Industry

Vision statement

Drive profitability and sustainability for pork producers through the provision of programs and services to the Australian Pork Industry.

Purpose Statement

Funding for APL's activities is sourced through statutory levies, matched in the case of R&D, by funding from the Commonwealth Government. The funded activities aim to deliver benefits to pig producers and to other organisations within the supply chain. The overarching rationale for APL's funding is derived from the fact that the level of investment in R&D, extension and marketing would be sub-optimal if left to individual pig producers.

1.3 This report

1.3.1 Terms of reference

This performance review addresses issues relating to APL's operations, investments and engagement with the broader Australian Pork Industry. It is intended to provide Government and other key stakeholders with an assessment of APL's efficiency and operational effectiveness. In doing so, it also assesses:

- APL's accountability and transparency with government, levy payers and industry stakeholders
- APL's responsiveness to the government's R&D priorities, meeting its SFA obligations and Ministerial request directions, implementing its plans, and wider public good benefits of its activities' (APL, 2013).

The terms of reference set for this review are outlined in Box 2 below. These terms of reference are addressed in the report's remaining chapters.

Box 2 Terms of reference

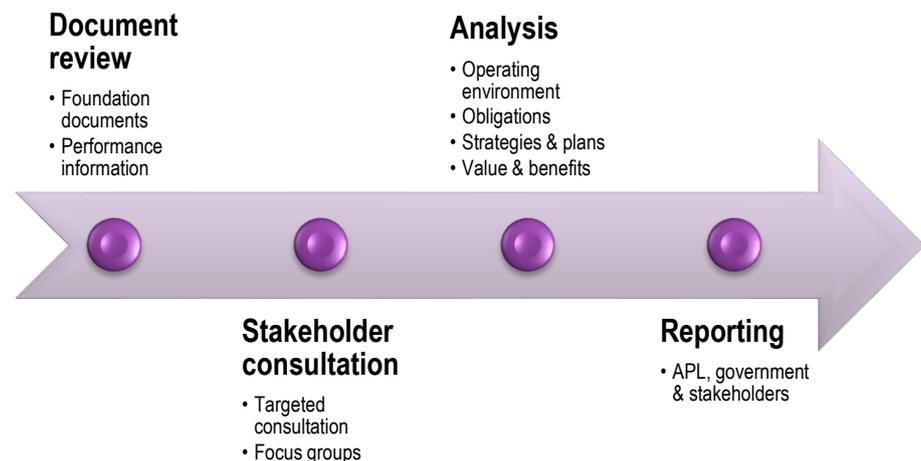
1. Assess APL's performance against its strategic and annual business plans, including the value for money obtained by APL in carrying out those plans, taking into account:
 - a) The performance of the Company in meeting its **obligations** under the Agreement with the Commonwealth.
 - b) The company's **implementation** of its strategic and operating plans and the company's **effectiveness** in meeting its priorities, targets and budgets set out in these plans.
 - c) The **efficiency** with which the company has **carried out** those plans, including but not limited to consideration of the following:
 - i) APL structure and processes.
 - ii) Liaison with stakeholders.
 - iii) Assessment of the company's efforts in cross RDC collaboration.
 - iv) Corporate governance.
 - v) Industry strategy and delivery, including the opportunities for levy payers and other contributors to influence the investment of levies and the return on investment achieved.
 - vi) Corporate operations.
2. Assess the **delivery of benefits** to the industry and the community in general foreshadowed by the company's strategic and operational plans.
3. Assess the **effectiveness** in which APL has addressed the recommendations from the 2010-11 performance review.

Source: APL, Project Brief, 2013.

1.3.2 Methodology

Figure 1 outlines the methodology used for the performance review.

Figure 1 Review methodology



Source: ACIL Allen Consulting.

To provide consistency in the collection and analysis of data, a framework was developed for the performance review. The framework offers key themes from which aspects of APL's efficiency, effectiveness and appropriateness can be examined and recommendations can be developed. The key themes identified as important to this review are:

- operating context and environmental factors
- governance, organisational and liaison arrangements/structures

- results and benefits against priorities, objectives and strategies
- improvements.

1.3.3 Data

Data and information contained in this report were collected from APL and publicly available sources. This information included strategies, plans, reports and operational data from APL itself. They also include information from external sources such as consultant reports and government reviews.

To support data collection, and to test the assumptions and conclusions of the review team, key stakeholders were consulted throughout the project. Consultation with stakeholders occurred through two ways:

- Seven focus group meetings were held with delegates and non-delegate members. These focus groups provided an opportunity for levy payers to deliver feedback about APL's performance and how it can be improved. Focus groups were conducted via free teleconference facilities to minimise the burden of participation on members.
- A number of face-to-face (or teleconference) meetings were also held with selected stakeholders (approximately 40 in total). These consultations were reserved for APL directors, APL senior management, a selection of government stakeholders and a small selection of levy payers/members who were unable to attend focus groups.

Additional information about data collection and stakeholder consultations is provided in the appendices to this report.

1.4 Report structure

The remaining chapters of this report are:

- Chapter 2. This chapter provides analysis of APL's operating environment over the review period. This chapter is important in highlighting the key changes that have occurred to the Australian Pork Industry over the review period.
- Chapter 3. This chapter discusses the effectiveness of governance arrangements and efficiency of APL's operations.
- Chapter 4 to Chapter 7. These chapters provide analysis of APL's performance against the terms of reference and the themes outlined in the framework for analysis.
- Chapter 8. This chapter provides the recommendations from the performance review.
- Appendix A to Appendix D. These appendices provide additional or supporting information that is relevant to the performance review.

2 Operating environment

This chapter considers the environmental and contextual factors that affect APL's operations.

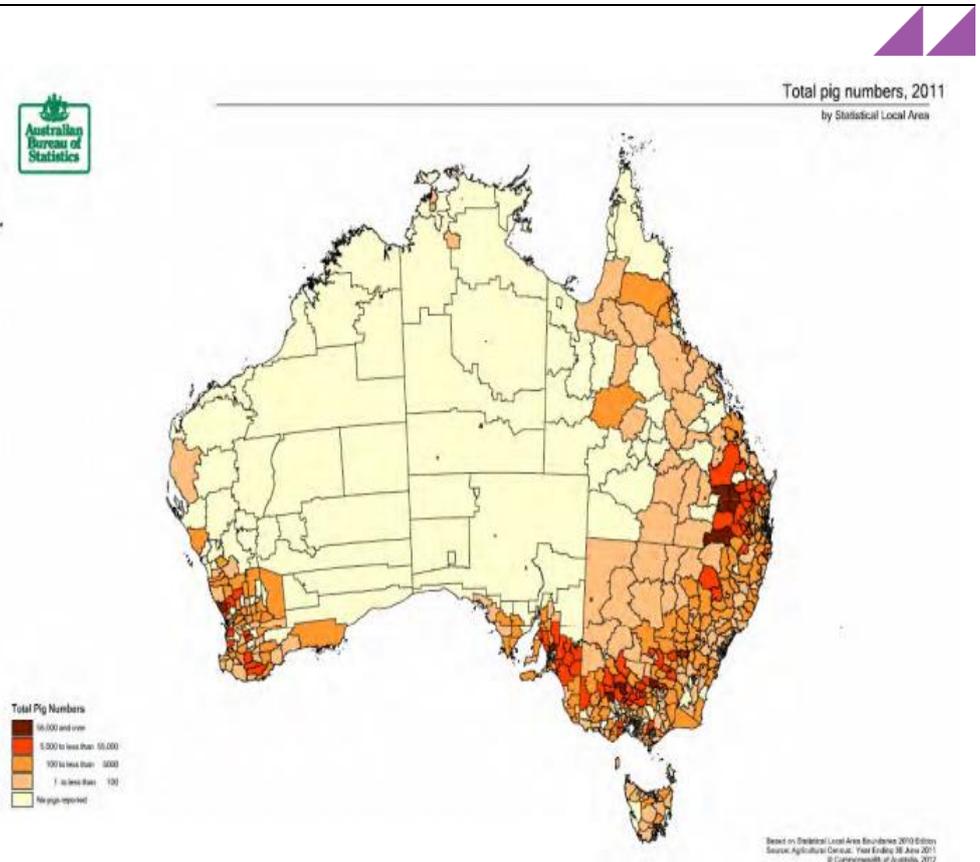
2.1 Industry structure

Australia's pig population is concentrated in south-east Queensland, Victoria and New South Wales (see Figure 2). More than 70 per cent of pig producers are located in Queensland, New South Wales and Victoria.

Over the last five years (through to 2013-2014) the number of pig farms has contracted at an annualised rate of 0.8 per cent (IBISWorld, 2013). Most notable contractions have been in Victoria and New South Wales. An increasing trend within the industry is the amalgamation of smaller operators and the vertical integration of larger ones (as larger businesses seek to develop capacities in breeding, farming, slaughtering and processing operations).

IBISWorld estimates that the industry's two largest producers account for approximately 30 per cent of industry revenue (IBISWorld, 2013). This concentration is reflected in APL's membership base which covers approximately 89 per cent of domestic production.

Figure 2 Location of pig population in 2011



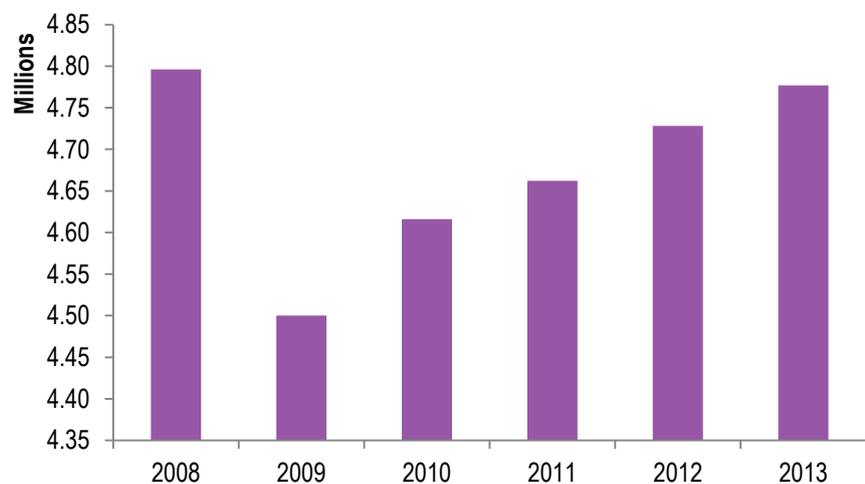
Source: ABS

2.2 Market conditions

Overall the Australian Pork Industry has remained relatively stable over the past three years, despite experiencing some contraction. The Pork Industry has experienced some decline in pig, and sow and gilt numbers (down 6.6 per cent and 0.3 per cent respectively between 2010 and 2012), while experiencing some modest growth in slaughter numbers (2.4 per cent) over the same period (see Figure 3).

In the last review, the Australia Pork Industry was described as undergoing a significant restructure. There was a substantial decline in domestic slaughter numbers in 2008-2009, driven by import competition and escalating domestic producer input costs due to drought and resulting high grain prices. In 2013, following nearly five consecutive years of growth, the market was close to 2008-2009 slaughter numbers (see Figure 3).

Figure 3 Annual Australian pig slaughter numbers, 2008-2013



Source: (ABS, 2014)

The Pork Industry has also experienced steady growth in the average slaughter weight since 2010 (see Figure 4). This growth (according to several stakeholders consulted for this review) reflects industry wide productivity improvements since the last review.

Figure 4 Average slaughter weight, 1980-2012 (all Australia)

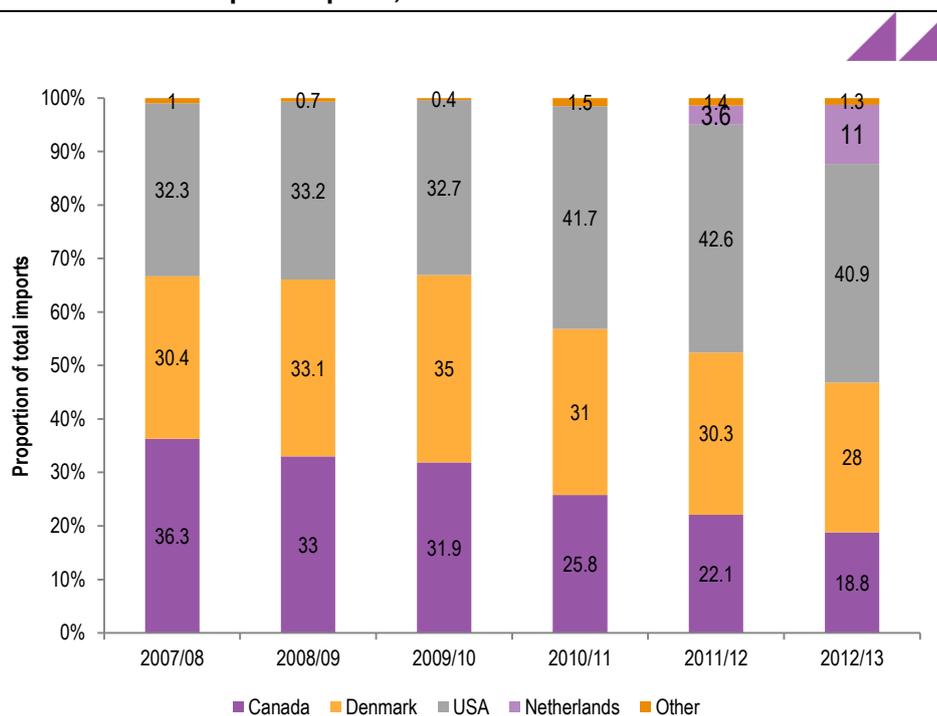


Source: (APL, 2012)

In terms of trade, pork imports increased by 4.7 per cent between 2010 and 2012, while exports decreased by 7.8 per cent (ABARES, 2013). Aided by the strong Australian dollar over the review period, increasing imports have affected the industry negatively. The main countries that Australia imports from include Canada, Denmark, the USA and the

Netherlands. Imports in terms of volume from Canada are significantly less in 2012-2013 as compared to 2008. The USA is an expanding player in the Australian market (see Figure 5).

Figure 5 Volume of pork imports, 2007-2008–2012-2013



Source: (APL, December 2013)

2.3 Key changes

The Australian Pork Industry has experienced a number of important changes since the previous review. The most significant of these are outlined below.

2.3.1 Levies and income

Pig producers currently pay a levy of \$2.825 per carcase, which is made up of three components:

- \$1.65 marketing levy
- \$1.00 R&D levy
- \$0.175 National Residue Survey.

This levy was increased \$0.30 in July 2012 as part of a three tranche rise that will occur over four years. The second tranche will see the marketing levy raised another \$0.30 (effective July 2014) and another \$0.30 effective (July 2016). Overall, the marketing component of the levy will eventually be \$2.35 per carcase, bringing the total levy to \$3.425. The overall levy had not been increased since 1994, leaving it significantly diminished in real terms.

In addition, income from other sources (such as government grants, investment income and interest) has experienced zero or negative growth over the review period (APL Financial Data 2014).

2.3.2 Animal welfare

The Australian Pork Industry is continuously making positive changes with respect to on-farm animal welfare. Since 2010, the Pork Industry has been voluntarily shifting pregnant sows from individual pens to mixed pens and hopes to have sow stalls phased out by 2017.

The phasing out of sow stalls has been an added cost to producers, however profit margins have been supported by the lower grain prices plus industry consolidation is generating larger economies of scale. The Australian Pork Industry is on target to achieve the voluntary phasing out of sow stalls by 2017.

2.3.3 Collaborative strategies

In 2009-2010 the Primary Industries Ministerial Council (PIMC), the Australian, state and Northern Territory governments, rural RDCs, CSIRO, and universities developed the National Primary Industries Research, Development and Extension (RD&E) Framework. The Framework was intended to encourage greater collaboration and promote continuous improvement in the investment of RD&E resources by RDCs (Department of Agriculture, 2012).

Subsequently 14 sectoral strategies (for the beef, cotton, dairy, fishing and aquaculture, forestry, grains, horticulture, new and emerging industries, pork, poultry, sheep meat, sugar, wine, and wool industries) were developed. In addition, four cross-sectoral strategies (e.g. animal welfare, biofuels and bioenergy, climate change and water use in Australian agriculture) were developed to help guide investments in R&D that address issues common to many commodities and industries.

The Australian Pork Industry National RD&E Strategy was developed by APL in close collaboration with the Pork Cooperative Research Centre (CRC).¹ The Strategy is focused on supporting the efficient delivery of outcomes that ensure industry competitiveness, productivity and sustainability. It also ensures that the various pork RD&E programs supported by APL and industry stakeholders are coordinated and well aligned to the needs of the Pork Industry (see Box 3).

The Strategy has been important in shaping APL's approach to RD&E, as well as driving the way it collaborates with other industry stakeholders in the supply chain.

¹ Pork CRC was established in April 2011, following the wind up of the CRC for an Internationally Competitive Pork Industry (which operated from 1 July 2005 through to 30 September 2011). This CRC is expected to run for eight years, with anticipated cash income of \$20 million from the Australian Government, plus \$18 million in cash and \$94 million in-kind from its 40 participants. As the second CRC for the pork industry there is great possibility that it will not be renewed come 2019. Without the leverage of the CRC thought needs to be put into how such collaboration can continue into the future and the mechanism for it.

Box 3 The Australian Pork Industry National RD&E Strategy

The Australian Pork Industry National RD&E Strategy comprises a number of important components including:

- Pork RD&E Facilities:
 - ◆ focus resources into fewer but better funded facilities ('experimental ready') that are critical to meeting the current and future needs of the industry
 - ◆ provide certainty for these facilities by base funding them on a rolling two year basis.
- Pork RD&E Programs:
 - ◆ move from a project by project basis to a coordinated "national program" approach
 - ◆ enhance the development and retention of appropriate human resources and skills.

Source: The Australian Pork Industry National Research, Development & Extension Strategy, www.australianpork.com.au

2.3.4 The RDC model

Since 2010 there have been several important changes to the national model of RDCs. These include:

- increased focus on cross-RDC collaboration (as outlined in Section 2.3.3). Governments, in particular, have shown considerable interest in identifying opportunities for increased cooperation (i.e. joint investment) and 'backroom process' integration amongst RDCs (National Commission of Audit, 2014)
- increased pressure on RDCs to demonstrate improved performance and accountability. Levy payers, Government and other industry stakeholders are seeking assurance that RDCs are delivering value, and that Industry and Government's money is appropriately accounted for. A number of recent reviews (e.g. the Senate's review into the Citrus Industry and the National Commission of Audit, 2014) have highlighted concerns about the performance of some RDCs
- Recurring arguments to reduce the total level of matched funding provided by the Commonwealth Government. For example the 2011 inquiry into the RDC model by the Productivity Commission specifically noted that:
 - the current cap on dollar for dollar matching of industry contributions by the Government should be halved over a ten-year period
- a new, uncapped, subsidy at the rate of 20 cents in the dollar should be immediately introduced for industry contributions above the level that attracts dollar for dollar matching
- a new, government-funded, RDC – Rural Research Australia (RRA) – should be created to sponsor broader rural research. With RRA in place, the other RDCs (except for the Fisheries RDC) should be left to focus predominantly on funding research of direct benefit to their industry constituents (Productivity Commission, 2011).

2.4 Future issues

There are a number of demand and supply side issues facing the Australian Pork Industry. While many of these issues carry through from the 2010-2015 strategic plan process, they will remain issues for the future.

Examples of the issues likely to confront APL over the coming years are provided in Table 1.

Table 1 Likely future issues facing APL

Likely future issues	
Demand side issues	Supply side issues
Increasing consumer demand for product intangibles (including origin of product, environmental footprint, animal treatment practices and processes)	The grains industry is a key supplier to the pork industry. International grain trading arrangements and crop growing condition variability are just two of the factors relating to the grains industry which flow strongly onto pig producers – mainly through the impact on price of their major raw materials
Increasing market share by imported pork. Over production of pork in some international markets has led to a relatively cheap supply of pork from international sources. This has led to a growth in the market share of imported pork with a very low recognition from consumers about imported products	Regulation. Frequent changes to environmental law in some states and the legislation of the Model Code for the Welfare of Animals (Pigs) are driving changes in farm practices. Demonstration of compliance with key regulations will be a challenge for APL
The pork processing industry has gone through a significant consolidation in recent years hopefully adding to a greater level of sustainable profitability in that part of the supply chain and at the same time changing the key relationships with major retailers	Biosecurity remains a critical challenge for the industry, not only minimising the cost of maintaining the high herd health status of the nation, but also continuing to demonstrate the clean nature of our product to domestic and international markets
Nutrition. The health benefits of pork have become a greater focus of consumers. Consumers need to be assured that the product fits in their healthiness perceptions	Labour supply, whilst shifting up and down in the short term, trends over the longer term in a downwards direction. For family-run farms there is a sense that young people are not interested in taking over the family farm and that their farm will cease to operate within the next 10-15 years. Building career paths, education, training strategies and management programs are required to reverse this trend. Incentives are also required to ensure young producers participate in Industry issues and the work of APL
Food safety, taste and quality are as always at or near the top of expressed consumer purchase criteria as non-negotiable	Technology uptake on-farm is a huge opportunity with many recently developed improved practices yet to be adopted by producers. Significant cost reduction and quality improvement opportunities await successful producer implementation
Enhanced domestic competition from red meat and chicken	Strong pressure to reduce “duplication of administrative support and processes by aligning ‘backroom’ processes across the various RDCs”

Source: Adapted from (APL, 2010) using various other sources.

To address future issues APL plans to implement a range of strategies and investments that will take the industry into the next decade. These strategies are likely to be built on:

- an understanding of how to grow consumer appeal. It will be important to ensure that Australian pork is the “best it can be” from the perspective of the consumer
- an understanding of how to grow domestic and international markets for Australian pork. It will be important to make strategic investments which facilitate the development of markets that demand Australian pork
- a drive to ensure integrity in the value chain. It will be important to ensure greater confidence and integrity in the source of Australian pork, and to ensure high levels of compliance with industry standards
- a desire to lead sustainability. It will be important to ensure the Australian Pork Industry reflects society’s expectations about ethics and animal welfare issues
- an understanding of how to improve the capability of the industry. It will be important to develop APL’s capabilities through improved learnings, industry connectedness and operational effectiveness (APL, 2014).

2.5 Findings

The Australian Pork Industry has experienced modest growth in the number of slaughters and average carcase weights over the review period. This growth has, in turn, improved the overall profitability and overall sustainability of the pig production in Australia.

The Australian Pork Industry has undergone a number of changes over the review period that has implications for APL's operations and sphere of influence. These include:

- an increase in levies – the first since 1994
- an increasing focus animal welfare – which shapes the needs of APL's members
- development of collaborative relationships (i.e. with the Pork CRC) which drive the way APL approaches its investment portfolio
- changes to the RDC model which place increasing emphasis on improved collaboration with other RDCs.

The Australian Pork Industry is also set to face a future where key demand and supply issues will place pressure on APL to sustain industry growth and maintain relevance amongst stakeholders and levy payers. These pressures will not afford APL the opportunity to be complacent or passive in its role as an industry services body.

3 Governance and operations

This chapter considers the efficiency and effectiveness of APL's governance and operational arrangements.

3.1 Governance

3.1.1 Obligations

Under the SFA with Government APL is required to adopt the principles and practices of "good corporate governance":

Should implement a framework of good corporate practices in managing and investing the Funds drawing on the *ASX Corporate Governance Council's Corporate Governance Principles and Recommendations, Second Edition, August 2007 and updates as appropriate*. In particular, the Company should aim:

- To structure its board to add value as outlined in Principal 2 of the above mentioned ASX Corporate Principles and Recommendations;
- For the establishment of a Skills Based Board recommended by a Nomination Committee; and
- To set in place processes for evaluating the performance of the board and its committees

(Section 4.1 (a)-(c))

The list of the principles and recommendations (requirements) prescribed by the ASX Corporate Governance Council are provided in Table 2.

Table 2 **APL's governance practices against the ASX principles**

Principle Specified in the SFA	Requirements (recommendations) under each principle
Principle 2: Structure the board to add value	Ensure the majority of board members are independent Make the chair an independent director Separate roles of chair and chief executive officer Establish a nomination committee for board members Disclose processes for Board evaluation Report against principle 2
Other corporate governance requirements	
Principle 1: Lay solid foundations for management and oversight	Establish the functions reserved to the board and those for senior management Disclose the process for evaluating senior executives Report against principle 1
Principle 3: Promote ethical and responsible decision making	Establish a code of conduct and practices Establish and disclose a policy on diversity Disclose the measurable objectives of diversity Disclose the proportion of women in the organisation Report against principle 3
Principle 4: Safeguard integrity in financial reporting	Establish an audit committee of the board Structure the audit committee so it is independent Establish a formal audit committee charter Report against principle 4
Principle 5: Make timely and balanced disclosure	Ensure compliance with listing rules Engage in continuous disclosure and report against principal 5

Principle	Requirements (recommendations) under each principle
Principle 6: Respect the rights of shareholders	Communicate effectively with shareholders and encourage attendance at meetings Report against principle 6
Principle 7: Recognise and manage risk	Establish policies for risk management Design risk management and internal controls Disclose assurances from chief executive and chief financial officer that internal controls are in accordance with the Corporations Act Report against principle 7
Principle 8: Remunerate fairly and responsibly	Establish a remuneration committee of the board that has a majority of independent directors and an independent chair Distinguish executive from non-executive remuneration Report against principle 8

Source: ASX Corporate Governance Council, 2007 (2nd Edition).

3.1.2 Arrangements

APL's board

APL's current board is comprised of nine directors. A minimum of three directors are required under APL's Constitution (Section 14.1(a)).

Levy payers are entitled to register as members and their voting entitlements are proportional to the amount of levies paid. Groups of members may also nominate, on an annual basis, a delegate to vote on their behalf. APL delegates elect five of the nine directors to the board.

The board, in turn, recruits four Specialist Directors to ensure the board has an appropriate balance of skills and expertise to meet its obligations under the SFA and its Constitution.

All board members are independent of the company, and have been elected/appointed through transparent processes that are in accordance with APL's nomination policies.

Board committees

Under the Board Member's Manual (2013) the 'board may establish specialist committees from time to time as it sees fit.' Each committee is given its own charter, terms of reference and membership.

There are currently five committees operating under the board. The objectives of each committee are outlined in Table 3.

In ACIL Allen's opinion the committees and their objectives are well structured and consistent with APL's current operating environment and the Strategic Plan.

Table 3 **Board committees and their objectives**

Committee	Objective
Audit Risk and Corporate Governance Committee	The objective of the committee is to enhance effectiveness of the Company's performance by monitoring and providing assurance with regard to financial information, legislative compliance, risk management, internal controls and governance management
Human Resources and Remuneration Committee	The objective of the committee is to enhance the effectiveness and competence of the board and organisation as a whole, through development and application of best practice in human resource strategy and policy, and the board selection policy. This committee performs those roles required for a Nominations Committee under the SFA
Market Development Committee	The objective of the committee is to provide input and guidance to management and make recommendations to the board as to the development of collaborative activities that increase consumer demand for pork and pork products
Quality Assurance and Animal Welfare Committee	The objective of the committee is to provide input and guidance to the board in the development of policy as well as strategic communications on emerging or specific animal welfare and quality assurance issues that have the potential to significantly impact on producers' future sustainability
Research & Development Advisory Committee (RDAC)	The primary function of the RDAC, is to provide recommendations to the board on the direction, development, management, performance and outcomes of APL's research and associated activities through the: <ul style="list-style-type: none"> ▪ identification of research needs and opportunities as advised through the Specialist Groups ▪ allocation of resources to specific areas of research and research projects through the Specialist Groups ▪ assessment of performance of the project portfolio and APL's research management

Source: APL, Board Manual, December 2012.

Board protocols, procedures and plans

Under the SFA (and the ASX's Corporate Governance Principles) APL is required to effectively manage conflicts of interest, perform risk management, manage the Intellectual Property (IP) of the organisation and engage in fraud control (see Table 2 and the SFA).

A number of key documents and plans are in place to help the board meet its objectives and obligations. Table 4 provides a description of these key documents.

Table 4 **Key board documents**

Key document	Example of contents
Board Members Manual	<ul style="list-style-type: none"> ▪ Structure of the board ▪ Role of the board and individual board members ▪ Board and CEO performance ▪ Board policies – e.g. code of conduct ▪ Remuneration of the board
Code of Conduct for Directors	<ul style="list-style-type: none"> ▪ Attendance to Director duties ▪ Confidentiality requirements ▪ Declaration of interests ▪ Monitoring – oversight by board chair
IP Management Plan	<ul style="list-style-type: none"> ▪ Objectives and principles of managing IP ▪ Approach to the establishment and commercialisation of research IP ▪ IP management procedures
Risk Management and Fraud Control Plan	<ul style="list-style-type: none"> ▪ Reporting and review of risks ▪ Risk assessment criteria and approach ▪ Master list of risks ▪ Record of individual risks

Source: APL internal documents.

Rights and roles of Delegates

Under APL's Constitution (APL, November 2011) a member who meets the threshold requirements for levy payment can become a delegate of the organisation

A Member who has a Pig Slaughter Levy equal to or greater than the Delegate Levy amount or a group of Members who together have together have a Pig Slaughter Levy Amount equal to or

greater than the Delegate Levy Amount may, pursuant to this Rule..., appoint a Delegate to represent them at general meetings in relation to matters not reserved to Members...

(Section 10.2)

Delegates are appointed for a term of three years, with an option for re-appointment. Under the Constitution Delegates are granted the following rights:

Each Delegate is entitled:

- to receive notices of general meeting and all other documents sent to Members in respect of general meetings
- to attend and speak at general meetings

Delegates may vote at a general meeting on any matter other than matters reserved to Members under this Constitution or the Law, including, but not limited to:

- the election of Elected Directors
- the ratification of Specialist Directors appointments
- the total remuneration payable to the Directors of the Company
- resolutions proposed by Members or Delegates under Rule 11.3; and procedural resolutions
- when voting at a general meeting on any matter, each Delegate is entitled to one vote
- each Delegate is entitled to receive an annual report.

(Section 10.3)

3.1.3 Performance

Board performance

The board is accountable to Members and their Delegates under APL's Constitution (APL, November 2011):

The management and control of the business and affairs of the Company are vested in the Board, which (in addition to the powers and authorities conferred on it by this Constitution) may exercise all powers and do all things as are within the power of the Company and are not by this Constitution or by law required to be exercised or done by the Company in general meeting.

(Section 71.1)

To ensure the board is accountable to its Members, regular reviews are conducted of director and board committee performance. These reviews focus on the:

- roles and responsibilities of the board
- timeliness of advice and direction given to management by the board
- effectiveness of board meetings
- interaction with management
- board's contribution to the ongoing performance of the company.

Results of board assessments

Board assessment has been carried out twice during the review period. Overall the results of these assessments suggest that the board and board processes are effective in helping APL to meet its governance obligations.

A summary of the key results arising from each review are provided in Table 5.

Table 5 Results of the 2012 board assessment

Theme	Observation
In camera discussions	As a general observation, it is not uncommon for boards to gradually extend their 'in camera' discussions beyond the legitimate and limited use of this segment of the board's deliberations, and it would be useful for the APL board to monitor their own practice to guard against this
Education of board members	There are two aspects of director education in APL. One aspect is industry knowledge, and this has been enhanced by the holding of regional board meetings combined with 'meet the members' sessions. The other aspect is more general updating on areas such as developments in director responsibilities, and this could be approached in a more structured manner by scheduling information sessions on relevant topics each year
Board member induction	A two-stage induction process for new directors should be considered. An initial session on joining the board could take the form of a basic briefing in the functioning of APL and the board, followed some months later by a follow-up session. This second session would give new directors the opportunity to fill any gaps in their knowledge that become evident having had some experience on the board
Board member relations	Board members commented that the format of the 'meet the members' sessions could be reviewed to include a more structured presentation on an industry topic as well as the informal opportunity to 'meet and greet'
Regional meetings	The cost effectiveness of the regional board meetings should be reviewed periodically to ensure that their frequency continues to be justified
Communication with stakeholders	APL should make more effort to communicate its 'good news stories' to the industry to reinforce its value to the members

Source: 2012 independent assessment of board performance.

In the 2013 assessment, board members were asked to rate their level of satisfaction with APL's board processes. Overall the ratings were high and consistent with the results of previous board assessments (see Table 6 below).

Table 6 Results from the 2013 board assessment

Theme	Observation
Positive outcomes	<ul style="list-style-type: none"> ▪ The collegial nature of the board ▪ The professionalism of board members ▪ The ability to have robust and open discussions ▪ The healthy working relationship with the APL management team ▪ The effective mix of specialist skills and industry knowledge ▪ There are continuing high levels of satisfaction with all aspects of APL board membership
Areas identified for improvement	<ul style="list-style-type: none"> ▪ The challenge of achieving a consensus view of APL's key strategic priorities 2015 to 2020 ▪ Increasing the effectiveness of the Market Development Committee ▪ Whether the appropriate amount of detail on R&D projects is provided to the board ▪ A formal annual review of Committee Terms of Reference ▪ More encouragement for board members to take advantage of opportunities for continuing education, and in particular director education on Competition Regulation and its implications for APL ▪ Further consideration of enhancements to the induction process for new directors ▪ A periodic (e.g. annual) review/discussion between board and management about the content and format of board papers to ensure that these are adapted to reflect any changes in directors' preferences ▪ Clarify the concerns of one director about actions lapsing between board meetings

Source: APL, Report on the Results of a Board Self-Appraisal Survey (Internal), November 2013.

Results in Table 6 are consistent with stakeholder consultations which identify:

- cohesive and strong working relationships between board members. Both APL senior staff and individual board members consulted for this report provided positive feedback about the 'collegial nature of the board' and the healthy working relationships that exist between board members
- a prevailing view that APL's current board has an appropriate balance between skills and representation. Consultations with all board members identified that the presence of "Specialist Directors" selected through a rigorous process (using tools such as a board skills matrix) was a significant strength of APL's governance arrangements. These consultations also identify that the skills of Specialist Directors have proven valuable in helping APL to achieve its strategic directions, and take a proactive approach to key industry issues

- that more work needs to be done to ensure all of APL's Elected Directors (through the delegate system) are adequately prepared for their role as a board member. A number of stakeholders consulted for this report identify the need to better prepare Elected Directors for the role as board members
- some concern that the demographic profile of pig producers was ageing and being reflected in the demographic profile of Delegates and thus Elected Directors. Stakeholders felt more incentives were necessary to encourage stronger pathways for future generations of APL's board members.

Overall ACIL Allen concluded that the board performance and culture is strong and aligned with the expectations of the key stakeholders.

Evolution of committees

A key recommendation from the previous review was:

There would appear to be scope to rationalise the current number of Board committees and reduce the overall impact of their operation on staff and Board resources.

(SED Consulting, June 2011)

In 2010, the Board reduced the number of committees from eight to seven committees, with the dissolution of the Strategic Planning Committee (following the completion of the 2010 – 2015 strategic planning process). In 2011, the committee structure was further rationalised with the dissolution of the Pan Pacific Pork Expo Management Committee, and amalgamation of the Quality Assurance Committee with the Animal Welfare Committee. In 2014, the Board has five committees which meet up to seven times per year.

A list of board committees between 2010-2011 and 2012-2013 is shown in Table 7.

Table 7 Evolution of board committees

2010-11	2010-11	2012-13
Audit, Risk and Corporate Governance Committee	Audit, Risk and Corporate Governance Committee	Audit Risk and Corporate Governance Committee
Human Resources and Remuneration Committee	Human Resources and Remuneration Committee	Human Resources and Remuneration Committee
Pan Pacific Pork Expo Management Committee	Pan Pacific Pork Expo Management Committee	Market Development Committee
Animal Welfare Committee	Animal Welfare Committee	Quality Assurance and Animal Welfare Committee
Market Development Committee	Market Development Committee	Research & Development Advisory Committee
Research and Development Advisory Committee	Research and Development Advisory Committee	
Quality Assurance Committee	Quality Assurance Committee	
Strategic Planning Committee		

Source: APL, Annual Reports: 2010-2011; 2011-2012; 2012-2013.

The rationalisation of the Board committees is logical and shows that the board has been working to improve the effectiveness of its procedures and practices.

Adherence to board policies, procedures and plans

Analysis of key documentation identifies that APL has in place the appropriate policies, procedures and plans that are necessary to meet its obligations under the SFA. In ACIL Allen's opinion APL also has the appropriate documentation (structured in the appropriate way) to ensure good practice risk management, IP management and fraud control is adopted by the organisation.

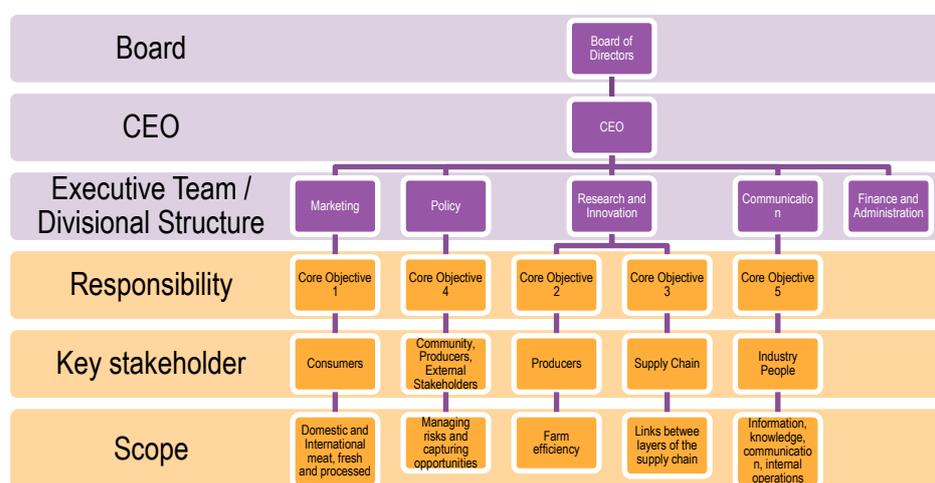
This assessment is supported by feedback from three Specialist Directors who indicated that these policies, procedures and plans (and the board adherence to them) are aligned with their expectations of what constitute good practice in corporate governance.

3.2 Operations

3.2.1 Arrangements

APL's operational activities are overseen by the Chief Executive Officer (CEO) and managed through five divisions: Marketing; Policy; Research and Innovation; Communication; and Finance and Administration. Each division (with the exception of Finance and Administration) is a "champion" for at least one core objective. APL's organisation structure and divisional responsibilities are mapped in Figure 6.

Figure 6 **APL's organisational structure and allocated responsibility**



Source: APL, Strategic Plan, 2010-2015.

A key feature of the structure is the level of organisational integration between divisions. Integration occurs through the process of both developing and then operationalising a series of individual strategies (under each core objective) aimed at addressing the Strategic Plan.

Figure 7 shows how each core objective (for which there is a divisional sponsor) is linked via a strategy or component of a strategy. The figure also shows the percentage of funding for each objective and strategy.

This structure, in effect, gives all divisions opportunities to contribute to multiple core objectives, and ultimately the broad strategic directions of the company. It provides an organisational structure that prevents fragmentation in its delivery arrangements and potentially enhances coordination across key initiatives.

Consultation with the Senior Executive suggests this is an effective structure for delivering APL's obligations under the SFA. Consultation also suggests it is a structure that currently meets the expectations of the board directors.

Figure 7 Linkages between APL's organisational divisions

Core objectives (→) Strategies (↓)	Core objective 1	Core objective 2	Core objective 3	Core objective 4	Core objective 5
	Build Consumer Demand	Viable Productive farms	Efficient Value Chains	Leadership, Preparedness, Stewardship	Industry Cohesion & Responsiveness
Strategy 1	Assuring eating quality <i>Total funding: 17.9%</i>	Reduce input costs <i>Total funding: 1.8%</i>	Create & capture value improvements <i>Total funding: 1.3%</i>	Address changing expectations & standards for food production <i>Total funding: 11.3%</i>	Engage & connect the industry <i>Total funding: 4.4%</i>
Strategy 2	Increasing frequency of use <i>Total funding: 19.0%</i>	Improve process efficiency <i>Total funding: 8.9%</i>	Enhance linkages between the value chain partners <i>Total funding: 0.4%</i>	Manage the impact of regulatory shifts <i>Total funding: 6.1%</i>	Facilitate rapid uptake of information & technology <i>Total funding: 2.2%</i>
Strategy 3	Improving the image of fresh pork <i>Total funding: 4.9%</i>	Build skills & capability <i>Total funding: 0.3%</i>	Optimise value chain efficiency & quality <i>Total funding: 0.2%</i>	Government policy & compliance requirements <i>Total funding: 7.1%</i>	Enhance the reputation & effectiveness of APL <i>Total funding: 8.3%</i>
Strategy 4	Promoting "Australian" <i>Total funding: 3.0%</i>				
% of total funding (2010-13)	44.9	11.0	1.8	24.5	14.9

Source: APL, Annual Reports: 2010-2011; 2011-2012; 2012-2013.

Performance management

To assist in the management and monitoring of progress against strategies, core objectives and ultimately the Strategic Plan, APL has in place a defined performance management system. Under the system, the company's KPIs (set during the Strategic Planning process) are used to provide an assessment of performance on an annual rolling basis. KPIs focus on both industry level achievements and those achievements more directly within APL's sphere of control.

KPIs are then translated into operational targets through an annual operating planning process which utilises both top down and bottom up processes. The board is responsible for setting and managing the CEO's KPIs, which in turn cascade down to the Senior Executive and the rest of the organisation.

Individual APL staff are then allocated individual and team-based KPIs which reflect individual development plans, divisional operating plans and the strategies and core objectives of the organisation. The performance of individual staff is assessed on an ongoing basis for reporting to General Managers, the CEO and to the board.

The Senior Executive of APL (i.e. General Managers of each division) are given the autonomy to develop incentives that award staff for their performance against KPIs.

Analysis of APL's performance against KPIs is considered in more detail in Chapter 5.

Allocation of costs

Under the SFA with Government APL must allocate costs in accordance with the following principles:

- All costs for an activity should be allocated to the activity;
- Reasonableness;
- Suitable basis;
- Consistently treated;
- One beneficiary; and
- Plural beneficiaries.

(Schedule 3)

In addition:

The Company must ensure that there is a clear distinction between expenditure on Research and Development Activities and Marketing Activities to enable reporting...

(Section 7.4)

To meet these obligations, APL allocates costs on an operational division (i.e. Research and Innovation, Marketing and Policy) or service divisional (i.e. Finance and Administration, and Communications) basis. Where costs cannot easily be attributed to divisions costs are shared amongst divisions. The shared costs generally include expenditure such as rent, telecommunications, information communication technology and depreciation.

A key feature of the APL's operational arrangements is that more than 95 per cent of the costs incurred by APL are allocated to individual projects. By definition, once costs are allocated to projects, they are simultaneously allocated to divisions, programs, strategies and core objectives. These costs are allocated in accordance with the 'Cost Allocation Policy' using a transparent seven step process (see Box 4).

Box 4 APL's cost allocation policy – steps for allocating costs

1. Shared Costs: These are firstly reallocated to each division on the basis of FTE number by site
2. Direct Project Costs: All direct costs associated with these divisions are allocated directly to individual projects (and by extension to division)
3. Direct project costs are allocated on an R&D or non R&D basis to the relevant project. Service divisions' direct project costs are allocated between R&D and Non R&D for areas such as Information & Communication Technology, Human Resource Management, Corporate Publications, Annual General Meeting & Conference, Industry Network Forums and Electronic Applications in proportion to the total company spend
4. Corporate Costs: If a corporate cost solely relates to one project (for example travel for personnel relating to a particular project), it will be allocated entirely to that project
5. Reallocation of remaining Corporate Costs: Consistent with the principle of fully costing those activities leading to company outputs and outcomes, the corporate costs incurred (unless they are associated directly with a project as above) are reallocated to divisions on the basis of total proportion of direct project cost by division
6. Corporate Costs Allocation to Projects: All divisions then allocate these divisional corporate costs to a project level in proportion to staff time applied to the project. During the annual budgeting process General Managers forecast the time employees will spend on each individual project based on business plans and any other information to hand. Each quarter these forecasts are replaced with actuals prior to finalisation of the matching claim
7. Residual Corporate Costs: Since not 100% of all staff time is able to be allocated to individual projects, there is an amount of corporate costs that after step 5 remain unallocated within each division (less than 5% as mentioned above). Those residual corporate costs within the Research and Innovation Division are then allocated to R&D for matching claims purposes. The remaining divisions' residual corporate costs are allocated to either R&D or non R&D in proportion to total (except R&I Division) R&D/non R&D total spend for the total company. Total project spend by division now includes corporate allocation, shared and service divisions allocation and the R&D and non R&D components
8. Non R&D Residual Corporate Costs: The non R&D residual corporate cost is allocated to the other Divisions in proportion to their total project costs

Source: APL internal documents

It is ACIL Allen Consulting’s opinion that the cost allocation policy is appropriate for APL’s needs. It allows APL to clearly differentiate between expenditure for R&D and expenditure related to other activities (as required under Section 7.3 of the SFA).

Also by allocating corporate overheads on a project-by-project basis (through an allocation of staff time) APL has an accounting mechanism that allows for the full costs of a project to be identified. Through an understanding of the full costs of delivery APL is well placed to manage projects inputs and focus on project efficiency (see 3.2.2 below).

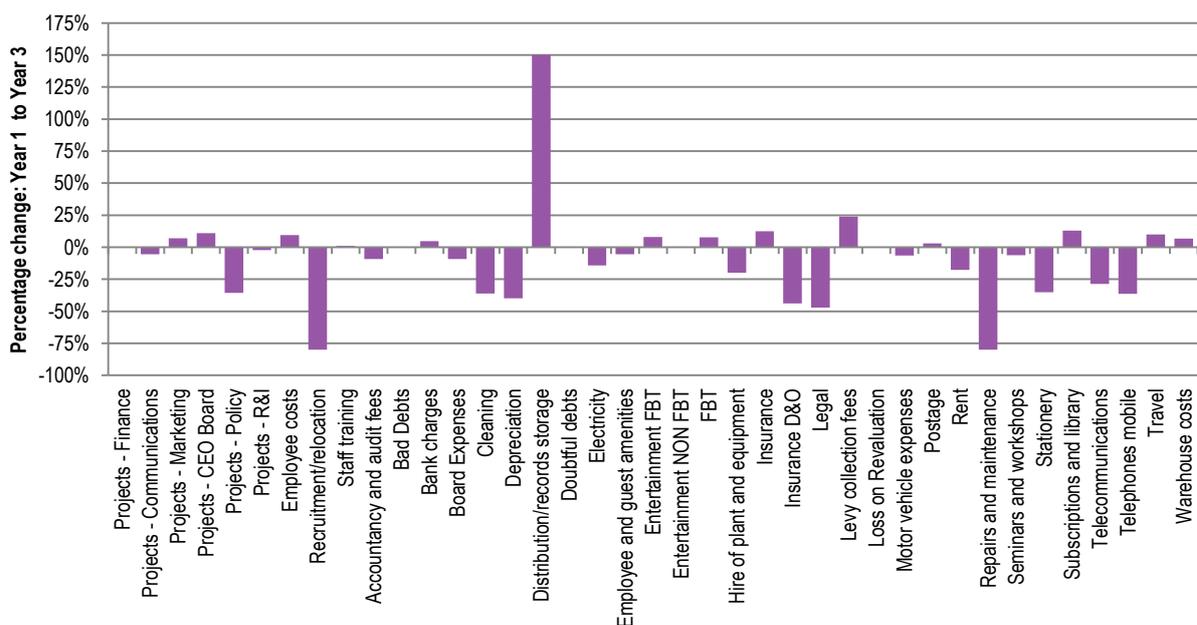
3.2.2 Performance

Efficiency

As part of this performance review, the Review Team undertook an analysis of APL’s expenses by major expenditure item. Using APL’s internal expenditure data, the Review Team examined the level of change in specific expenditure items (typically classified as corporate overheads) across the review period. This approach was adopted to move away from unproductive analyses of corporate overheads which are often calculated differently across RDCs depending on an RDC’s accounting practices, organisational structures and investment portfolios.

Figure 8 provides the results of this assessment. It shows that APL has achieved a significant reduction in most expenditure items typically classified as corporate overheads. This is a strong result for the company and detailed evidence that APL has significantly improved the efficiency of its operations over the review period. Where growth has occurred (in particular, within the area of “Distribution and Records Storage”) this can be attributed to APL’s drive to become a ‘paperless office’ and the subsequent need to archive company records to achieve this end. It is acknowledged that “Distribution and Records Storage” expenditures are unlikely to experience similar growth in the future.

Figure 8 Change in APL expenses: 2010-11 to 2012-13



Source: APL financial data.

Several explanations for the reduction in overhead costs have been provided to the Review Team. They include:

- a strong internal focus on expenditure control and the consistent application of internal procedures
- consolidation of office space and relocation to more cost effective office accommodation in Barton, Canberra
 - this has also helped APL to reduce the costs of maintenance, repairs and cleaning associated with the new accommodation
- reductions in telecommunications, insurance costs and legal fees.

Declining corporate costs also occurred against the backdrop of an increased level of resources from levy sources, but flat or declining income from other sources. It suggests that APL has responded to external financial pressures by demonstrating that recent levy increases are being efficiently managed through reduced overheads.

Appropriateness

While not strictly part of this performance review's terms of reference, it is important to recognise the appropriateness (and effectiveness) of APL's organisational arrangements. It is clear from an analysis of APL's annual reports, internal governance documents and consultation with board members, that the current organisational structure (and supporting performance management arrangements) is appropriate for meeting its core objectives and the Strategic Plan.

This assessment is evidenced by the alignment between APL's divisions and core objectives (see Figure 6). Each divisional General Manager is given clear responsibility for delivering against key elements of nominated core objectives, and a performance system to set incentives for meeting each objective.

It is also evidenced by the linkages between divisions and core objectives embedded within the organisational arrangements (see Figure 7). Each General Manager is also given responsibility for delivering against those core objectives which are largely the responsibility of other General Managers. This approach provides a mechanism for integrating and coordinating APL's activities, and minimising the fragmentation of effort.

3.3 Findings

Under the SFA with Government APL is required to meet the principles of good governance as laid out by the ASX's Corporate Governance Principles. Evidence collected during this review suggests that APL's governance arrangements, practice and procedure meet each of these principles. In addition the review has found that:

- board committees have undergone sensible rationalisation following the recommendation of the previous review
- board performance and board culture is strong and aligned with the expectations of key stakeholders
- board policies, procedures and plans followed.

The Review Team also identified that APL's operational structure is well aligned with the Strategic Plan and provides sufficient clarity and integration to meet the core objectives underpinning the Strategic Plan.

This structure has played an important role in helping APL to reduce administrative and overhead costs over the review period. Analysis of financial data shows downward trend in costs which support APL's investments in R&D, extension, marketing and policy development.

4 Stakeholder liaison

This chapter examines the efficiency and effectiveness of APL's stakeholder liaison.

4.1 Liaison with levy payers and producers

Under the Constitution and the SFA (Section 3.2), APL is required to liaise with industry, levy payers and government. APL fulfils these requirements through two formal mechanisms, which are: membership; and the delegate system.

4.1.1 Membership

There are three types of APL membership: producer; associate producer; and associate corporate. Producer membership is open to levy paying producers. Associate membership is open to non-levy paying producers (associate producer) and organisations (associate corporate). Membership is voluntary and all types of members have the same benefits and rights other than voting. Only producer members, who pay a levy, have voting rights at annual general meetings. They are also the only members who can vote for changes to APL's Constitution and Pig Slaughter levy.

In 2012-13, APL had 331 producer and 14 associate producer members compared to 346 and 17 respectively in 2011-12. Current membership represents 89 per cent of pork production. Over the same period associate corporate membership increased from 18 to 26. The changes in membership numbers reflect the long-term decline in pork producer numbers as well as increased interest in non-producers working with APL to develop the industry.

The primary benefit for all classes of membership is the ability to receive earlier information from APL and engage in their various liaison mechanisms.

Table 8 **APL membership rights, benefits and updates**

Membership rights	
Members are afforded the following rights under APL's Constitution:	
<ul style="list-style-type: none"> ▪ Attend, speak and vote at annual general meetings (levy paying producer members only) ▪ Vote on changes to APL's constitution and Pig Slaughter Levy (levy paying producer members only) ▪ Attend and speak at annual general meetings (all members) ▪ Present concerns directly to the APL Board and management through the delegate communication program (all members) 	
Membership benefits	Membership updates
<p>The member's business is recognised as making a contribution to the Australian pork industry.</p> <p>APL members receive:</p> <ul style="list-style-type: none"> ▪ a monthly newsletter ▪ weekly and monthly market report ▪ regular technical notes ▪ access to the members' only website ▪ technical and professional support ▪ notification and preferential and registration to APL workshops, meetings, conferences and exhibitions ▪ greater opportunities to network with industry experts and other groups ▪ early access to results of research projects 	<p>Timely updates on APL's progress on:</p> <ul style="list-style-type: none"> ▪ environmental initiatives ▪ animal welfare initiatives ▪ animal health ▪ Feed grain security and supply ▪ Regulatory changes ▪ New trends in industry research and technology ▪ Domestic and international market research ▪ Eating quality ▪ Domestic and export markets

Source: APL

APL has an open and progressive approach to membership. That is, APL encourages producers and others to become members and use the information and services it provides. APL has an aspirational goal of increasing membership, ideally to 100 per cent of producers. Practically this is constrained by awareness and relevance of APL to non-members, particularly smaller producers. Also membership does not exclude a producer for gaining access to information or services (other than earlier notification) provided by APL.

ACIL Allen Consulting considers that while APL should seek to maintain its high level of producer and production coverage through membership, but this should not be pursued solely as an end in its own right. Rather consideration should be given to whether key frameworks (e.g. APIQ[✓]®) and relevant practices and technologies developed and promoted by APL are being adopted by industry. This is more a question of extension and how it is coordinated and focused rather than membership per se.

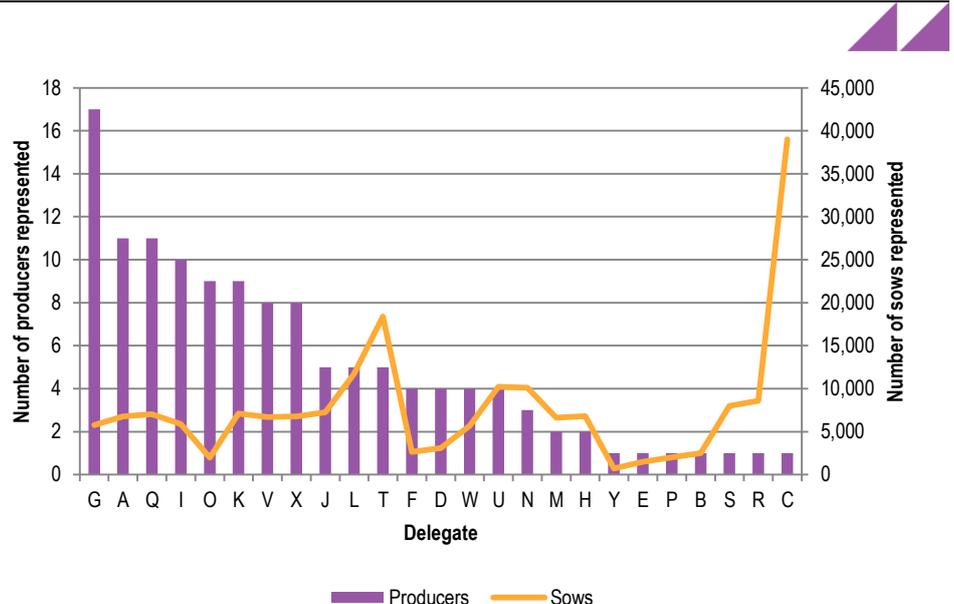
4.1.2 Performance of the Delegate system

A unique feature of APL is the Delegate system where APL invites stakeholders to nominate producer Delegates every three years. Delegates are the communication links between APL and its members. Delegates are required to participate in two Delegate Forum meetings per year and to assist at regional producer meetings (when required).

The Delegate system was strongly supported by stakeholders during the review. It was cited as a core conduit for APL to engage in a two-way dialogue with the Australian Pork Industry on strategic and operational matters.

The system whereby delegates must represent a minimum number of sows means that the number of producers represented by an individual delegate varies considerably (Figure 10). This variability influences the ability of each delegate to engage with the producers they represent given the role is voluntary. This was highlighted during consultation where delegates noted they did not always have the time or means to effectively consult or communicate with producers.

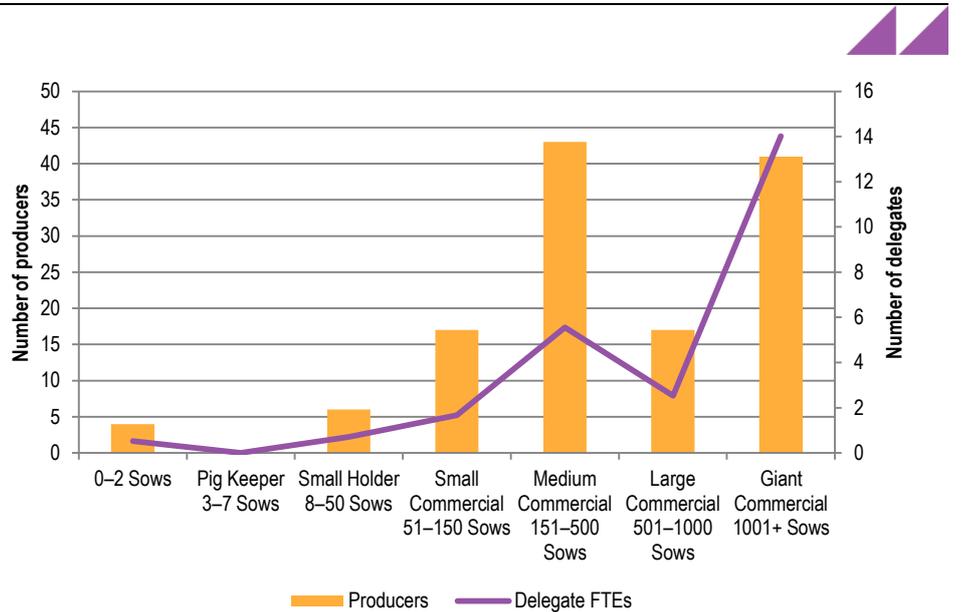
Figure 9 Number of producers and sows each Delegate represents



Source: APL

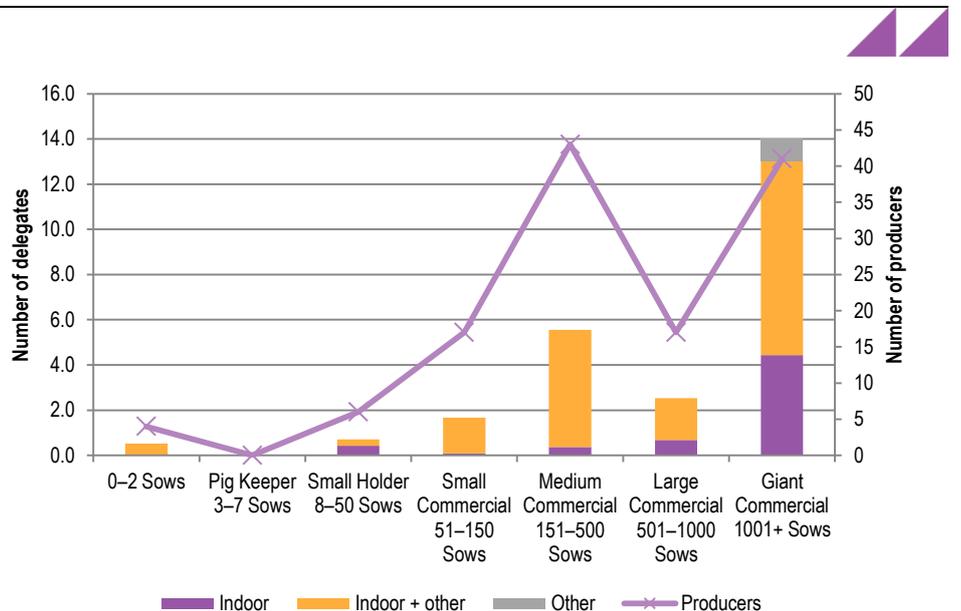
The question of whether smaller producers or the various production systems have an adequate voice was also raised by stakeholders. Analysis indicates that larger (Figure 10) and indoor (Figure 11) producers have a higher degree of representation.

Figure 10 Number of Delegates by producer size



Note: Delegate FTE is the number of full time equivalent delegates available for each category of producers. It is calculated by dividing each delegate by the number of producers they represent and allocating that proportion to the category of producers they represent
Source: APL.

Figure 11 Number of delegates by producer size and type



Note: Note: Delegate FTE is the number of full time equivalent delegates available for each category of producers. It is calculated by dividing each delegate by the number of producers they represent and allocating that proportion to the category of producers they represent
Source: APL.

While this is consistent with industry characteristics it highlights that smaller and non-indoor producers have access to less delegates, which can reinforce the perception of less representation and even bias.

Other feedback on the delegate program involved the design of delegate engagement and encouragement. The delegate system was reported as an excellent personal skill and development mechanism, and supported increased business and industry leadership capacity. As such, the need to integrate capacity building considerations into the program was seen as essential to maximising the value to APL and the industry more widely.

This point was illustrated by a new Delegate and a Delegate who had recently completed their term. The new delegate reported how becoming involved in the program had significantly increased his understanding of APL, the industry and the position of his own business. The person who was no longer a Delegate reflected that his knowledge of APL and whether it was doing a “good job” had declined as he became less involved to a level where he was no longer sure. This highlights that the Delegate system is incredibly important but is and cannot be the only industry liaison mechanism.

Surveys are conducted to gauge how delegates value Delegate Forums, with survey outcomes for three workshops provided to this review: May 2012, November 2012 and May 2013. Table 9 summarises the findings from these surveys on how delegates rated different aspects of the Forums. The surveys reinforce that delegates gain value from participation.

Table 9 Satisfaction with Delegate Forums

Component	May 2012	November 2012	May 2013
Presentation and speeches were informative and relevant to the Delegate's Forum and its attendees	At least 80% agreed for most topics; lower levels of agreement for sessions on future projects (60%) and climate change/carbon tax (70%) and the open forum (78%)	At least 80% agreed for most topics; lower levels of agreement for sessions on climate variability and risk management (56%), and Pork CRC (69%)	At least 80% agreed on a few topics; lower levels of agreement for sessions on differentiation strategy (67%), market update (58%), Pork CRC (66%), pork supply chain integrity program (75%) and the open forum (68%)
Format of the Delegates Forum was appropriate and encouraged participation	100% agreed	94% agreed	83% agreed
The use of the electronic portal is a more timely and useful way of circulating relevant Delegate Forum information	76% agreed, although there were many comments about the late delivery of hardcopy information	94% agreed	88% agreed
Material provided by APL relating to the Delegates Forum was of high quality and informative	80% agreed	88% agreed	62% agreed
Please rate the quality of your accommodation and the service provided	At least 80% satisfied	At least 87% satisfied	At least 91% satisfied with all aspects except the main meeting room (69%)
If your travel and/or accommodation was booked through APL, please rate your level of satisfaction	76% satisfied	100% satisfied	100% satisfied

Source: Delegate Forum surveys: May 2012; November 2012; May 2013.

Delegates also play a role in key industry and APL issues. For example, Delegates at the APL AGM in November 2010 supported “that the industry commit to pursuing the voluntary phasing-out of the use of gestation stalls by 2017”. To achieve this outcome, Delegates were involved in seeking support from regulators, political stakeholders, retailers, consumers and the general community (APL, 2011, p. 41).

Delegates at the May 2011 Forum agreed to allow APL to move forwards to consult with levy paying pork producers regarding a levy increase (APL, 2011, p. 41).

Overall the delegate program is APL's key producer liaison mechanism. The delegate system is widely supported and there is agreement that it should continue to be developed and fine-tuned in the future to improve its effectiveness.

4.2 Liaison with other stakeholders

APL liaises with the R&D community, marketing providers, government and supply chain stakeholders in addition to producers.

The Commonwealth Government provides APL's legislative and financial basis and APL must liaise with the Minister for Agriculture and Department of Agriculture on the SFA and implementation of its Strategic Plan. APL prides itself on a proactive and transparent approach to these matters which was confirmed during stakeholder consultations.

The concentrated nature of the Australian Pork Industry means that a close working relationship with the public and private R&D community is required to ensure access to capacity. The National Pork RD&E strategy is integral to this, defining the roles and responsibilities shared between APL, the Pork CRC, private research facilities and government. These stakeholders are also members of RDAC which provides a tactical and strategic coordination forum.

While these arrangements are appropriate, for such a concentrated industry, a number of issues were identified by stakeholders during the performance review. First, there is potential conflict of interest in the national strategy and RDAC given that key funders and providers are involved. APL effectively manages this by separating RDAC recommendations from procurement. Under this approach RDAC recommends proposed budgets to the board for decision. APL's management group then procures the required services and follows prescribed procedures to manage conflict of interest should they arise.

Second, APL and its partners need to regularly review the pork industry's R&D capacity under the national strategy. The increase in levy and back-log of projects is extending existing capacity to a level where investments are being delayed in the short-term. Over the longer-term the industry needs to prepare for the likelihood that the Pork CRC will not be extended beyond its current funding round.

The Review Team observed that APL and its R&D stakeholders are aware of these issues (see also Section 3.1.3). As such, no formal recommendation is made. Rather we note that conflict of interest and R&D capacity must be managed openly and with vigilance.

APL is active and has a valid role in the supply chain through its advocacy and marketing functions. This role was supported by producers during the review consultation. None the less concerns were also raised about the degree to which APL influences the supply chain and the subsequent distributional impacts on producers and others.

For example, there are mixed views around the move to sow stall free production. On one hand, it was an area where APL and industry proactively responded to market, consumer and advocacy demands. On the other hand, it resulted in considerable costs for many producers without a decline in demand for high animal welfare standards or an increase in market price. Similarly some stakeholders are concerned that APL's marketing and direct engagement with the supply chain may advantage particular producers, production systems and product categories.

The Review Team did not cite evidence that APL has deliberately sought to advantage or disadvantage any particular producer or supply chain stakeholder above another. Rather it is proactive in developing the supply chain/industry through its advocacy and marketing functions led by the board and the marketing committee. The issues raised reflect natural concerns where potential changes to commercial arrangements may arise. The challenge for APL is to ensure that it continues to liaise effectively with producers and other stakeholders.

4.3 Findings

APL has a mature and effective system for liaising with producers, industry supply chain, government and other stakeholders.

Producer liaison is centred on membership and the Delegate system. Membership growth is always desirable but appears to have limited potential to increase given it is already high. The Delegate system, in comparison, provides some low cost opportunities for enhanced producer engagement – especially amongst smaller producers – which APL should consider adopting (see Recommendation 1).

APL is proactive and effective in liaising with the Commonwealth Government, which recognises and appreciates it.

APL uses its board and board-committee system to drive its R&D and advocacy, marketing liaison. This system is effective. However, the concentrated nature of the Australian Pork Industry means that potential conflict of interest is present around each of these functions. ACIL Allen Consulting found that APL and the committees have effectively managed the potential conflict of interest. However the board will need to monitor the process and remain vigilant and transparent in doing so into the future.

There was some concern, expressed during consultations, about the efficacy and distributional impact of APL's advocacy and marketing functions on producers and other supply chain stakeholders. No evidence was cited that APL deliberately seeks to advantage or disadvantage one producer or stakeholder above another. None the less APL should be cognisant of these concerns and remain attentive to justifying and explaining its strategy and demonstrating both the positive and negative impact of its investments.

5 Strategic and operational plans

This chapter examines the effectiveness of APL's implementation of strategies and plans. It provides an assessment of APL's Key Performance Indicators (KPIs) against its core objectives under the Strategic Plan, as a way of examining effectiveness.

5.1 Obligations

5.1.1 Strategic Plan

Under the SFA with Government, APL is required to:

Develop a written strategic plan covering a rolling three-year period, review and update at least annually, work with the Department to ensure the plan meets the requirements of the SFA, and make generally available to Levy Payers

(Section 8.1)

The Strategic Plan must cover:

- Vision or mission statement
- Objectives and priorities
- Assessment of the Company's operational environment
- Planned outcomes
- Programs the Company intends to adopt
- Key deliverables
- Performance indicators
- Collaboration with other RDCs
- How the activities funded align with the directions from the Minister
- The degree of consistency of Funds with the National and Rural R&D Priorities
- Estimates of Income and Expenditure
- A corporate governance statement.

(Section 8.2)

These obligations are met through a strategic planning process undertaken every five years, but updated regularly. APL's Strategic Plan provides the high level direction for its activities. These directions are outlined through five core objectives for APL and the Australian Pork Industry. To achieve these core objectives, there are several associated strategies. In addition, the Strategic Plan identifies the following elements for each core objective:

- the 'champion', that is the leader with APL who will ensure effective coordination of APL's efforts towards achieving the targets and performance indicators of a core objective
- the key stakeholder, that is who will benefit from the activities undertaken under the core objective
- the scope, that is the part of the Australian Pork Industry in which efforts to achieve the core objective are directed.

Figure 7 (above) outlines APL's core objective and strategy matrix, as well as the champions, key stakeholders and objective scope.

5.1.2 Annual Operating Plans

Under the SFA with Government, APL is required to:

The Company must provide to the Commonwealth an Annual Operational Plan to the Strategic Plan. The Plan must set out:

- The key activities to be funded separately for R&D and Marketing
- How the key activities align with Ministerial Directions
- The key deliverables of the Plan
- Estimate income and expenditure on key activities.

(Section 8.5)

The Annual Operational Plan must consider:

- Any direction given by the Minister
- Consistency with community and Levy Payer expectations
- National Primary Industries R&D and Extension Framework
- Collaboration with other RDCs

(Section 8.6)

The Annual Operating Plan (AOP) expands on the high level direction provided in the Strategic Plan. Each AOP outlines the projects within the programs, strategies and core objectives to be carried out over the following 12 months for operational divisions. AOPs are important tools for managing the performance of divisions against specified budgets and targets.

Detailed requirements for the Strategic Plan and Annual Operating Plans are specified in the SFA. Analysis of APL's compliance with these requirements (provided in Chapter 7) shows that it is meeting the obligations set by Government.

5.2 Performance

5.2.1 Effectiveness (implementation of plans)

This section examines the effectiveness of APL's activities against its core objectives and the strategies which support each objective. The analysis is focused on APL's KPIs as the primary indicators of performance against strategies, plans and priorities.

A colour coding system has been used to identify whether APL has:

- met the targets/measures laid out for it in the KPI – The colour **green** has been used to indicate success
- not met the targets/measures laid out for it in the KPI – The colour **red** has been used to indicate where KPIs have not been achieved
- experienced a near miss for the KPI – The colour **amber** has been used to indicate where KPIs have nearly been met.

Core objective 1

Core objective 1 is a demand based objective. It is driven by the rationale that:

Demand can be converted into either increased volume sales or increased pricing, both of which drive the revenue line of a business. In a profitable business, a one per cent increase in price improves profitability more powerfully than either a one per cent increase in volume or a one per cent decrease in cost. Consequently, APL will focus on building consumer demand in a way that builds the value of pork as well as the volume sold, in the most cost effective manner.

(APL, 2010)

This objective adopts several strategies focused on eating quality, eating frequency, and product image, with the aim of achieving increased sales, consumption, repeat purchases, improved access to international markets and maximum share of the market for fresh meat.

Table 10 provides an analysis of KPIs under core objective 1. It shows that over 60 per cent of the KPIs for this core objective were not met or experienced a near miss. The majority of these KPIs related to consumer demand or export related measures, which are considered by some stakeholders (as articulated in the stakeholder forums and during two individual consultation sessions) to be outside APL's "sphere of control".

Table 10 also shows where APL has delivered benefits to the Pork Industry. In particular, it shows some strong outcomes in terms of advertising and campaigns aimed at improving consumer understanding of pork's nutritional qualities.

Table 10 **Progress against KPIs (core objective 1)**

	2010-11	2011-12	2012-13
	Result (Target)	Result (Target)	Result (Target)
Strategy 1 – assuring eating quality			
Build Quality Perceptions of “Taste Great” and “Is usually great quality” (Percentage of consumers rating pork)	61%, 38% (58%, 35%)	N/A	N/A
Maintain “Healthy” rating at August 2010 level (Percentage of consumers rating pork)	41% (40%)	N/A	N/A
Nutrition and health	N/A	Progress on eating quality (Not specified)	N/A
Nutrition marketing	N/A	Health perceptions improved (Not specified)	N/A
Have eating quality pathways proven	N/A	N/A	Major eating variables identified (Not specified)
Support for CRC eating quality project	N/A	N/A	Highly integrated into APL strategy and stakeholder collaborations (Not specified)
Strategy 2 – increasing frequency of use			
Annual pork consumption (Carcase Weight Equivalent [CWE]) kg per capita per annum)	8.5 (8.41)	8.31 (8.8)	8.53 (8.59)
Annual expenditure	\$59.36 (\$61.50)	\$59.41 (\$62.09)	N/A
Frequency of purchase per annum	8.2 (8.3)	8.1 (8.3)	N/A
Share of all proteins	9.9% (10.0%)	10.0% (10.0%)	N/A
Advertising recall (Consumers recognising APLs advertising)	54% (43%)	N/A	N/A
Baconer price	N/A	N/A	\$2.85 (\$2.75)
Strategy 3 – improving the image of fresh pork			
Restaurants with pork on the menu	No data (80%)	N/A	13% (16%)
Pork advertising recall	N/A	N/A	62% (60%)

	2010-11	2011-12	2012-13
Strategy 4 – promoting “Australian”			
Awareness of Australian Pork logo (set as “PorkMark Awareness” in 2012-13”)	34% (50%)	41% (50%)	51% (50%)
Australian processed	28% (29%)	35% (27%)	33% (Not specified)
Volume of exports	36,361 tonnes (36,500 tonnes)	35,792 tonnes (36,500 tonnes)	N/A
Value of exports	\$111.3 million (\$113.2 million)	\$104.9 million (\$113.5 million)	N/A

Note: N/A = KPI not identified or applicable for that year
Source: APL, Annual Reports: 2010-11; 2011-12; 2012-13.

Core objective 2

Core objective 2 is a producer-focused objective that focuses on delivering to producers. It is driven by the rationale that:

A sustainable Pork Industry requires the Australia pork producer to be internationally competitive and profitable in an ever changing global food market... More effective feed formulations, development and access to new feed grain varieties and the identification of new feed sources needs to be considered.

Pig diseases in Australia have a major impact on the cost of production of pork and there is significant scope to enhance the Australian pork industry’s efficiency and competitiveness by better controlling the diseases that adversely affect pork production...

(APL, 2010)

Core objective 2 is largely R&D-based, with several strategies focused on reducing input costs, improving process efficiency, and building skills and capability. The overall aims of core objective 2 are improved margins per pig, and consistent nutrient supply and cost.

Table 11 provides analysis of APL’s KPIs under core objective 2. It highlights that approximately 70 per cent of KPIs were not met or experienced a near miss for this core objective. This suggests that APL has not met a significant number of KPIs focused on lifting farm-level productivity which comes as a result of wide-spread adoption of R&D outcomes. APL currently provides limited explanation of why these KPIs were not met in the Annual Report. However, discussions with stakeholders identify that some delays in R&D projects and the time lag between project completion and adoption at the farm-level make it hard for APL to meet many of the KPIs set for this core objective.

Table 11 **Progress against KPIs (core objective 2)**

	2010-11	2011-12	2012-13
	Result (Target)	Result (Target)	Result (Target)
Strategy 1 – reduce input costs			
Pigs sold per sow per year	21.3 (22)	N/A	N/A
Herd feed conversion ratio (MJ DE per kg)	52 (50)	N/A	N/A
Average pigs weaned per sow per year	N/A	21.8 (21)	
Grower-finisher liveweight feed conversion ratio	N/A	2.47 (2.20)	

	2010-11	2011-12	2012-13
Industry recommendation for type and level of dietary fat supplementation in finisher pigs	N/A	N/A	Project delayed (Final report and technical notes sent to 90% of industry nutritionists)
Percentage improvement in herd energetic efficiency (decrease in MJ DE per kg)	N/A	N/A	0 (5.8%)
Strategy 2 – improve process efficiency			
Pork produced per sow (HSCW per sow per year)	1,549 (1,429)	1,564 (1,700)	N/A
Percentage increase in pork produced per sow	N/A	N/A	14.6% (5%)
Innovative strategies to promote growth and reduce wastage (number of innovative projects commissioned)	N/A	N/A	(1 x promote growth strategy) (1 x promote growth strategy, 1 x reduce reproductive waste strategy)
Strategy 3 – build skills and capability			
Technology adoption (percentage of technologies adopted)	43% (45%)	35% (45%)	N/A
Industry retention of APL and Pork CRC students (percentage of students employed by industry over the last five years)	N/A	N/A	47% (>30%)
Certificate 3 Pig Production Accreditation (percentage of achieving Certificate 3 Accreditation)	N/A	N/A	34.9% (35%)

Note: N/A = KPI not identified or applicable for that year
Source: APL, Annual Reports: 2010-11; 2011-12; 2012-13.

Core objective 3

Core objective 3 is a supply-chain focused objective. It is driven by the rationale that:

... the Australian Pork Industry [should] be consumer focussed and this can only occur if all segments of the pork supply chain are intrinsically linked to enable the flow of market signals. The use of a systems management approach that co-ordinates and integrates key consumer focused initiatives will facilitate the flow of objective market signals...

(APL, 2010)

Core objective 3 adopts several strategies focused on creating and capturing value improvements, enhancing links between value chain partners, and optimising value chain efficiency and quality. These strategies aim for stronger relationships, an informed and innovative supply chain and a transparent market signal flow. Table 12 provides an assessment of APL's KPIs under core objective 3. It shows the large majority of KPIs set for this core objective were not met by APL. There are a number of contextual factor that can explain APL's performance against KPIs under core objective 3. For example:

- A change in sampling and analysis protocol developing under the Physi-Trace 3 program reduced the sampling intensity required under the Physi-Trace standard. This led to a reduction in sampling intensity (which meant that APL did not meet the KIP for Strategy 1), but also had the benefit of reducing sampling costs (APL, 2012).
- A major supply chain was directed by a retailer to cease using “boar taint free male pigs” during 2011-2012. This made it near impossible to meet the target under Strategy 2 (APL, 2012).
- Some elements of the KPIs under core objective 3 were absorbed into core objective 4 as the APIQ[✓]® and Physi-Trace systems matured.

Table 12 Progress against KPIs (core objective 3)

	2010-11	2011-12	2012-13
	Result (Target)	Result (Target)	Result (Target)
Strategy 1 – create and capture value improvements			
Proportion of slaughter pigs in Physi-Trace 3 program	45% (75%)	N/A	N/A
Least cost sampling frequency of slaughter pigs in Physi-Trace program (samples per tattoo per month)	N/A	5 (46% reduction)	N/A
Strategy 2 – enhance linkages between the value chain partners			
Proportion of boar taint free male pigs (percentage vaccinated against boar-taint)	20% (65%)	35% (50%)	N/A
Strategy 3 – optimise value chain efficiency and quality			
Proportion of PorkScan graded carcasses	41% (80%)	45% (60%)	N/A

Source: APL, Annual Reports: 2010-11; 2011-12; 2012-13.

Core objective 4

Core objective 4 affects a number of stakeholders, including the community, producers and external stakeholders. It is driven by the rationale that:

...the Australian community and government look to the Australian pork industry to provide leadership, preparedness and stewardship to deliver a safe food that is produced in a sustainable environment and which optimises the welfare of our animals...

(APL, 2010)

Core objective 4 adopts three strategies that are focused on addressing changing expectations and standards for food production, managing the impact of regulatory shifts and government policy and compliance requirements. The aims of this objective are to achieve: optimum pig welfare and care; enhanced biosecurity and animal health preparedness; improved food safety; enhanced livestock traceability; enhanced industry preparedness, rapid response and effective recovery; minimal disruption to trade; an environmentally sustainable and carbon neutral industry; and a reputation for responsible practices and resource efficiency.

Table 13 provides an assessment of APL's KPIs under core objective 4. It shows a strong performance against most KPIs, with signs of performance improvement between 2010 and 2013. These results are consistent with feedback from stakeholders who identify the roll-out of APIQ[✓]® as one of APL's significant achievements over the review period. Additional information about the benefits of APIQ[✓]® is provided in Chapter 6 and Appendix C.

Table 13 Progress against KPIs (core objective 4)

	2010-11	2011-12	2012-13
	Result (Target)	Result (Target)	Result (Target)
Strategy 1 – address changing expectations and standards for food production			
Pig herd covered by APIQ [✓] ®	85% (91%)	87% (90%)	89.4% (90%)
Conformance with APIQ [✓] ® animal welfare standards	Not available (Establish baseline)	Baseline established (Establish baseline)	N/A
Producers covered by APIQ [✓] ®	42% (60%)	N/A	N/A

	2010-11	2011-12	2012-13
Conformance with APIQ [✓] ® biosecurity standards	Not available (Establish baseline)	Baseline established (Establish baseline)	N/A
Producers APIQ [✓] ® certified	N/A	31%, 78%, 55% (75%, 95%, 75%)	N/A
Sows group housed as per the industry definition	N/A	N/A	50.1% (45%)
Minimal APIQ [✓] ® critical CARs	N/A	N/A	0.5% (1%)
Strategy 2 – manage impact of regulatory shifts			
Conformance with APIQ [✓] ® food safety standards	Not available (Establish baseline)	Baseline established (Establish baseline)	N/A
Minimal APIQ [✓] ® critical CARs	N/A	N/A	0.5% (1%)
Percentage of breeding herd APIQ [✓] ® certified	N/A	N/A	89.4% (90%)
Strategy 3 – government policy and compliance requirements			
Pork Industry Life Cycle Analysis and emission	Completed (Completed)	N/A	N/A
Carbon farming methodology developed	N/A	Completed (Completed)	N/A
Conformance with APIQ [*] traceability standards	Not available (Establish baseline)	Baseline established (Establish baseline)	N/A
Minimal disruption to trade	N/A	0.3 (0.3)	0.3 (0.3)
Percentage of pig production implementing covered anaerobic lagoon flaring or biogas systems	N/A	N/A	>30% (20%)
Percentage of breeding herd APIQ [✓] ® certified	N/A	N/A	89.4% (90%)

Source: APL, Annual Reports: 2010-11; 2011-12; 2012-13.

Core objective 5

Core objective 5 is an industry focused objective. It is driven by the rationale that:

... communication and information flow... is targeted along the entire supply chain to, amongst other things, minimise the industry's exposure to risk. This is especially important in the areas relating to disease outbreaks, welfare concerns, consumer issues, climate change, effective uptake and adoption of new technologies, strategic planning, public relations and general APL member requirements.

(APL, 2010)

Core objective 5 adopts three strategies focussed on engaging and connecting the industry, facilitating the rapid uptake of information and technology, and enhancing the reputation and effectiveness of APL. These strategies aim to generate stronger positive recognition of the Australian Pork Industry, a shared industry vision and a well-informed industry, as well as lead to the successful adoption of technologies and effective APL capabilities.

Table 14 provides an assessment of APL's KPIs under core objective 5. It shows a mixed level of performance. KPIs aimed at growing APL's membership base were generally not met. KPIs focused on communication with stakeholders and maintaining internal controls/costs were successfully achieved.

These results are highly consistent with feedback from stakeholders, who have commented on APL's difficulties in reaching smaller producers (and consequently engaging them in the organisation's work). They are also consistent with the analysis provided in Chapter 3 which highlighted APL's focus on cost reduction and control over the review period.

Table 14 **Progress against KPIs (core objective 5)**

	2010-11	2011-12	2012-13
	Result (Target)	Result (Target)	Result (Target)
Strategy 1 – engage and connect the industry			
Overall membership (percentage of production represented)	91% (95%)	88% (96%)	89% (96%)
Overall membership (number and percentage of producers as APL members)	N/A	346, 56% (450, 73%)	51% (60%)
Increase in APL members (number of members)	N/A	N/A	335 (397)
Strategy 2 – facilitate rapid take up of information technology			
Increased awareness of new information	52% and 73% (70%)	70% (75%)	75% (75%)
Technologies adopted	41% and 44% (45%)	35% (45%)	35% (45%)
Strategy 3 – enhance the reputation and effectiveness of APL			
Positive APL Image (media outlets, members perception that APL is doing a good job getting the message out)	2,764, 85% (2,500, 85%)	1,702, Not available (2,500, 85%)	3,000, 62% (1,200, 90%)
Staff turnover (percentage of staff with APL less than 1 year)	4% (20%)	14% (15%)	14% (12%)
Effective alignment to support the achievement of the strategic objectives	Held within CPI (CPI less 1%)	CPI less 4.3% (CPI less 1%)	
Corporate cost control (percentage of improvement in efficiencies in resource use)	N/A	N/A	CPI less 4.3% (CPI less 1.5%)

Source: APL, Annual Reports: 2010-11; 2011-12; 2012-13.

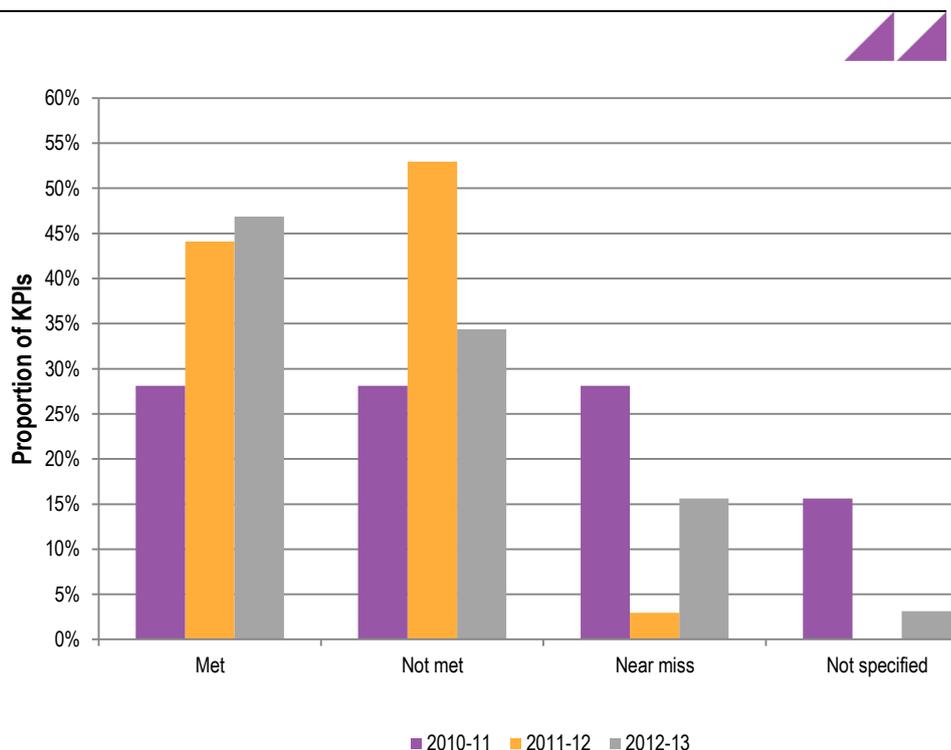
Overall assessment of KPIs

Analysis of APL's KPIs reveals that APL is meeting its plans and strategies under parts of core objectives 1, 4, and 5. These are typically areas where APL has a high degree of control over the outputs and outcomes of its investments, and areas where APL has received wide-spread recognition for its performance (e.g. in the areas of APIQ[✓]'s development and implementation). Analysis also reveals that approximately 50 per cent of KPIs have not been met during the review period. While performance against some KPIs (especially against KPIs for core objective 3) was subject to contextual factors which made it difficult, if not impossible, for APL to meet specific targets, this number is high. In ACIL Allen's opinion some KPIs are beyond the reasonable influence of APL. A number of stakeholders have commented that some KPIs (under core objective 1 and core objective 3) are industry based measures and should therefore not be included in the organisation's performance framework. By excluding these outlying KPIs, APL could better showcase its performance to stakeholders.

A number of the KPIs that were not met could be classified as "near misses". Consultation with APL identified a preference within the organisation to set KPIs that stretch the organisation and encourage performance improvement over time. These stretch targets are sighted as a reason for APL's improvement against KPIs over the review period. For

example, Figure 12 shows a significant decline in the number of KPIs not met by APL between 2010 and 2013.

Figure 12 **Assessment of KPIs 2010-2013**



Note:

Source: ACIL Allen Consulting, based on APL's Annual Reports 2010-2013

ACIL Allen Consulting considers that APL should give consideration to focussing KPIs on outcomes that they can reasonably influence or where they are in partnership with industry that both APL and the relevant industry can influence. This does not mean that APL should abandon its stretch target approach, but rather develop and implement a larger number of KPIs that can be achieved or have a near miss recorded against them.

5.2.2 Appropriateness (implementation of plans)

It is good practice for an industry (or organisation) in receipt of Government funding to ensure that its strategies and investment activities are well aligned with national priorities, in particular, R&D priorities. For APL, this means that all projects and activities under the Strategic Plan should provide a clear line of sight to the Government's National Research and Rural R&D priorities. The national priorities that are most relevant to APL are outlined in Table B1, Appendix B.

A review of projects and investment activities, reported under the Strategic Plan, identifies strong linkages exist between APL and these priorities.

Table 15 shows that APL is currently undertaking activities which contribute to each of the priorities set by Government. Each of these projects are linked to an individual strategy under a core objective (as outlined in the section above), and resourced through the annual operational planning process.

Table 15 Alignment between APL projects National Research and Rural R&D Priorities

R&D Priorities		APL activities (2010-2013)	
National Priorities	Corresponding Rural Priorities	2010-11	2011-2013
An environmentally sustainable Australia	Natural Resource Management	<ul style="list-style-type: none"> ▪ Water and energy use ▪ Alternative waste management systems 	<ul style="list-style-type: none"> ▪ CRC for High Integrity Australian Pork contribution ▪ Feedgrain Partnership group ▪ Validation of industry environmental data ▪ Innovation and Uptake of Best Management Practices
	Climate Variability and Climate Change	<ul style="list-style-type: none"> ▪ Optimising GHG and renewable energy ▪ Validation of Australian pig environmental/GHG data 	<ul style="list-style-type: none"> ▪ CRC for High Integrity Australian Pork contribution ▪ Innovation and uptake of environmental best management practices ▪ Manure management and GHG mitigation ▪ Climate Change Research Strategy for Primary Industries
Promoting and maintaining good health	Supply Chain and Markets	<ul style="list-style-type: none"> ▪ Fresh pork quality and consistency ▪ Selection of improved market value of pig carcasses 	<ul style="list-style-type: none"> ▪ Market Research & Insights ▪ Understanding & leveraging social media ▪ CRC for High Integrity Pork contribution ▪ Selection For Carcase Quality ▪ Enhancing supply chain efficiency ▪ Animal welfare and environment community engagement ▪ Community Awareness and Food Production ▪ Australian pork industry socio-economic study
	Productivity and Adding Value	<ul style="list-style-type: none"> ▪ Reducing the impact of disease ▪ Feed Grain Partnership ▪ Sow housing 	<ul style="list-style-type: none"> ▪ Defining inherent health & nutrition attributes of pork ▪ Enhancing piglet survival ▪ Pork RD&E Strategy (experimental base fund allocation) ▪ CRC for High Integrity Pork contribution ▪ AUSPIG performance modelling ▪ Enhancing grower finisher pig feed conversion ▪ Animal Welfare – PigCare ▪ Shaping Our Future – Stage 2 Implementation, Desktop Review & Environment ▪ Redefining sow housing ▪ Developing methodology to assess welfare ▪ Survey Transport Mortality ▪ Methodology to assess stockperson skills ▪ Electronic Applications – producer newsletters etc ▪ CRRDC Activities ▪ AGM & Conference ▪ Annual industry survey ▪ Industry Events ▪ Enabling Professional Networks ▪ Facilitating technology transfer and adoption ▪ Bringing Influencers Together
Safeguarding Australia	Biosecurity	<ul style="list-style-type: none"> ▪ FMD vulnerability project ▪ Survey of risks associated with the import of pet food 	<ul style="list-style-type: none"> ▪ Ensuring product integrity (Physi-Trace) ▪ Food Safety R&D activities ▪ Exotic Disease R&D activities ▪ Emergency Management - Industry Liaison Officer (ILO) Training

R&D Priorities		APL activities (2010-2013)	
Frontier technologies for building and transforming Australian industries	Innovation Skills	<ul style="list-style-type: none"> ▪ ProHand deliver and support ▪ Evaluation of mini-laparotomy embryo transfer procedures (commercial scale) 	<ul style="list-style-type: none"> ▪ CRC for High Integrity Pork contribution ▪ Building Technical Capacity ▪ Promoting Leadership
	Technology	<ul style="list-style-type: none"> ▪ Physi-Trace ▪ AUSPig growth modelling to ensure improved functionality – scoping study, maintenance 	<ul style="list-style-type: none"> ▪ CRC for High Integrity Australian Pork contribution ▪ PorkScan carcass classification system ▪ Physi-Trace traceability system ▪ Pig biogas mitigation ▪ Novel feed ingredients ▪ Developing methodology to assess welfare

Source: APL Annual Report, 2010-2011, 2011-2012, 2012-2013.

5.3 Findings

Under the SFA with Government APL is required to develop a Strategic Plan. AOPs guide the operational activities and investments which aimed at meeting the core objectives laid out in the Strategic Plan.

Analysis of the strategies, activities and investments delivered by APL under the AOPs and the Strategic Plan show high levels of alignment between APL and the priorities of Industry and Government.

Analysis of APL's KPIs however, highlights some variable performance within the organisation. Where performance is most variable is in the areas that APL has lower levels of influence over actual outcomes.

APL should consider aligning KPIs more closely to those outcomes the organisation has a high degree of influence over or where activities are undertaken with industry partners, they might be aligned more closely with outcomes that the partners are able to influence.

6 Benefits to stakeholders

This chapter considers the benefits generated by APL's activities and investments. It examines the qualitative and quantitative dimensions of APL's benefits.

6.1 Benefits and beneficiaries

The Productivity Commission's 2011 review into the Rural RDCs recognised the type and nature of the benefits stemming from rural R&D:

... any given R&D investment can lead to a mix of benefits for different parties. For example, pests that cause damage to crops might also blight backyard gardens, and hence efforts by producers to prevent or limit pest outbreaks may be beneficial to others in the community. In the other direction, the provision of high quality food can generate health benefits for consumers — and insofar as this encourages them to buy more fresh produce, benefits may flow back to producers. Indeed, in many ways, benefits to producers and benefits to the community are heavily intertwined. For instance, producers may have a strong commercial incentive to sponsor R&D into animal welfare where the public's unease about particular practices risks undermining an industry's 'community licence to operate'. The same might also be true for environmental R&D, including into conservation and natural resource management issues...

(Productivity Commission, 2011)

The Productivity Commission identified the need for government intervention to deliver benefits to industry that individual producers could not deliver on their own.

Table 16 summarises the type of benefits arising from APL's activities and investments over the review period. It also identifies the primary and secondary beneficiaries of these investments.

A key feature of the table is the diverse mix of benefits and beneficiaries arising from APL's activities and investments. This mix means that benefits are often shared amongst stakeholder groups even though investments are focused on delivering value to specific stakeholders. For example, core objective 1 is focused on consumers through the strategy of "assuring eating quality". However, it could be expected that as a result of improved consumer satisfaction (with a healthier and tastier product) producers and retailers are likely to benefit from increased demand for pork products.

Table 16 Beneficiaries from APL activities and type of benefit received

Strategy	Major beneficiary ▪ Type of benefit	Other beneficiaries (1) ▪ Type of benefit	Other beneficiaries (2) ▪ Type of benefit	Other beneficiaries (3) ▪ Type of benefit
Core Objective 1 – Build consumer demand				
1 – Assuring eating quality	Consumers ▪ Tastier product ▪ Healthier product	Producer ▪ Increased product demand	Retailers ▪ Increased sales	
2 – Increasing frequency of use	Consumers ▪ Greater awareness of pork	Producer ▪ Increased product demand	Retailers ▪ Increased sales	
3 – Improving the image of fresh pork	Consumers ▪ Increased options for pork in restaurants ▪ Greater awareness of pork	Producer ▪ Increased product demand	Retailers ▪ Increased sales	
4 – Promoting Australian	Consumers ▪ Fresh product identified as “Australian”			
Core Objective 2 – Viable productive farms				
1 – Reduce input costs	Producers ▪ Disease management tools (e.g. vaccines, plans) ▪ Reduced impact of disease ▪ Cheaper feed ▪ More efficient feed	Consumers ▪ Assured pork availability ▪ Cheaper products	Retailers ▪ Assured pork availability	
2 – Improve process efficiency	Producers ▪ Improved breeding and farming methods practices ▪ Higher quality pork			
3 – Build skills and capability	Producers ▪ Better skilled, trained and more knowledgeable workers			
Core Objective 3 – Efficient value chains				
1 – Create and capture value improvements	Supply chain (abattoirs and meat processors) ▪ Improved traceability of product from farm gate	Producers ▪ Improved containment in event of disease outbreak		
2 – Enhance linkages between the value chain partners	Supply chain (abattoirs and meat processors) ▪ Improved meat yield			
3 – Optimise value chain efficiency and quality	Supply chain (abattoirs and meat processors) ▪ Improved meat yield			
Core Objective 4 – Leadership, preparedness and stewardship				

Strategy	Major beneficiary ▪ Type of benefit	Other beneficiaries (1) ▪ Type of benefit	Other beneficiaries (2) ▪ Type of benefit	Other beneficiaries (3) ▪ Type of benefit
1 – Address changing expectations and standards for food production	Producers <ul style="list-style-type: none"> ▪ Clear guidelines on animal welfare and how to humanely manage animals ▪ Disease management tools (e.g. vaccines, plans) ▪ Reduced impact of disease 	Supply chain (transporters) <ul style="list-style-type: none"> ▪ Clear guidelines on animal welfare and how to humanely manage animals 	Community <ul style="list-style-type: none"> ▪ Knowledge that animals are being humanely managed along the supply chain ▪ Preparedness in event of biosecurity outbreak ▪ Reputation of “Australian” product 	Consumers <ul style="list-style-type: none"> ▪ Knowledge that product being consumed has been humanely managed along the supply chain ▪ Assured pork availability
2 – Manage the impact of regulatory shifts	Community <ul style="list-style-type: none"> ▪ Assurance about the safety of food products 	Consumers <ul style="list-style-type: none"> ▪ Assurance about the safety of products being consumed 		
3 – Government policy and compliance requirements	Producers <ul style="list-style-type: none"> ▪ Information on environmentally sustainable farming practices ▪ Disease management tools (e.g. vaccines, plans) ▪ Reduced impact of disease 	Community <ul style="list-style-type: none"> ▪ Reputation of “Australian” product 		
Core Objective 5 – Industry cohesion and responsiveness				
1 – Engage and connect the industry	Producers (APL members) <ul style="list-style-type: none"> ▪ Rapid communications from APL ▪ Opportunity to engage with APL 	Industry <ul style="list-style-type: none"> ▪ Stakeholder networks ▪ Stakeholder training/development 		
2 – Facilitate rapid uptake of information and technology	Producers (APL members) <ul style="list-style-type: none"> ▪ Information on the outcomes of R&D facilitated by APL 	Industry <ul style="list-style-type: none"> ▪ Information on the outcomes of R&D facilitated by APL 		
3 – Enhance the reputation and effectiveness of APL	Producers <ul style="list-style-type: none"> ▪ Assurance that levy payments are spent appropriately by APL 	Community <ul style="list-style-type: none"> ▪ Awareness of issues in the pork industry 		

Source: APL, Annual Reports: 2010-11; 2011-12; 2012-13. Strategic Plan 2010-2015. ACIL Allen Consulting.

While the breadth of the benefits is evident in Table 16, the depth of the benefits is perhaps not as visible. To showcase the depth of benefits the Review Team developed three case studies. Each case study explores the benefits being delivered by APL, and provides examples of the ‘behind the scenes’ work undertaken by APL to generate stakeholder benefits. Case studies were identified by stakeholders during consultations.

To further showcase APL’s benefits to industry, Section 6.2 investigates the dollar value of the benefits stemming from APL’s activities and investments.

6.1.1 Case study 1 – APIQ✓®

APIQ✓® is the industry sponsored quality assurance (QA) program for the Australian Pork Industry. APIQ✓® certification allows pork producers to demonstrate their compliance with state and federal laws relating to food safety, animal welfare, biosecurity and traceability. APIQ✓® is a voluntary program although APL is seeking to have all pigs produced and sold into the food chain as APIQ✓® certified. Export abattoirs do however only accept pigs that are QA assured and they require all pigs to be APIQ✓® certified.

The development of a QA standard for pork commenced more than 20 years ago. At this time industry was guided by other QA schemes. Years of collaboration between industry, scientists, veterinarian and other key stakeholders resulted in APIQ – a QA system that could be audited and verified for the pig industry. APIQ was overhauled in 2010 to become APIQ✓®, with the major change being accommodating the differences between small and large producers into the standards.

The proportion of the sow herd covered by APIQ✓® has gradually grown from 84.5 per cent in March 2012 to 88.8 per cent in April 2014 (see Table 17). APL has set a target of 92 per cent of industry covered by APIQ✓® but recognises that this will be a very difficult, resource-intensive target to achieve. For APL, the current proportion of the sow herd covered is still very good.

Table 17 APIQ✓® coverage – sow herd and sow sites

	Sow herd covered	Sow sites covered
April 2014	88.8%	34%
April 2013	87.9%	38%
March 2012	84.5%	33% (Breeder sites)

Source: APL internal data 2014.

The proportion of sow sites covered by APIQ✓® is considerably lower than the sow herd (e.g. 34 per cent of sites in April 2014 versus 88.8 per cent of the sow herd), which reflects the “long tail” of smaller (or peri-urban) producers in the industry (see Table 17). Many of these peri-urban producers are unaware of the biosecurity and food safety issues and procedures, and as a result pose a considerable risk to the whole Pork Industry. Table 18 shows the number of “Small Commercial” and “Small Holder” sites not covered by APIQ✓®.

Table 18 Sites covered by APIQ✓®, 2014

AUS-Sow Numbers by Herd Size	# of sow sites	# of sows	# APIQ sow sites	# APIQ sows	# Sites with no APIQ	APIQ sow coverage	APIQ site coverage	Sows per site
0 - 2 Sows	588	935	0	0	0	0	0	0
Pig Keeper 3 - 7 Sows	660	2,809	1	6	0	0.2%	0.2%	6
Small Holder 8 - 50 Sows	580	11,298	43	1,283	537	11%	7%	30
Small Commercial 51 - 150 Sows	166	16,488	68	7,159	98	43%	41%	105
Medium Commercial 151 - 500 Sows	156	49,011	128	41,983	28	86%	82%	328
Large Commercial 501 - 1000 Sows	48	35,354	44	32,270	4	91%	92%	733
Giant Commercial 1001 + Sows	66	151,300	66	151,300	0	100%	100%	2,292
TOTAL SITES/SOWS	2264	267,195	350	234,001	667			351

Source: APL internal data 2014

These producers will be targeted by APL in the future, but possibly not through APIQ✓®. In an effort to reach out to these producers, APL visits saleyards to provide one-on-one education. For smaller producers, this can simply be providing information about the risks of swill feeding; for larger producers, it may be informing them that they should have a QA system, such as APIQ✓®, in place. APL accepts that it may never be able to capture all of the “long tail” but education will indeed reduce the risks associated with their production.

APIQ✓® is recognised by industry, retailers and regulators. For example, the Victorian *Livestock Management Act 2010* recognises APIQ✓® under an “Approved Compliance Arrangement”. This arrangement means that APIQ✓® Certified Producers in Victoria are deemed compliant with the Livestock Management Act Standards, and are not subject to further inspections or audits other than already required under their existing compliance arrangement. This results in considerable savings to both producers and government.

Similarly, APIQ✓® is recognised by both Coles and Woolworths. Without this recognition, producers would have to participate in numerous audits each year to comply with the individual QA requirements of each customer. The audits undertaken by APIQ✓® auditors are accepted by major retailers, resulting in considerable savings to producers (each audit costs approximately \$1,500).

The achievements of APIQ✓® are also recognised by other industries and stakeholders. For example, a number of other industries have considered APIQ✓® in the development of their own standards: retailers have indicated they would like an APIQ✓®-type system implemented in other industries; and the RSPCA integrated APIQ✓®’s environmental guidelines for pig production in the development of their own production standards. The most recent development is the addition of a Customer Specification module to APIQ for Coles. Other retailers have similarly indicated their willingness to use APIQ✓® as the main QA platform.

Industry and scientists collaborated closely on the development of APIQ✓® and continue to be heavily involved in refinements to APIQ✓®. Reference groups, comprising producers, retailers, veterinarians and other stakeholders work together to review and develop standards. The standards are reviewed every three years, most recently in 2010.

The biggest change from the last recent review was the inclusion of free range production systems. It was recognised that not all parts of industry fully understood the definition of

“free range” and “outdoor bred” and were inadvertently promoting their product incorrectly. As part of the APIQ✓[®] review, APL developed descriptors for free range and outdoor bred, as well as the relevant standards for industry. The Free Range standards were introduced in March 2012 and the Outdoor Bred standards in December 2012.

Up to now, APIQ✓[®] has been focused on building a robust system and recognition of its value to the Australian Pork Industry is now only starting to emerge. Any future development will focus on making the system better, such as the inclusion of new modules as a result of what is happening in the industry. With the standards in place, APIQ✓[®] is well positioned to respond to changing customer preferences, demands of retailers and the requirements of regulators.

6.1.2 Case study 2 – Support during disasters

Like many industries, the Australian Pork Industry has experienced the effects of natural disasters and other significant incidents (such as fires) in recent years. While there is very little APL can do prevent some of these disasters from occurring, it has provided invaluable support to the broader Pork Industry.

During the Munduberra floods in 2013, APL played a role filtering communications to assist crews on the ground. It worked with a designated incident controller from the state and local Pork Industry to ensure that accurate, relevant and timely information was relayed to supply chain personnel and local emergency crews. This included: sharing relevant information with the incident controller about road closures and trucking information; using the PigPass database to identify farms and numbers of stock affected; and informing authorities about escaped animals. Similarly, APL was able to provide farmers with constant situation updates to ensure they had the correct information and phone numbers to contact in time of need.

Support is not only activated in the event of a natural disaster. A large scale fire at a piggery in 2013 saw APL coordinate a working group to assist the affected business. This again involved the model of having a centralised state based incident controller who assisted in co-ordinating the State Emergency Service (SES) and local council to carry out the clean-up operation; state Department of Agriculture, local processing plant to effect additional slaughter of oversupply of stock, also organising for other local producers to assist with additional equipment and infrastructure to ensure large-scale feeding of piglets occurred; and bringing in specialists to advise on farrowing down without the use of farrowing crates, all of which were destroyed in the fire. The work carried out along the communication chain was designed to ensure the welfare of the animals was paramount.

With these disasters also taking a significant personal toll on business owners and employees, APL assisted in organised counselling, as well as helping navigate through the difficult process of rebuilding. It also engaged with the media to ensure that producers were protected during difficult and challenging times.

Biosecurity, animal welfare, member well-being, and industry reputation are the drivers of APL’s disaster response communications strategy; disease prevention is the aim of biosecurity systems and animal welfare is the outcome of appropriately executed husbandry systems. During disasters, destruction and confusion can result in breaches in biosecurity systems. For example, animals escaping properties cannot simply be returned to the property; doing so would pose a major biosecurity threat. Ensuring this message is relayed to rescue organisations is paramount, particularly when rescue parties may not be aware of the need for strict biosecurity measures. By providing this information in a timely manner, APL ensures the ongoing welfare of animals, and protects the reputation of the Australian Pork Industry.

Over time, and with a number of recent disasters, APL has been able to make its disaster response communications strategy more direct and more robust. It has improved its industry information database and its communications channels are now more effective. The quality of the system is also enhanced by the small, tight-knit nature of the industry and good relationships with local, state and national authorities.

APL does not restrict this service to its members; non-members are afforded similar support when needed. In times of rural disasters APL is aware that its onus is to work for all levy payers, not just APL members. APL values that levy payers are the reason for its existence and such a service adds value to the benefits of being a levy payer. APL wants to be a representative body that stands by its levy payers, especially in periods of extreme angst.

6.1.3 Case study 3 – Relationships with major retailers

The relationship between APL and major retailers has been forged over many years. Collaboration with supermarkets (such as Coles and Woolworths) is important to consumers given the significant proportion of consumers reached by major retailers. Like any relationship, some are more cordial and collaborative than others.

With Australians cooking most of their meals from a core repertoire of tried, tested and 'liked' dishes, decisions about what to cook are largely made at home rather than in-store. Pork is slightly more impulsive than beef or chicken, which is why APL has increased funding to in-home consumer advertising, from \$1.9 million to \$4.1 million between 2008 and 2014.

APL's investment in relationships with retailers has evolved gradually from in-store activity to consumer and shopper insights based on a "thought leadership" strategy. This strategy enables retailers to increase the size of their total meat business, which is the main interest of retailers. APL seeks to capture a greater than average share of market growth, which appears to be occurring with both per capita consumption of fresh pork and Australian share of processed pork at or above 2010 levels. The "thought leadership" strategy enables APL to talk to retailers in extensive detail about products, modes of shopping and segments of consumers. Compared to retailers who stock 50,000 plus products, APL is an 'inch-wide and a mile deep' in its understanding of meat consumers. This allows APL to provide the valuable insights for the retailers to execute, the benefits of which will flow back to Australian producers (in the form of marketing presence that may otherwise not have been possible) and retailers (in the form of increased sales).

APL's relationship has expanded to encompass a broader network of contacts including senior insight teams, quality assurance professionals and marketers within retailers. APL has moved from a single point of contact with the retailers to a Category Manager who facilitates APL experts liaising directly with the necessary expert staff in the retailers' organisation. A Category Plan is developed every year which includes performance history, targets and the ways in which the parties will collaborate in the coming year. The Plan is agreed between both parties, with both parties compromising to reach a suitable outcome.

The relationship with supermarkets is bi-directional, with benefits extending to both parties. The growth in promotion of pork mince is an example whereby the listing of an extra pork product (by a retailer) combined with APL advertising resulted in increased sales, resulting in a second new product increasing sales again when combined with APL advertising.

Finally, strategic promotion whereby supermarkets (and butchers) are encouraged to promote a product at the same time can reduce the absolute relative price of products and drive sales during April, which is traditionally a time where there is excess stock in the value chain driven by a shortage of processing days due to the frequent public holidays.

Australian PorkFest is an example of this type of strategic promotion, which also coincides with the second largest “families coming together” occasion (Easter), second only to Christmas.

APL’s relationship with retailers is not restricted to supermarkets. APL has a strong relationship with a small number of butchers whereby it provides the group with the learnings from market research (something which butchers may not be able to undertake themselves) and jointly funds them to undertake product trials and retail innovations. In return, APL publicises the outcomes of the trials through its networks as a means of encouraging other butchers to diversify their range of pork products.

6.1.4 Summary

The three case studies demonstrate APL’s efforts to extend benefits of its activities to stakeholders. In particular the:

- ‘APIQ✓®’ case study demonstrated that APL continues to refine APIQ✓® in response to animal welfare and biosecurity requirements
- ‘Support during disasters’ case study demonstrated how APL uses its resources to provide invaluable assistance during disasters despite not being located near disaster events
- ‘Relationships with major retailers’ case study demonstrated how APL works with major retailers to ensure pork has a presence, often a strategic one, in supermarkets.

Without these efforts, the benefits of APL’s activities may not be as far reaching as they could be.

6.2 Value of benefits to the industry

This section provides summary analysis of the potential benefits to industry arising from three R&D projects funded by APL as well as the Porkfest marketing initiative that APL has implemented over the review period.

The three R&D projects are:

- Investigation into the potential use of Trace Elements in the Traceability of Pork Offal and its relationship to the Pork Meat Physi-Trace Database (APL Project 2010-0001)
- Demonstrating the utilisation of spent eco-shelter bedding in broadacre cropping systems (APL Project 2010/1015.338)
- Development of selection criteria to improve carcass quality and use of haemoglobin levels in sows and piglets to improve piglet survival, performance and pork quality (APL Project 1025).

The projects were selected after a detailed review of the final research reports of more than a dozen projects. Each project offered the greatest potential for quantifying, in financial terms, the potential industry benefits that flow from the research findings. They also attest to the diversity of research areas targeted and funded by APL.

The results of the analysis are summarised in Table 19. The complete analysis of each project, including a detailed research methodology and benefits analysis can be found in Appendix C.

Table 19 Value of APL's investments (based on selected projects)

Background	Key findings	Project costs	Value of potential benefits to industry
Investigation into the potential use of Trace Elements in the Traceability of Pork Offal and its relationship to the Pork Meat Physi-Trace Database			
<p>Edible pork offal is an important export commodity for the Australian pork industry, particularly in Asian markets. Traceability systems are essential for maintaining the integrity of the product.</p> <p>The Australian pork industry has previously developed the Physi-Trace chemical provenancing tool, however the technology is specific to fresh muscle product. As the accumulation of trace elements (such as strontium, potassium and cobalt) is different in edible swine offal to that in fresh muscle, research was required to determine how the Physi-Trace technology could be adapted for pork offal.</p>	<p>The research project confirmed the potential of chemical traceability for edible Australian swine offal product. The normalisation factors developed can be used to associate the chemical profiles in tongue, stomach, heart, liver and kidney to the respective muscle in the Physi-Trace database and provide a fast and rapid means of provenancing samples to a broad region/processor of origin.</p> <p>By incorporating the offal data into the already developed Physi-Trace database, this traceability method is more commercially feasible and will allow a faster return of unaffected areas to the market in the event of a product integrity investigation than is currently possible with paper based traceability systems.</p>	<p>APL provided \$149,548 in funding to this project. This was matched by a \$256,492 in-kind contribution from TSW Analytical Pty Ltd.</p>	<p>It was estimated that, without Physi-Trace, an export market would be lost for 13 weeks in the event of a sample integrity investigation, with products normally shipped to Asian markets diverted to other (potentially lower-value) markets.</p> <p>With Physi-Trace, it was estimated that the market would be lost for about 1-2 weeks as Physi-Trace enables the cause of the incident to be identified quickly and all non-compliant product identified and isolated, thereby enabling unaffected areas to swiftly return to the market.</p> <p>Using the following assumptions:</p> <ul style="list-style-type: none"> 12 per cent of Australian pork exported is as offal 36.1 million kg of pork is exported per annum (translating to 4.332 million kg of offal exported per annum) wholesale price of offal is \$2.53 per kg processor profit margin for offal is 10.5 per cent probability of an incident that would benefit from the Physi-Trace system is 20 per cent each year <p>Processor lost profits from missed export sales are:</p> <ul style="list-style-type: none"> without Physi-Trace: 4.332 million kg x 13/52 x 20% x \$0.27 = \$58,482 with Physi-Trace: 4.332 million kg x 1/52 x 20% x \$0.27 = \$4,498. <p>The potential industry-wide benefits of the Physi-Trace for offal system are therefore estimated to be \$53,984 (or approximately \$54,000) per annum.</p>
Demonstrating the utilisation of spent eco-shelter bedding in broadacre cropping systems			
<p>Straw-based housing systems or “eco-shelters” have become increasingly popular in the pork industry. This has resulted in an increase in spent bedding with potential for environmental issues associated with waste stockpiles, including flies, odour, and contamination of water supplies.</p> <p>Spent bedding is commonly applied to neighbouring agricultural land with little knowledge of its nutrient content, appropriate application rates, or potentially negative crop effects, with the primary aim to dispose of the product. At the same time, increasing costs of conventional fertilisers have prompted many broadacre cropping farmers to explore alternative nutrient sources to apply to crops.</p> <p>This project aimed to examine and promote the use of spent pork eco-shelter bedding as an alternative fertiliser and for improving poor fertility soils in broadacre cropping systems.</p>	<p>The research showed that applying high rates of straw-based spent pig bedding on poor sandy soils improved cereal crop vigour, grain yields and grain protein for two years following application. Such application also increased plant tissue levels of macro and trace elements over that period.</p> <p>While crop vigour reductions were observed when 5 tonnes per hectare of spent bedding was applied alone without applying some conventional fertiliser in the seed row when sowing the crop, raising the application rate to 10 tonnes per hectare appeared to negate the need for such “starter” conventional fertiliser applications.</p>	<p>APL provided \$132,520 in funding to this project. This was matched by a \$6,500 in-kind contribution from Rural Directions Pty Ltd.</p>	<p>APL information suggests the net benefit of using spent bedding in \$28 per tonne.</p> <p>Clean bedding and manure of a grower pig add about 354 kg of total solids per year to the system. Allowing for decomposition losses of 25 per cent in the shelter, about 265 kg/SPU/yr of dried material would remain.</p> <p>The estimated weight and volume of spent bedding generated by pigs at different stages of their development:</p> <ul style="list-style-type: none"> Weaners: 265 kg/hd/yr or 0.38 m3/hd/yr Growers: 530 kg/hd/yr or 0.76 m3/hd/yr Finishers: 860 kg/hd/yr or 1.2 m3/hd/yr Dry sows: 870 kg/hd/yr or 1.2 m3/hd/yr. <p>APL data indicate that 4.8 million finishers are slaughtered a year across Australia and that approximately 30 per cent of them (1.44 million) would have been raised in straw-based housing systems or “eco shelters”.</p> <p>The “average” pig spends 6.5 weeks as a weaner, 7 weeks as a grower and 5 weeks as a finisher, it will have generated approximately 265 * (6.5/52) + 530 * (7/52) + 860 * (5/52) = 187.2 kg of spent bedding.</p> <p>The total quantity of spent bedding generated a year would therefore be 187.2 kg x 1.44 million = 269,570 tonnes. With the benefit of using spent bedding of \$28 per tonne, the total benefit to industry of using spent bedding as an alternative fertiliser is approximately \$7.55 million per annum.</p>

Background	Key findings	Project costs	Value of potential benefits to industry
Development of selection criteria to improve carcass quality and use of haemoglobin levels in sows and piglets to improve piglet survival, performance and pork quality <i>Sub project 1: Improving selection for carcass quality using image analysis</i>			
<p>The payment system used in Australia uses the weight of the carcass and fat depth at the P2 site to determine the price per kg carcass weight paid to producers. Further down the supply chain, different prices are paid for individual primal pork cuts.</p> <p>Additional return per carcass can therefore be achieved by having more weight in the more valuable primal cuts for carcasses with the same total weight and fat depth.</p> <p>The aim of this sub-project was to develop a simple procedure for predicting carcass market value through the analysis of images of live pigs. The results of the image analysis were used to develop selection strategies for improved carcass market value.</p>	<p>The research showed that the image-analysis measurements had predictive power for the weight of pigs or carcasses and the weight of primal cuts, demonstrating the usefulness of image analysis for predicting carcass market value.</p> <p>The measurement that was most useful in predicting primal cut weights at a given carcass weight was found to be the first width measurement of the middle of the pig at the tail end.</p> <p>Weights of primal cuts at a given carcass weight were found to be moderately heritable. It was demonstrated that more weight in the more-valuable middle section of the pig contributed 9 per cent to the breeding objective used in terminal lines. This contribution is similar to the contribution of the current main carcass trait of P2 fat depth to the breeding objective, highlighting the need to include weight of primal cuts in pig breeding programs.</p>	<p>APL provided \$248,528 in funding to this project.</p> <p>This was matched by a \$217,977 in-kind contribution from the University of New England and a \$198,100 in-kind contribution from breeders.</p>	<p>Assuming that each of the top 20 producers in the country (which collectively account for about 50 per cent of all carcasses produced) operates a PorkScan unit, a price of \$55,000 per unit, an average machine lifespan of 5 years and operational (including maintenance) costs equal to 5 per cent of capital costs, the total capital and operational costs of the PorkScan machines would be approximately \$275,000 per annum.</p> <p>The research project indicated that improved selection of pigs for breeding would generate an increase in the value of each carcass by \$15 (based on an assumed net return of \$0.21/kg HSCW at the farm gate and an average HSCW of 72 kg), by increasing the weight of the more valuable cuts relative to the less valuable ones. Over time, the increase in value would likely decline (to say, \$10) as the supply of the more valuable cuts increase relative to that of the less valuable cuts, thereby reducing their price differential.</p> <p>Assuming that 4.8 million carcasses are produced each year and a 50 per cent adoption rate of the PorkScan LMY system among pig producers that is reached in 10 years' time, the industry-wide net benefits of the project would then be approximately 4.8 million x 50 per cent x \$10 - \$275,000 = \$23.6 million per annum. This result would only be achieved after development costs of \$2.4 million have been incurred by the industry.</p>

Development of selection criteria to improve carcase quality and use of haemoglobin levels in sows and piglets to improve piglet survival, performance and pork quality**Sub project 2: Use of haemoglobin to improve piglet survival, performance and pork quality**

Improving piglet survival is an important goal for the Australian pig industry in order to improve pig welfare and farm productivity. The number of still-born piglets has increased over time in Australia and new tools are required to halt this unfavourable trend.

While higher haemoglobin levels have been shown to be associated with improved survival of piglets, there have been few studies investigating genetic associations between haemoglobin levels and survival of piglets and fecundity of sows.

The aim of this sub-project was to demonstrate that an on-farm measure of haemoglobin may be used to improve the survival and performance of piglets and sows. The project also sought to develop reliable measures to record haemoglobin levels on farm.

Herds with higher mean haemoglobin levels in sows were found to have higher mean haemoglobin levels in piglets. Within herds, higher haemoglobin levels in sows were associated with higher haemoglobin levels in piglets. These results offer opportunities to target selection and intervention strategies to maintain adequate haemoglobin levels in sows with beneficial effects on haemoglobin levels in piglets.

A number of weight traits of the sow and the litter as well as litter size had negative associations with haemoglobin levels, indicating that a larger litter is associated with lower haemoglobin levels in piglets. Associations between the number of still-born piglets and haemoglobin levels were predominantly negative supporting the hypothesis that higher haemoglobin levels favour survival of piglets.

Project costs for Sub-Project 1 includes costs for Sub-Project 2.

According to APL, producers value each live pig born at \$70-90 (say, an average of \$80). The value of piglet deaths avoided is therefore $\$80 \times 12,750 = \1.02 million per year.

The top 20 pig producers in the country account for 50 per cent of total production. Each of these producers have 3-4 sites on average and would need to have a HemoCue machine on each site. The total number of machines required is therefore 60-80 (say, 70).

A HemoCue machine that enables blood samples to be drawn from 1,210 sows per hour costs \$1,220, while a cuvette for holding a blood sample costs \$1.35. Assuming that each machine has a lifespan of 5 years and maintenance costs are equal to 5 per cent of capital costs, the total capital and maintenance costs of machines across the top 20 producers would be approximately $(\$1,220 / 5 + 5\% \times \$1,220) \times 70 = \$21,350$ per annum.

Australian Bureau of Statistics (ABS) data indicate that there are approximately 260,000 sows in Australia. The top 20 producers would therefore have approximately $50\% \times 260,000 = 130,000$ sows between them. On average, each sow produces 2.3 litters a year. Assuming that an average of 2.3 samples are drawn from a sow each year (that is, sampling once before each pregnancy), and that cuvettes are not re-used, the cost of consumables would be $\$1.35 \times 130,000 \times 2.3 = \$403,650$ per year.

The potential net benefits of the project to industry are therefore \$1.02 million - \$21,350 - \$403,650 = \$595,000 per annum.

April 'Porkfest' marketing initiative

Most of Australia's pig herds breed and grow best in the cooler months, meaning that piglet batches born at the end of summer catch up in size with litters born a week or two earlier at the beginning of the colder months.

Consequently, more pigs come into the market at around the month of April each year.

Until the industry profit crisis of 2007-2008 there was a pig price seasonality that had a low in July and a peak in December. The crisis was followed by a period of short supply which drove up prices from mid-2008 to early-2010.

As a result, PorkFest was conceived in 2011 as a largely retail initiative spanning late March to late April each year that encourages all retail channels to promote pork simultaneously through price and product promotions. In economics terms, the initiative was intended to both shift the demand curve to the right.

Over the three years, the volume of fresh pork sold across Australia over a 5-week period around Easter (comprising the 4.5 week Porkfest period and 1.5 weeks post-Porkfest to account for any displacement effects, that is, a potential post-Porkfest sales slump) increased by 11.0 per cent from 4,980 tonnes to 5,520 tonnes.

Over the three years, the value of fresh pork sold across Australia over the 6-week period increased by 18.3 per cent from \$47.7 million to \$56.2 million (an increase of approximately \$8.5 million). This reflects an increase in both the volume of pork sold as well as an increase in the unit price of pork.

The costs of the Porkfest initiative in 2011, 2012 and 2013 were \$647,300, \$700,000 and \$350,000 respectively. The average cost of the initiative over the 3 years was therefore \$565,800 per year.

According to APL, the marginal producer profit margin prior to the Porkfest initiative was approximately \$0.50 / kg (this represents national average gross profitability excluding interest, tax, depreciation, amortisation and fixed labour & corporate overheads). APL data indicates that this has increased by \$0.07 / kg during the 5-week period surrounding Porkfest. This means that the benefits to producers over the 5-week period is approximately $\$0.57 / \text{kg} \times (5,520 - 4,980) \times 1,000 \text{ kg} + \$0.07 / \text{kg} \times 4,980 \times 1,000 \text{ kg} = \$307,800 + \$348,600 = \$656,400$.

[The first set of terms in the equation (before the addition sign) refers to the benefits from the increased sales volume while the second set of terms (after the addition sign) refers to the benefits from the increased margin on all sales during the 5-week period.]

In addition, producers have agreed that the increased margin of \$0.07 / kg persists for another 4 months beyond the 5-week period (till early September). Assuming that 6,690 tonnes of fresh pork are sold each month for each of those 4 months, then the additional benefits of Porkfest beyond the 5-week period is approximately $4 \times 6,690 \times 1,000 \text{ kg} \times \$0.07 / \text{kg} = \$1.87$ million.

The net benefit of the Porkfest initiative to the pork industry is therefore estimated to be \$656,400 + \$1,870,000 - \$565,800 = \$1.96 million per annum.

6.2.1 Summary

APL's investments and activities deliver substantial benefits, which include the:

- adaption of existing Physi-Trace technology to trace lower value offal (in addition to higher value muscle) could generate industry-wide benefits of approximately \$54,000 per annum
- use of spent bedding as an alternative fertiliser for broadacre cropping could generate industry-wide benefits of \$7.55 million per annum
- ability to predict carcass quality through image analysis could generate industry-wide benefits of \$23.6 million per annum
- ability to improve piglet survival through haemoglobin analysis of sows could generate industry-side benefits of \$595,000 per annum
- simultaneous promotion of pork across all retail channels generates industry-wide benefits of \$1.96 million per annum.

However, these could perhaps be viewed as lower limits given the unquantified benefits that could be generated indirectly. For example:

- the ability to trace offal (using proven technologies and methods) provides assurance to consumers that affected products will be removed from circulation quickly in the event of a disease outbreak
- being able to use spent bedding satisfies the likely community preference for environmentally sustainable farming
- improved carcass quality ensures that consumers are provided with a better product and may increase their consumption as a result
- lower rates of piglet mortality satisfies the likely community preference for animal welfare
- increased awareness of pork products available and how these products could be eaten at home stimulates consumer demand for pork and consequently retail sales at a time when industry is experiencing a peak in supply.

Further research would better identify the extent to which these benefits are realised by APL's members, the Pork Industry and the broader Australian economy.

6.3 Findings

APL's activities and investments generate significant benefits to a wide range of beneficiaries. Benefits range from the direct (i.e. R&D which leads to on-farm improvements) to the indirect (i.e. communication with external stakeholders which benefits a region or the entire industry).

Benefits also range in the value delivered to stakeholders across the Australian Pork Industry. For example, analysis of three projects identifies that APL's investments can deliver benefits worth millions of dollars annually. While analysis of three case studies shows a range of qualitative benefits are being delivered that have far reaching implications for the long term sustainability of the Pork Industry.

7 Obligations and past recommendations

This chapter examines APL's performance against its obligations under the SFA. It also identifies APL's progress against the recommendations of the previous performance review.

7.1 Obligations under the SFA

Table 20 summarises APL's performance against the obligations under the SFA with Government. The table clearly shows that APL is addressing the obligations set out in the funding agreement with Government.

The results provided in Table 20 are supported by a range of evidence, including:

- feedback from the Department of Agriculture (i.e. the Division responsible for managing the SFA) that APL has met its obligations under the SFA
- statutory reports to the Department of Agriculture, sighted by members of the Review Team, which demonstrate adherence to the SFA
- governance, planning financial and other internal information, sighted by the Review Team, which demonstrate adherence to the SFA
- public reports, plans and strategies demonstrating adherence to the SFA
- consultation with Senior APL staff about issues relating to the SFA.

7.1.1 Acknowledgement of Commonwealth (matched) funding

Under Section 19 of the SFA APL is required 'to ensure that all significant publications and publicity' which receive matched funding acknowledge Commonwealth Government support. A review of several significant research reports (published on the APL website in April 2014) identifies that such acknowledgement is missing on some reports.

Consultation identifies that this is an issue currently being addressed by APL. APL is currently migrating all existing research reports and documents to a new document management and archival system. To accompany this migration APL will issue a general notice of cover so as to clearly identify where research has received matched Commonwealth funding.

While this means that APL has only 'partially satisfied' section 19 of the SFA for this review, it is acknowledged that the matter is being addressed and is unlikely to be an issue for future.

Table 20 **Obligations under the SFA**

Clause & obligation	Status (Fully satisfied, partially satisfied, not satisfied, not applicable, clause not enacted)
3. Constitution	
3.1 Notify and consult with the Commonwealth about any proposed motion to change the Constitution	Fully satisfied. The Annual General Meeting document that was sent to Members about the proposed changes was sighted by the Review Team
3.2 Remain representative of the Industry's marketing, promotion, research and development and strategic policy development interests	Fully satisfied. See Chapter 0 for APL's alignment with the strategic interests of industry
3.3 Use reasonable endeavours to ensure Levy Payers who are not members are advised of their entitlements to become, and how they become, members of the Company	Fully satisfied. Application forms and the strategies for distributing them were sighted by the Review Team
4. Board corporate governance	
4.1 Implement a framework of good corporate practices drawing on the <i>ASX Corporate Governance Council's Corporate Governance Principles and Recommendations (2nd Edition, August 2007.)</i>	Fully satisfied. The Board Members Manual, Terms of Reference for APL Board Human Resources & Remuneration Committee and Board Performance Review Report were sighted by the Review Team
4.2 Report to the Minister in six-monthly meetings	Fully satisfied. Meetings reported in Annual Report. Document summarising meeting dates were sighted by the Review Team
5. Payment of funds	
5.3 The Company shall pay any amount so invoiced to the Commonwealth within 30 days of receipt	Clause not enacted during the review period
6. Management of funds	
6.1 Establish accounting systems, procedures and controls to ensure: <ul style="list-style-type: none"> a) The Funds are spent in accordance with the SFA and the Act b) Funds are properly organised, conducted and accounted for c) An auditor is able to verify that Funds have been used in accordance with the SFA and the Act 	Fully satisfied. Funds spent on R&D, Marketing & Priorities reported in Annual Report. Auditor opinion in the Annual Report
6.2 Accounting systems, processes and controls to manage Funds take into account Risk Management and Fraud Control Plans	Fully satisfied. Accounting systems in accordance with Accounting Standards, and the plans were sighted by the Review Team
6.4 The Company must: <ul style="list-style-type: none"> a) Keep detailed accounts and records of receipts and use Funds in accordance with Accounting Standards b) Keep accounts and records separately in relation to Marketing Payments, R&D Payments and Matching Funding received from the Commonwealth c) Keep accounts and records that disclose the full cost of R&D and Marketing 	Fully satisfied. Independent audit reports were sighted by the Review Team. Relevant financial system data were also sighted by the Review Team
7. Application of funds	
7.1 The Company must: <ul style="list-style-type: none"> a) Only spend: <ul style="list-style-type: none"> i) Marketing Payments on Marketing activities that benefit the Industry. Only spend R&D Payments on R&D activities that benefit the Industry ii) Ensure spending is consistent with the Strategic Plan, the Annual Operational Plan and Guidelines b) Ensure spending is legal, efficient, effective and ethical 	Fully satisfied. Independent audit reports were sighted by the Review Team. Relevant financial system data were also sighted by the Review Team
7.3 Ensure clear distinction between expenditure on R&D and Marketing Activities to enable reporting	Fully satisfied. Clear distinction provided in Annual Operating Plans and Annual Reports
7.5 Must not use the Funds for Agri-Political Activity	Fully satisfied. No explicit agri-political activities detected by the Review Team
7.6 Must not spend the Funds on Marketing Activities to other industry representative bodies	Fully satisfied. No evidence of this expenditure was detected by the Review Team
8. Strategic and operational plans	
8.1 Develop a written strategic plan covering a rolling three-year period, review and update at least annually, work with the Department to ensure the plan meets the requirements of the SFA, and make generally available to Levy Payers	Fully satisfied. Plan was sighted by the Review Team

Clause & obligation	Status (Fully satisfied, partially satisfied, not satisfied, not applicable, clause not enacted)
8.2 The Strategic Plan must cover: <ul style="list-style-type: none"> a) Vision or mission statement b) Objectives and priorities c) Assessment of the Company's operational environment d) Planned outcomes e) Programs the Company intends to adopt f) Key deliverables g) Performance indicators h) Collaboration with other RDCs i) How the activities funded align with the directions from the Minister j) The degree of consistency of Funds with the National and Rural R&D Priorities k) Estimates of Income and Expenditure l) A corporate governance statement 	Fully satisfied. Additional detail relating to key elements of the Strategic Plan is also provided in AOPs
8.3 In developing the Strategic Plan the Company must: <ul style="list-style-type: none"> a) Consult with the Minister b) Consult with Levy Payers and ensure their priorities are reflected in the Strategic Plan c) Take into account national R&D priorities 	Clause not enacted during the review period
8.4 Submit all variations to the Strategic Plan to the Commonwealth and make plans (and variations) available to Levy Payers	Fully satisfied
8.5 The Company must provide to the Commonwealth an Annual Operational Plan to the Strategic Plan. The Plan must set out: <ul style="list-style-type: none"> a) The key activities to be funded separately for R&D and Marketing b) How the key activities align with Ministerial Directions c) The key deliverables of the Plan d) Estimate income and expenditure on key activities 	Fully satisfied. Plans were sighted by the Review Team
8.6 The Annual Operational Plan must consider: <ul style="list-style-type: none"> a) Any direction given by the Minister b) Consistency with community and Levy Payer expectations c) National Primary Industries R&D and Extension Framework d) Collaboration with other RDCs 	Fully satisfied. Plans sighted by the Review Team
8.8 The Company must report progress against the Annual Operational Plan	Fully satisfied. Progress reported in the Annual Report
8.9 The Company will put aggregate information on its website about the Annual Operational Plan	Fully satisfied. Plans were sighted by the Review Team
9. Other plans	
9.1 The Company must ensure it has in place a Risk Management Plan, Fraud Control Plan, Intellectual Property Management Plan	Fully satisfied. Summary of the plans published on the website
9.2 Plans must be prepared in consultation with the Department and must be reviewed every 3 years	Fully satisfied. Plans were sighted by the Review Team
10. Reports, meetings and consultations	
10.1 Provide the Commonwealth with 4 copies of the Annual Report	Fully satisfied
10.2 Chair person or Director meet with the Minister every 6 months	Fully satisfied. Meetings reported in Annual Report
10.3 Meet key industry representatives every 6 months	Fully satisfied. Meeting schedules were sighted by the Review Team
11. Additional reports	
11.1 Report significant matters that have a material impact on the outcomes of APL to the Minister within 28 days	Clause not enacted during the review period. Significant events reported in Annual Reports
12. Performance	
12.1-12.2. Engage an independent organisation to undertake a performance review	Fully satisfied
13. Access to records and use of information	
13.1-13.3. Permit and assist the Commonwealth to inspect premises and examine and copy accounts records related to the Agreement; make personnel available to answer questions	Fully satisfied. APL staff made available to DoA for Senate Estimates

Clause & obligation	Status (Fully satisfied, partially satisfied, not satisfied, not applicable, clause not enacted)
13.5 Grants the Commonwealth licence to use IP in accordance with the SFA	Fully satisfied. Ongoing requirement of APL
14. Compliance Audit Report and Certification Report	
14.1. Provide the Minister a Compliance Audit Report	Fully satisfied. Audit Report provided in Annual Reports
14.3. Provide the Minister a Certification Report	Fully satisfied. Reports were sighted by the Review Team
14.4. Provide the Commonwealth with other Audit Reports as required	Fully satisfied. Reports were sighted by the Review Team
15. Indemnity	
14.1. Indemnify Commonwealth, its officers and agents against breach of Agreement or loss or damage of property etc	Fully satisfied. Indemnities held
17. Repayment of funds	
17.1.-17.5. Repay funds to the Commonwealth upon the issuance of a breach notice	Clause not enacted during the review period
18. Conflict of interest	
18.1. Warrant that no conflict exists at date of Agreement	Clause not enacted during the review period
18.2 Notify Minister of any conflict of interest arising or risk thereof	Clause not enacted during the review period
19. Acknowledgement of funding	
19. Ensure that all significant publications and publicity in regard to the use of Matching Funds acknowledge the Matching Funds in approved form	Partially satisfied. Some completed R&D research reports on the APL website do not acknowledge Matching Funds were used to support the research. See for example, Graeme Pope's Report on "Benchmarking On-farm Benefits of Adoption of ProHand Principles" – Final Report, APL Project 2009/2330
23. Resolution of disputes	
23.3. Seek to resolve disputes before commencing legal action	Clause not enacted during the review period
23.4 Continue to perform obligations in event of legal action	Clause not enacted during the review period
24. Assignment	
24.1 Do not assign agreement	Clause not enacted during the review period
30. Notice	
30. Provide notice as specified	Clause not enacted during the review period
Source: ACIL Allen Consulting.	

7.2 Past recommendations

Table 21 outlines the recommendations from the previous review. It also provides an assessment of APL's progress against each recommendation.

Table 21 shows that APL has met most of the recommendations arising from the previous review. Where recommendations are difficult to implement (such as those relating to ex ante and ex post evaluation), it discusses APL's some progress against them.

Table 21 Progress against recommendations from the previous review

#	Recommendation	Progress against recommendation	Evidence of progress
1	There would appear to be scope to rationalise the current number of Board committees and reduce the overall impact of their operation on staff and Board resources	Recommendation implemented	Committees of the APL Board have been rationalised from eight in 2010 to 5 in 2014. Since 2010: <ul style="list-style-type: none"> the Quality Assurance and Animal Welfare Committees have merged the functions of the Strategic Planning Committee have been integrated into other committees of the Board Pan Pacific Pork Expo Management Committee has been dissolved (see Table 7)
2	Future strategic plans may benefit from some minor alteration to structure but should explicitly cover the Government's R&D priorities and a broad resource allocation across research, marketing and other activities. Within these strategic plans (and annual operating plans), key performance indicators should be related to issues that are largely within the control of APL (or qualified as such)	Recommendation mostly implemented, however further work on KPIs is required	Amendments to the structure of APL's Strategic Plan implemented over the review period Performance against KPIs is discussed in Chapter 5 and improvements to KPIs outlined in Chapter 8
3	Future AOPs may benefit from some minor alteration to structure and definitions, especially in relation to budget allocation	Recommendation implemented	Refinements to AOPs implemented over the review period
4	APL should review and refine its reporting to stakeholders (for example in annual reports and general stakeholder communication) to simply and succinctly demonstrate achievements by the organisation so that easier identification of the value delivered can be made. Such reporting should place continued emphasis on independent evaluation studies	Recommendation implemented	Consultation with APL's marketing and communications teams identify numerous initiatives to improve reporting to stakeholders. Regular member notices, improvement in annual reporting, and the development of "aussie pig farmers" website are examples of improved reporting. In addition, some independent evaluation studies have been commissioned to demonstrate the benefits of APL's investments (e.g. the WRI Economic Impact Report)
5	APL should analyse the relationship between ex-ante and ex-post analyses so as to identify ways in which these analyses (and thus investment decisions and evaluation processes) can be improved	Some progress against the recommendation, however achievement of this recommendation is difficult	APL has invested considerable internal effort examining the relationship between ex-ante and ex-post evaluations. Consultations with APL suggest considerable reflection of how to link these analysis has taken place (in consultation with other RDCs), however no definitive break throughs have occurred

Source: SED Consulting, Australian Pork Limited: Three-Year Performance Review, 2011; ACIL Allen Consulting.

7.3 Findings

The Review Team concludes that APL has met the obligations under the SFA with the Commonwealth Government. Where obligations have not been met, sufficient reasons or justifications have been provided by APL to the Review Team.

In addition, the Review Team has found APL to have implemented (or made sufficient progress against) most of the recommendations from the previous review.

8 Conclusion and recommendations

This chapter provides the recommendations arising from the performance review.

8.1 Overall assessment

This review has identified that APL is meeting its obligations to Government and delivering efficient and effective results to levy payers. During the course of the review, the Review Team has collected or sighted ample evidence to suggest that APL is a strategically focused, well organised and accountable organisation to the broader Australian Pork Industry.

The recommendations provided below are focused on improving a maturing company and supporting its achievement of future strategic directions. As such, the recommendations are not intended to illicit fundamental reform of the organisation.

8.2 Recommendations

8.2.1 Recommendation 1: Develop a “small producer-focused” liaison group within or alongside the delegate system

Rationale

The Review Team has received strong feedback from producers and other stakeholders that APL’s delegate structure is maturing and some fine tuning is required to support the maturation process. A number of stakeholders expressed concerns that the delegate program has difficulty engaging smaller producers. There is also a perception amongst some producers that the process of selecting delegates (on the basis of production size) biases involvement in the system and preferences the participation of larger producers, who may act with an individual interest rather than a whole-of-industry interest.

However, there is widespread recognition that small producer engagement is fundamental to managing key industry risks (such as, quality assurance and biosecurity) and delivering core objectives and strategies, such as the rollout of APIQ[✓][®]. For example, Table 18 (Chapter 6) showed the percentage of sites (by number of sows) covered by APL’s APIQ[✓][®] system. It showed the low level of coverage for the categories of:

- 0-2 Sows (no sites covered)
- Pig Keeper – 3-7 Sows (0.2 per cent of sites covered)
- Small Holder – 8-50 Sows (11 per cent of sites covered)
- Small Commercial – 51-150 Sows (43 per cent of sites covered).

Stakeholders consulted for this report see the delegate system as an important and cost effective mechanism for achieving small producer engagement at the “Small Commercial” and below producer levels.

Key elements

Under this recommendation APL could either:

- implement a system for voting in additional Delegates (over and above current 34 delegates in 2013) with these extra delegates having a specific interest in reaching out to smaller producers, or
- ask a small selection of the existing delegate group (up to three delegates) and other small producers to nominate for participation in a small producer working group.

The decision about which option to follow would be based on an assessment of cost effectiveness and the capacity of the existing delegate group to commit to a new initiative.

The target would be “Small Commercial” producers (and possibly “Small Holders”) as this group has the lowest level of APIQ[✓]® certification (see Table 18), and potentially represents the highest level of risk to industry production. Producers with herd sizes below this level may not be a target of the Delegate group due to their size of operation and interest in the Australian Pork Industry.

Delegates would be elected (or appointed to the working group for a period of 12 months) in order to test the groups’ effectiveness. If APL is satisfied with the progress gained by the group, the length of appointment for any new delegates should be extended to align with the appointment period of other Delegates (three years). The group should be given some autonomy to develop its own small producer-focused engagement agenda, but also be guided by the Delegate group more generally and APL.

Following the 12 month period, the group should report to APL and the board about the outcomes and benefits generated to small producers.

Consideration should also be given to supporting Delegates representing more than four producers (irrespective of whether they are large or small). The key driver of effectiveness is the degree to which delegates can consult and report to the producers they represent. When Delegates represent more than four members considerable effort is required to ensure engagement. The specific nature of the support should be determined in consultation with the Delegates and producers to create a flexible suite of mechanisms which may include:

- developing consultation and reporting communiques targeting key producer segments (size, location, type of production system, etc) for delegates
- providing communication platforms for Delegates to engage with producers (on-line forums and video conferencing, survey tools, etc)
- financial support (or incentives) to hold face-to-face meetings with producers they represent.

8.2.2 Recommendation 2: Ensure KPIs drive the organisation but are meaningful measures of performance

Rationale

Chapter 5 analysed APL’s performance against its KPIs. The chapter identified a high percentage of KPIs were either ‘not met’ or ‘near misses’ over the review period. Stakeholders identified that some KPIs were indicators of “industry performance” and the attribution of APL’s influence over these indicators was difficult (if not impossible) to ascertain. There is wide-spread consensus amongst the stakeholders consulted for this review that APL should revise its current suite of KPIs with the view to developing indicators

which are largely within the organisation's sphere of control. The relevance of some KPIs was questioned in the previous review and remains an issue for the organisation.

It is acknowledged that there will be investments and activities where contribution or support is required from other stakeholders (i.e. extension). Under these circumstances it is important for KPIs to recognise the linkages with other stakeholder, and adopt mechanisms that appropriately deal with issues of attribution.

It is also acknowledged that all existing KPIs have stretch targets imbedded in them. ACIL Allen understands that this is an important feature of any system of KPIs which must be maintained into the future.

Key elements

Under this recommendation APL should conduct a rigorous internal assessment of its current KPIs to ensure they not only reflect core objectives, but also outcomes that can be reasonably attributed to APL. In particular; it is recommended that APL undertake a deep and considered review of the KPI currently used for core objective 1 and core objective 3. It is also recommended that the review of KPIs is integrated into the 2015-2020 strategic planning process currently being undertaken by APL.

Here it is recommended that APL consider the Australian National Audit Office's (ANAO) latest guidance on evaluating KPIs (ANAO, 2014). The ANAO offers criteria for evaluating the appropriateness of KPIs within the context of an organisation's performance reporting system. The criteria have been developed using a best practice audit principles and approaches, and are therefore highly suitable for application to APL. A description of the criteria and its key characteristics is provided in Table 22.

Table 22 ANAO's best practice criteria for evaluating KPIs

Level of assessment	Criteria	Characteristics	Explanation
Individual assessment	Relevant: Relevant KPIs contribute to conclusions that assist users' decision making	Focused: The KPI should address a significant aspect/s of the program objective	The KPI should assist significantly in informing whether the program objective is being achieved
		Understandable: The KPI should provide sufficient information in a clear and concise manner	The KPI should be stated in plain English and signal the impacts of program activities to inform users
	Reliable: Reliable KPIs allow for reasonably consistent assessment of a program	Measurable: The KPI should be quantified (allowing for results to show trends when measured over time)	The KPI should be capable of being measured to demonstrate the performance of the program
Free from bias: The KPI should be free from bias, and where possible, benchmarked against similar activities		The KPI should allow for clear interpretation of results	
Overall assessment	Complete: A set of KPIs that allow for the overall assessment of a program to inform users' decision making	Balanced: The set of KPIs should provide a balanced examination of the overall performance story, both quantitatively and qualitatively	The set of KPIs should provide an overall picture of the impact of a program on the target group/s
		Collective: The set of KPIs should be representative of the program objective	The set of KPIs should demonstrate the extent of achievement against the program objective

Source: ANAO 2014

Following the review APL should seek to develop new (stretch) KPIs which better reflect APL's attribution to industry outcomes. It is further recommended that APL review (and possibly refine) new KPIs within a 12 month period to ensure they address the concerns raised by stakeholders during this performance review.

8.2.3 Recommendation 3: Develop an extension map for the Australian Pork Industry

Rationale

Support and adoption of key frameworks (e.g. APIQ[✓]®) and associated practices and technologies is integral to the future success of APL and the Australian Pork Industry. In practice responsibility for their development and extension is shared between APL, the Pork CRC, government, industry service providers and producers. There is also a considerable bank of overseas knowledge which service providers and producers can access independently.

This performance review observed that while there is commitment to providing and improving industry extension individually, there is no shared map of the extension landscape and some adoption targets are not being met (see Chapter 4 and Chapter 5).

This hinders optimisation of effort and creates a lack of understanding and even confusion about how best to deliver extension. It also limits APL's ability to clearly track and demonstrate the impact of its investments. These points are illustrated by questions raised during the review:

Are delegates responsible for extension?

Who is responsible for increasing the adoption of APIQ?

Will social media increase adoption?

How is promotion and training of associated practices and technologies prioritised and coordinated?

What practices and technologies are "adoption-ready" and when are replacement and new practices and technologies going to be available?

(APL review focus groups and interviews)

Key elements

The Australian Pork Industry would benefit from adopting a national extension map that clearly sets out a framework for coordinating extension efforts across the industry. The map should include:

- the frameworks (e.g. APIQ[✓]®) and associated (current and future) practices and technologies that are being extended to improve industry profitability, sustainability, competitiveness and productivity
- current and target adoption levels
- extension roles and services provided by APL, CRC, government, services providers and others.

The map could be developed by RDAC within APL. It could be implemented in partnership with other APL committees and external stakeholders to help track progress against the map and improve the services delivered through it.

8.2.4 Recommendation 4: Explore new initiatives aimed at further improving operational efficiency

Rationale

Chapter 3 highlighted APL's achievements in reducing corporate expenditures over the review period. These improvements were generated from the implementation of strong internal controls, consolidation of officer accommodation, and the resulting reduction in accommodation-related that occurred over the past three years.

While APL's corporate expenditures are not seen to be excessive or out-of-step with industry practice, it is important for APL to maintain its focus on controlling corporate costs. Lower corporate costs mean more funding for R&D, extension, marketing and policy development. Lower corporate costs also demonstrate a responsiveness of government agendas and the expectations of levy payers who are operating within an increasingly competitive environment.

Key elements

While this recommendation requires minimal change, it requires ongoing effort and attention from APL's senior management to ensure new opportunities for improvement are explored. For example, the Review Team has received considerable feedback (from key stakeholders within and outside APL) about the benefits of implementing shared services with other RDCs. Shared service arrangements have the potential to drive organisation efficiency in services that are generic in nature (i.e. payroll). They also have the potential to leverage existing expertise and/or relationships between APL and other RDCs where key personnel have experience working across a number of RDCs.

The concept of developing joint arrangements is also consistent with the 2014 National Commission of Audit Report which identified:

Duplication of administrative support and processes should be reduced by aligning 'backroom' processes across the various Rural Research and Development Corporations.

(National Commission of Audit, 2014)

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Appendix A Stakeholder consultation

Telephone focus groups were adopted for this review following advice from APL that members were suffering from “survey fatigue”.

Seven dedicated focus groups were facilitated, with a small selection of individual consultations for those participants who could not attend a focus group.

A.1 Focus groups

A.1.1 Promotion

A number of activities were undertaken to promote the focus groups for this review. These activities were considered necessary to encourage participation by delegates and members in the review.

Table A1 Promotional activity for focus groups

Action	Actioner	Date
Email sent by APL advising about the review	APL	February 2014
Page incorporated into APLs website and uploaded	APL	February 2014
Page incorporated into ACIL Allen Consulting's website and uploaded	ACIL Allen	7 March 2014
Interview with a Review Team member on ABC Rural	ACIL Allen	13 March 2014
Email sent by ACIL Allen Consulting to all members and delegates	ACIL Allen	14 March 2014
Telephone calls made to all delegates (including multiple calls to individual delegates)	ACIL Allen	18 to 20 March 2014
First reminder email sent by ACIL Allen Consulting to all members	ACIL Allen	21 March 2014
First reminder email sent by APL to all members and delegates	APL	March 2014
Second and final reminder email sent by ACIL Allen Consulting to all members	ACIL Allen	3 April 2014

Note: Other media outlets (including international outlets) also reported the story, e.g.

http://www.wattagnet.com/Australian_Pork_Limited_embarks_on_three-year_performance_review.html,

<http://www.globalmeatnews.com/Industry-Markets/Australian-pork-body-to-review-activity>,

http://www.meattradeneewsdaily.co.uk/news/110314/australia_australian_pork_limited_embarks_on_three_year_performance_review.aspx, <http://www.themeatsite.com/meatnews/24213/performance-review-for-australian-pork-limited>.

Source: ACIL Allen Consulting.

A.1.2 Focus group attendance

Table A2 below provides a summary of the attendance at focus groups. It also identifies the other communication the Review Team had with levy payers and APL members.

Table A2 Focus Group attendance

Focus Group	Attended	Delegates	Members	Non-member	Registered but did not attend
Thursday 27 March - 10am	4	2	2	0	0
Thursday 27 March - 2pm	6	5	0	1	2
Friday 28 March - 10am	6	6	0	0	1
Friday 28 March - 2pm	4	1	2	1	1
Tuesday 1 April - 10am	2	1	1	0	0
Tuesday 1 April - 2pm	4	2	2	0	0
Tuesday 8 April - 2pm	4	4	0	0	1
Total	30	21	7	2	5
Other communications levy payers					

Focus Group	Attended	Delegates	Members	Non-member	Registered but did not attend
Personal interview in place of a Focus Group	2				
Registered an interest but did not confirm attendance	2				
Email submission	1				

Source: ACIL Allen Consulting.

A.2 Other consultations

The following stakeholders were consulted during the course of this project. Meetings often contained more than one representative from an organisation or APL divisional group.

Table A3 Other stakeholder consulted for the project

Stakeholder	Number of meetings held
APL Board	
Chairman	1
Directors	8 (including follow up consultations)
Senior APL staff	
CEO	1 (including follow up consultations)
General Managers	5 (including follow up consultations)
Research institutions and providers	
Pork CRC	1
Council of Rural Research Development Corporations	1
Supply chain representatives	
Australian Food and Grocery Council	1
Government	
Department of Agriculture	1
Animal Health Australia	1

Note: Indicative list, subject to change

In addition, the Review Team attended a planning and strategy meeting of the Research & Development Advisory Committee (25 March 2014). The Review Team also used the opportunity to conduct consultation meetings with Committee members and specially invited guests.

Appendix B Strategies and plans

B.1 National Research & Rural R&D Priorities

The first Rural R&D Priorities were established by the Australian Government in 1994 and revised in 2007. The aim of the Rural Priorities is to “foster innovation and guide R&D effort in the face of continuing economic, environmental and social change” (Department of Agriculture, Fisheries and Forestry, 2007).

There are five Rural R&D Priorities and two supporting priorities. The Rural R&D Priorities complement the National Research Priorities, which were developed by the Australian Government in 2002. Both sets of priorities are listed in Table B1.

Table B1 National R&D Priorities and corresponding Rural R&D Priorities

National R&D Priorities		Rural R&D Priorities	
Priority	Description	Priority	Description
An environmentally sustainable Australia	<i>Transforming the way we utilise our land, water, mineral and energy resources through a better understanding of human and environmental systems and the use of new technologies</i>	Natural Resource Management	<i>Support effective management of Australia's natural resources to ensure primary industries are both economically and environmentally sustainable</i>
		Climate Variability and Climate Change	<i>Build resilience to climate variability and adapt to and mitigate the effects of climate change</i>
Promoting and maintaining good health	<i>Promoting good health and well being for all Australians</i>	Supply Chain and Markets	<i>Better understand and respond to domestic and international market and consumer requirements and improve the flow of such information through the whole supply chain, including to consumers</i>
		Productivity and Adding Value	<i>Improve the productivity and profitability of existing industries and support the development of viable new industries</i>
Safeguarding Australia	<i>Safeguarding Australia from terrorism, crime, invasive diseases and pests, strengthening our understanding of Australia's place in the region and the world, and securing our infrastructure, particularly with respect to our digital systems</i>	Biosecurity	<i>Protect Australia's community, primary industries and environment from biosecurity threats</i>
Frontier technologies for building and transforming Australian industries	<i>Stimulating the growth of world-class Australian industries using innovative technologies developed from cutting-edge research</i>	Innovation Skills	<i>Improve the skills to undertake research and apply its findings</i>
		Technology	<i>Promote the development of new and existing technologies</i>

Source: Department of Agriculture, Fisheries and Forestry, Rural Research and Development Priorities, 2007; Department of Innovation, The National Research Priorities and their Associated Priority Goals; Grape and Wine Research and Development Corporation, Strategic Research, Development and Extension Plan, 2012-2017, 2012.

B.2 Strategies under core objectives

B.2.1 Core objective 1 strategies

Assuring eating quality

This strategy is focused on identifying and improving the major points on the “Eating Quality Pathway” from birth to plate. This strategy was delivered through three programs, with activities including:

- Eating quality (2010-2011) which involved researching the effects of production, processing and cooking parameters to determine the impact of key pathway factors on pork eating quality attributes of tenderness, juiciness and flavour
- Nutrition marketing (2010-2011) was undertaken through studies to enhance the iron content of fresh pork
- Fresh pork nutrition (2011-2012 and 2012-2013) incorporated and extended the work on the eating quality program (2010-2011).

Increasing frequency of use

This strategy is focused on the products of every day consumption and in particular, those where pork currently underperformed. This strategy was delivered through one program:

- Fresh pork frequency of usage (2010-2011, 2011-2012 and 2012-2013) which relied on continuous communication to deliver its message, such as consumer advertising and nutrition marketing.

Improving the image of fresh pork

This strategy is focused on improving pork’s presence in restaurants and other “eating out” establishments. APL primarily focused on the food service sector to deliver this strategy by trying to influence activities and outcomes in the foodservice channel, particularly the restaurant sub-channel, in an attempt to create a 'trickle down' effect to home cooks. This program, **PorkStar**, has been active for more than eight years.

Promoting “Australian”

This strategy is focused on ensuring that Australians understand: that all fresh pork is Australian; processed pork is clearly labelled in a way that Australian consumers understand; and the Australian pork industry gain increased “level playing field” access to priority countries. This strategy was delivered through three programs:

- Australian Awareness (2010-2011 and 2011-2012)
- Expand International Business Program (2010-2011 and 2011-2012)
- Australian Fresh and Deli Meats Program (2012-2013).

PorkMark was the main tool promoting Australian pork in these programs.

B.2.2 Core objective 2 strategies

Reduce input costs

This strategy is focused on controlling/reducing disease and mortality in pigs and diversifying feed grain supply. This strategy was delivered through two programs:

- Reduce the impact of disease (2010-2011 and 2011-2012) which enhanced the Australian pork industry's efficiency and competitiveness by better controlling the diseases that adversely affect pork production. It involved the R&D of disease identification, mitigation and management strategies, such as vaccines and diagnostic tests.
- Efficient and cost effective nutrient supply (2010-2011, 2011-2012 and 2012-2013) which improved feed formulations, development and access to new designated feed grain varieties and the identification of new feed sources to make the Australian pork industry more internationally competitive and profitable.

Improve process efficiency

This strategy is focused on utilising new management strategies and new technologies to reduce variation within the pork production system and better target pork for specific markets. This strategy was delivered through one program:

- Globally competitive cost of production (2010-2011, 2011-2012 and 2012-2013) which enhanced the reproductive performance of the herd, reduced efficiency losses due to disease (mortality/morbidity) and enhanced meat yield without compromising eating quality of pork, all to ensure the global competitiveness of Australian pork. The program was delivered through various projects in reducing reproductive wastage, genetics and feed conversion.

Build skills and capability

This strategy is focused on ensuring the latest information is transferred to industry and not only reaches but is easily understood by industry employees. This strategy was delivered through one program:

- Facilitate skills and capacity development on-farm (2010-2011, 2011-2012 and 2012-2013) which enhanced on-farm training and development of piggery staff, facilitated initiatives that alleviate on-farm labour issues by improved piggery management and staff development, and improved access to skilled labour. The program was delivered through various sub-programs, workshops, courses, etc, aimed at promoting leadership and building technical capacity.

B.2.3 Core objective 3 strategies

Create and capture value improvements

This strategy is focused on improving efficiency in meat supply chains and providing an opportunity to further encourage transparency and supply chain integration. This strategy was delivered through one program:

- Research and development of technical innovation (2010-2011 and 2011-2012) which involved working with a number of value chains in the Australian pork industry to improve product integrity that would underpin the whole supply chain. A key component of this program is the Physi-Trace traceability tool, with progress made towards the adoption of this initiative a key focus.

Enhance linkages between the value chain partners

This strategy is focused on ensuring all segments of the pork supply chain are effectively linked to allow market signal communication up and down the value chain. This strategy was delivered through one program:

- Enhancing market signal flow (2010-2011 and 2011-2012) which aimed to quantify some of the value along the supply chain to better meet consumer needs and demonstrate the need for improved linkages to secure these benefits.

Optimise value chain efficiency and quality

This strategy is focused on ensuring the Australian Pork Industry continues to utilise new technologies and strategies to ensure that the quality of the pork is not compromised. This strategy was delivered through one program:

- Enhancing supply chain efficiency and quality (2010-2011 and 2011-2012) which focused on the implementation of quantifiable tools that will enable the Australian pork industry to focus on relationships and opportunities between value and volume, and use them for planning purposes to ensure industry profitability and sustainability. The PorkScan carcass measurement initiative was a key component of this program.

B.2.4 Core objective 4 strategies

Address changing expectations and standards for food production

This strategy is focused on improving the image of our industry through education, changing practices and shaping the regulatory environment. Enhanced biosecurity and quarantine is a major component of this strategy. This strategy was delivered through two programs:

- Taking care of our animals (2010-2011, 2011-2012 and 2012-2013) which addressed growth in concern amongst consumers, politicians, retailers and the general community about the welfare of pigs on farms, with the focus of this concern centring on the use of gestation stalls.
- Strengthening biosecurity (2010-2011, 2011-2012 and 2012-2013) which enhanced biosecurity and quarantine through a multilayered approach and shared responsibility with government to safeguard the health status and competitive advantage of the Australian pig herd by preventing the spread of exotic diseases. APIQ✓[®] was a key component of this program.

Manage the impact of regulatory shifts

This strategy is focused on managing community expectations, market access requirements and the impact of policy and regulatory shifts resulting from food safety concerns to minimise the growing costs of compliance while also providing a safe product. This strategy was delivered through one program:

- Safe food (2010-2011, 2011-2012 and 2012-2013) which managed community expectations, market access requirements and the impact of policy and regulatory shifts resulting from food safety concerns to minimise costs of compliance and provide a safe food product. The projects carried out under this program provide greater synergies and co-ordination across product integrity and traceability on-farm and through the supply chain.

Government policy and compliance requirements

This strategy responds to the increasing focus on climate change, and rising government and community concern both here and internationally. This strategy also focuses on preparedness, planning and recovery both at farm and industry level for the successful management of emerging issues, crises and emergencies. This strategy was delivered through two programs:

- Climate change and sustainability (2010-2011, 2011-2012 and 2012-2013) which improved on-farm resource efficiency and farming adaptability and capacity, as well as verified the industry's carbon friendly climate change credentials and environmental sustainability.
- Issues and emergency management (2011-2012 and 2012-2013) which targets preparedness, planning and recovery, both at farm and industry level, for the successful management of emerging issues, crises and emergencies. This program is a means of retaining confidence in the Australian Pork Industry, safeguarding markets and competitiveness, and shaping the industry's standing in the community and with government in the event of a disease outbreak.

B.2.5 Core objective 5 strategies

Engage and connect the industry

This strategy finds the appropriate balance between rapid and effective (remote, face to face) communications to underpin APL's reputation as a worthy industry body. This strategy was delivered through two programs:

- Enhance effective communications (2010-2011, 2011-2012 and 2012-2013) which utilises electronic communication that enables open dialogue and exchange of views, ideas and principles in a timely manner.
- Growing valuable industry networks (2010-2011, 2011-2012 and 2012-2013) which focuses on fostering new capability and enabling professional networks.

Facilitate rapid uptake of information and technology

This strategy ensures the positive work by APL and Pork CRC is communicated to industry and adopted on farm to ensure maximum efficiency gains. This strategy was delivered through one program:

- Communication and facilitation of information and technology adoption (2010-2011, 2011-2012 and 2012-2013) which ensured that positive work being developed is communicated to industry and, where applicable, adopted on-farm to ensure maximum efficiency gains are achieved by the industry.

Enhance the reputation and effectiveness of APL

This strategy aims to ensure APL's image is associated with: good corporate governance; a safe and fair work place; an organisation that promotes sound environmental, animal health and welfare practices; and wholesome products that are Australian grown. This strategy was delivered through two programs:

- Public affairs and stakeholder relations (2010-2011, 2011-2012 and 2012-2013) which focused on progressing the strategic needs of the entire Australian Pork Industry
- APL organisational capacity (2010-2011, 2011-2012 and 2012-2013) which focused on organisational performance.

Appendix C Benefits analysis

C.1 Assessed value of Project 1

C.1.1 Project title

Investigation into the potential use of Trace Elements in the Traceability of Pork Offal and its relationship to the Pork Meat Physi-Trace Database

C.1.2 Objective of research

Edible pork offal is an important export commodity for the Australian Pork Industry, particularly in Asian markets. Traceability systems are essential for maintaining the integrity of the product, so that inferior product can be removed from the market rapidly and fraudulently labelled product quickly identified.

The Australian Pork Industry has previously developed the Physi-Trace chemical provenancing tool that replaces previous paper-based methods. However, the developed Physi-Trace technology is specific to fresh muscle product. As the accumulation of trace elements (such as strontium, potassium and cobalt) is different in edible swine offal to that in fresh muscle, research was required to determine how the Physi-Trace technology could be adapted for pork offal by determining the conversion ratios between offal test results and fresh muscle results.

The objectives of this project were:

- for each offal type, determine a set of chemical elements to be used for classification purposes
- understand the inter-relationships between the main trace elements in each specific offal type
- develop a model to correlate each offal type back to the fresh meat database
- demonstrate the Physi-Trace technology with offal samples.

The final project report (dated 6 June 2013) was prepared by Natasha Kreitals of TSW Analytical Pty Ltd.

C.1.3 Research methodology

For the traceability and Physi-Trace integration studies, a total of 127 swine representing 24 different farms of origin were sampled for their muscle, tongue, stomach, heart, liver and kidney tissues. Samples collected represented all five Australian states (Western Australia, Queensland, South Australia, Victoria and New South Wales) that make up the Australian export market.

Sampling of offal and muscle was conducted on the abattoir floor as swine were processed at four major abattoirs. To ensure consistency of sampling, tissues were sub-sampled from the abdominal muscle (muscle), transversalis muscle (tongue), pyloric antrum (stomach), left ventricular wall (heart), left lateral lobe (liver) and the cortex (kidney).

The influence of gender on the chemical profiles of pork offal was investigated by comparing the chemical signature between intact (non-castrated) males and females from a single Western Australian farm and between castrated males and females from a single New South Wales farm. This was necessary because farms reared either intact males or chemically castrated males only, but not a combination of the two.

The effect of season of slaughter on chemical signatures in swine was investigated by sampling swine during the third week of each given season, commencing with autumn in March 2012 and concluding with summer sampling in December 2012.

A range of chemometric statistical tools were used to assess the significance of multi-elemental profiles and their relationships to one another, including linear discriminant analysis (LDA), principle component analysis (PCA), Wards method of hierarchical clustering and ANOVA's.

Mathematical integration of offal multi-elemental profiles to their muscle-specific equivalence was investigated using linear regression modelling and conversion ratios. Conversion ratios were ultimately determined to be the most appropriate modelling technique. For each analyte of interest, a median multiplication factor was determined for a data set of 127 pigs. These factors enabled the conversion of offal-specific concentrations to their muscle-equivalent concentration.

C.1.4 Key research findings

Using a consistent sub-sampling location, sample preparation procedure and analytical procedure, the researchers found clear distinctions in the chemical profile of different swine populations for muscle, tongue, stomach, heart, liver and kidney samples. This separation was largely driven by the elements rubidium, strontium, caesium, selenium, arsenic, potassium, thallium and cobalt with clear geographic variation in these elements.

The research was able to distinguish swine to a broad geographic region of origin. In Western Australia and Queensland, the swine could be traced to their farm of origin based on the chemical profile of their offal. However, this was not possible for swine sampled from South Australia, Victoria and New South Wales because of climactic similarities between the three states as well as the common practice of transporting Victorian pigs interstate for the final stage of finishing and/or for slaughter.

The research indicated that, despite significant differences in the chemical profile between females and intact males or females and castrated males, the multi-element profile variation between the sexes is only significant on an element-specific level but not on the multivariate level that would be applicable for traceability analysis. For this reason changes in the composition of the sexes representing each farm or region in the chemical database should not impact the accuracy of the chemical profile obtained or influence the robustness of a chemical traceability system for edible pork offal.

Conversely, the research indicated that seasonality did significantly impact the multivariate signature of swine. This variation was predominantly attributed to higher concentrations of elements during the autumn followed by a gradual decrease in concentration in samples from later sampling events in winter, spring and summer. The findings demonstrate the need to continually update the chemical database if chemical traceability were to be implemented as a provenancing tool on a commercial scale.

While integration of all tissue types into a single database such as the Physi-Trace database would be desirable, the chemical composition of swine muscle, tongue, stomach, heart, liver and kidney tissue was demonstrated to be significantly different to one another, limiting the ability to integrate the chemical profiles of all six tissue types into a single database.

To account for the variable accumulation of elements across the different swine tissues of interest, normalisation factors were developed to standardise the chemical concentrations in the tongue, stomach, heart, liver and kidney tissue to their respective muscle specific concentrations. By applying these factors to the chemical data for the swine offal, the

chemical compositions were brought into line with the expected muscle signature. The factors proved successful at assigning swine tissue samples to region of origin for all tissues except kidney. However, the traceability of samples to farm of origin was poor with the exception of heart and tongue tissue.

In conclusion, the research project confirmed the potential of chemical traceability for edible Australian swine offal product. The normalisation factors developed can be used to associate the chemical profiles in tongue, stomach, heart, liver and kidney to the respective muscle in the Physi-Trace database and provide a fast and rapid means of provenancing samples to a broad region/processor of origin.

By incorporating the offal data into the already developed Physi-Trace database, this traceability method is more commercially feasible and will allow a faster return of unaffected areas to the market in the event of a product integrity investigation than is currently possible with paper based traceability systems.

C.1.5 Project costs

APL provided \$149,548 in funding to this project. This was matched by a \$256,492 in-kind contribution from TSW Analytical Pty Ltd.

C.1.6 Value of potential benefits to industry

Further work is required before the system can be rolled out to industry, including:

- continued research to clearly define regions at a finer scale than region or processor of origin by expanding the database
- extending the offal component of Physi-Trace to include all abattoirs involved in the collection of raw pork Physi-Trace samples (as only two abattoirs were involved in this project)
- validation studies to confirm the correction factors established in this study in order to ensure that they remain true over time.

A project with funding support from the Pork CRC is currently underway to incorporate the corrections into the Physi-Trace system. The costs of establishing the offal trace element database are expected to be in the vicinity of \$100,000. A web-based interface will need to be developed to allow for automatic transfer of trace analysis results into the database.

It was estimated in the ex-ante analysis conducted in the SGI Business Plan 2011-2012 that, without Physi-Trace, an export market would be lost for three months (or 13 weeks) in the event of a sample integrity investigation, with products normally shipped to Asian markets diverted to other (potentially lower-value) markets. With Physi-Trace, it was estimated that the market would be lost for about 1-2 weeks as Physi-Trace enables the cause of the incident to be identified quickly and all non-compliant product identified and isolated, thereby enabling unaffected areas to swiftly return to the market.

Based on information provided by APL, the following assumptions have been used to estimate the potential industry benefits of this research project:

- 12 per cent of Australian pork exported is as offal
- 36,1 million kg of pork is exported per annum (translating to 4.332 million kg of offal exported per annum)
- wholesale price of offal is \$2.53 per kg
- processor profit margin for offal is 10.5 per cent

— probability of an incident that would benefit from the Physi-Trace system is 20 per cent each year.

Processor lost profits from missed export sales are therefore:

— without Physi-Trace: 4.332 million kg x 13/52 x 20% x \$0.27 = \$58,482

— with Physi-Trace: 4.332 million kg x 1/52 x 20% x \$0.27 = \$4,498.

The potential benefits of the Physi-Trace offal system are therefore estimated to be \$53,984 (or approximately \$54,000) per annum.

C.2 Assessed value of Project 2

C.2.1 Project title

Demonstrating the utilisation of spent eco-shelter bedding in broadacre cropping systems

C.2.2 Objective of research

Straw-based housing systems or “eco-shelters” have become increasingly popular in the pork industry. This has resulted in an increase in spent bedding with potential for environmental issues associated with waste stockpiles, including flies, odour, and contamination of water supplies.

Spent bedding is commonly applied to neighbouring agricultural land with little knowledge of its nutrient content, appropriate application rates, or potentially negative crop effects, with the primary aim to dispose of the product. At the same time, increasing costs of conventional fertilisers have prompted many broadacre cropping farmers to explore alternative nutrient sources to apply to crops.

This project aimed to examine and promote the use of spent pork eco-shelter bedding as an alternative fertiliser and for improving poor fertility soils in broadacre cropping systems.

The specific objectives of this research project were to:

- quantify and communicate the nutrient content and variation in spent eco-shelter bedding
- demonstrate grain crop responses to the application of different rates of eco-shelter bedding with and without conventional fertiliser in modern no-till cropping systems
- evaluate improved soil testing techniques as a predictive tool to determine use patterns for eco-shelter bedding
- investigate and demonstrate the use of high application rates of eco-shelter bedding as a soil improvement agent for poor soils
- demonstrate the economic value of spent eco-shelter bedding to aid pricing of product by suppliers and cost-effective decisions on crop nutrient supply by potential users
- increase broadacre crop producer awareness of the potential for and practical aspects of utilising spent eco-shelter bedding within their farming systems.

The final report (dated May 2013) was prepared by Tony Craddock and Brendan Wallis of Rural Directions Pty Ltd.

C.2.3 Research methodology

To gain an understanding of the nutrient contents of spent bedding, samples were sourced from commercial pork farms in South Australia and New South Wales. Details on each batch

sampled were provided and each batch was tested for macro and micro nutrients as well as heavy metals, carbon and moisture content.

A purpose-built Excel-based calculator (PooCalc) developed by Rural Directions Pty Ltd was utilised to provide an estimate of the dollar value of the nutrients contained within the spent bedding samples.

Replicated demonstration trials were established on phosphorus-responsive and non-responsive soils to demonstrate where conventional fertiliser should be applied in conjunction with spent bedding to reduce the risk of crop vigour reductions.

To investigate and promote spent bedding as a soil improvement agent, a replicated demonstration trial was conducted, where high application rates of bedding were applied to a low fertility sand hill, to measure responses in cereal crop performance, grain quality parameters, plant tissue and soil nutrient responses over two years.

An extension program involving presentations at grower and advisor discussion groups, forums and conferences, press and newsletter articles, and demonstration trial field days was conducted to extend research results to broadacre farmers and pork producers to raise awareness about the product and increase user confidence.

C.2.4 Key research findings

Analysis of spent bedding from straw-based pig housing indicated useful quantities of macro elements and some trace elements, indicating good potential for use as a fertiliser alternative in broadacre cropping systems. Heavy metal contents were generally found to be low, with some batches containing moderate copper and zinc levels.

There was a high degree of variation in nutrient and moisture contents between product batches. It is therefore important that users and suppliers obtain an analysis of the product intended for use so that appropriate rates of application can be calculated and product value can be estimated more accurately.

The estimated commercial value of spent bedding based on the nutrient contents (Nitrogen, Phosphorous, Potassium, Zinc and Sulphur) averaged \$72 per tonne on a dry weight basis and \$37 per tonne on a fresh weight basis delivered to the cropping farm. If the value of potassium was excluded from the valuation (some cropping soils have ample potassium and, as such, some grain growers are unlikely to value potassium in the product), the average value reduced to \$40/t on a dry weight basis and \$20/t on a fresh weight basis delivered to the cropping farm.

In reality, the price of spent bedding products may need to be discounted further from these estimated values to entice broadacre farmers to utilise them on a broad scale basis, given the perceived difficulties associated with using bulky, manure based products.

The research showed that applying high rates of straw-based spent pig bedding on poor sandy soils improved cereal crop vigour, grain yields and grain protein for two years following application. Such application also increased plant tissue levels of macro and trace elements over that period.

While crop vigour reductions were observed when 5 tonnes per hectare of spent bedding was applied without applying some conventional fertiliser in the seed row when sowing the crop, raising the application rate to 10 tonnes per hectare appeared to negate the need for such “starter” conventional fertiliser applications.

C.2.5 Extension activities

As part of the project, an extension program was conducted to extend the results to broadacre farmers and pork producers across the Australian broadacre farming zones. This was to build awareness of spent bedding from pig shelters as an alternative to chicken litter and bio-solids, as well as to build user confidence.

Presentations on research findings and the use of the economic analysis tool, PooCalc, were conducted at farmer and consultant discussion groups and forums. Presentations on the findings were also made at the 2012 Pan Pacific Pork Expo on the Gold Coast.

Field days at the demonstration site were conducted, targeting broadacre cropping producers and agronomists. Articles were prepared for newsletters, targeting broadacre croppers throughout South Australia. Press articles publicising the use of spent pig bedding were prepared for farming and regional newspapers in areas with potential for broadacre eco-shelter bedding use in South Australia.

A factsheet with information on spent bedding utilisation in broadacre farming systems was produced. Broadacre user case studies were incorporated into the factsheet.

C.2.6 Project costs

APL provided \$132,520 in funding to this project. This was matched by a \$6,500 in-kind contribution from Rural Directions Pty Ltd.

C.2.7 Value of potential benefits to industry

To assist ACIL Allen Consulting in estimating the potential benefits of the project to industry, APL provided the information contained in Table C1. The calculations indicate that there is an economic advantage of about \$140 per hectare in applying 5t/ha of spent bedding compared with applying equivalent rates of nutrients using triple superphosphate, muriate of potash and urea. It is assumed that all of the spent bedding is used by pig farmers in their own broadacre farms, so that all the benefits of using spent bedding accrue to the pork industry.

Table C1 **Net benefits of nutrients applied as spent bedding after accounting for all costs**

Item	Cost / benefit per tonne (\$/t)	Total cost / benefit at 5 tonnes per hectare (\$/ha)
Cost of bedding	8.00	40.00
Carting and spreading	36.00	180.00
Total cost	44.00	220.00
Value of nutrients applied (dry weight basis)	72.00	360.00
Net benefit of using spent bedding	28.00	140.00

Source: APL

Bedding is mostly used for weaners, growers, finishers and dry sows. Assuming bedding use of 0.75 kg per Standard Pig Unit (SPU) per day, clean bedding material adds around 246 kg of total solids per SPU per year.

Spent bedding contains both manure and the bedding material. According to the National Environmental Guidelines for Piggeries (2nd Edition Revised, 2010), the annual manure and waste feed from a grower pig contains about 108 kg of total solids. Hence, the clean bedding and manure of a grower pig add about 354 kg of total solids per year to the system.

Allowing for decomposition losses of 25 per cent in the shelter, about 265 kg/SPU/yr of dried material would remain. With an average moisture content of 50 per cent, there is thus 530 kg/SPU/yr of 0.76 m³/SPU/yr of material to manage (assuming a bulk density of 700 kg/m³).

Converting the relative weights of weaners, growers, finishers and dry sows to SPUs (for example, 1 weaner = 0.5 SPU) enables the estimation of the weight and volume of spent bedding generated by pigs at different stages of their development:

- weaners: 265 kg/hd/yr or 0.38 m³/hd/yr
- growers: 530 kg/hd/yr or 0.76 m³/hd/yr
- finishers: 860 kg/hd/yr or 1.2 m³/hd/yr
- dry sows: 870 kg/hd/yr or 1.2 m³/hd/yr.

APL data indicate that 4.8 million finishers are slaughtered a year across Australia and that approximately 30 per cent of them (1.44 million) would have been raised in straw-based housing systems or “eco shelters”.

Pigs are slaughtered at 16-21 weeks. They typically spend 6-7 weeks as weaners, 6-8 weeks as growers and 4-6 weeks as finishers. Assuming the “average” pig spends 6.5 weeks as a weaner, 7 weeks as a grower and 5 weeks as a finisher, it will have generated approximately $265 * (6.5/52) + 530 * (7/52) + 860 * (5/52) = 187.2$ kg of spent bedding.

The total quantity of spent bedding generated a year would therefore be 187.2 kg x 1.44 million = 269,570 tonnes. As our previous calculations show a benefit of using spent bedding of \$28 per tonne, the total benefit of using spent bedding as an alternative fertiliser is approximately \$7.55 million per annum.

C.3 Assessed value of Project 3

C.3.1 Project title

Development of selection criteria to improve carcass quality and use of haemoglobin levels in sows and piglets to improve piglet survival, performance and pork quality

C.3.2 Objective of research

This research project comprised two sub-projects. The objective of each sub-project is described separately.

The final project report was authored by Susanne Hermesch of the Animal Genetics and Breeding Unit (AGBU) at the University of New England.

Improving selection for carcass quality using image analysis

The payment system used in Australia uses the weight of the carcass and fat depth at the P2 site to determine the price per kg carcass weight paid to producers. Further down the supply chain, different prices are paid for individual primal pork cuts. The belly cut is most expensive, followed by the loin, the leg and the forequarter in descending order by price.

Previous research showed that there was significant variation in the weight of the different cuts for carcasses of similar weight and fatness levels. Additional return per carcass can therefore be achieved by having more weight in the more valuable primal cuts for carcasses with the same total weight and fat depth.

The aim of this sub-project was to develop a simple procedure for predicting carcass market value through the analysis of images of live pigs. The results of the image analysis were used to develop selection strategies for improved carcass market value.

Use of haemoglobin to improve piglet survival, performance and pork quality

Improving piglet survival is an important goal for the Australian pig industry in order to improve pig welfare and farm productivity. The number of still-born piglets has increased over time in Australia and new tools are required to halt this unfavourable trend.

While higher haemoglobin levels have been shown to be associated with improved survival of piglets, there have been few studies investigating genetic associations between haemoglobin levels and survival of piglets and fecundity of sows.

The aim of this sub-project was to demonstrate that an on-farm measure of haemoglobin may be used to improve the survival and performance of piglets and sows. The project also sought to develop reliable measures to record haemoglobin levels on farm.

C.3.3 Research methodology

Improving selection for carcass quality using image analysis

Primal cut weights were obtained for 2,311 carcasses which were combined with 23,210 pedigree and 16,875 performance records.

Lifetime growth rate, backfat depth at the P2 site and muscle depth between the third and fourth last ribs were previously recorded on these pigs at 143.5 ± 3.84 days of age. Backfat and muscle depth were recorded using real time ultrasound. A photo of the pig standing in the weighing crate was taken four days later along with an additional weight measure for a proportion of pigs.

The images of the pigs were analysed with a freely available image-analysis program (ImageJ) to obtain 14 linear or area measurements for each pig three weeks prior to slaughter. A total of 36,312 records were collected from the images of 2,283 pigs that had information about primal cut weights available.

Genetic analyses of data provided information about genetic and phenotypic (that is, outward physical manifestation) associations between primal cut weights and other traits.

Use of haemoglobin to improve piglet survival, performance and pork quality

Evaluation of recording procedures for haemoglobin levels in sows prior to farrowing and one-day old piglets were based on 47 sows from two maternal lines. These sows represented first (15 sows), second (15 sows) and third (17 sows) generation sows. Sows were ear pricked on entry to the farrowing (birthing) house to collect drops of blood for two samples per sow.

Shortly after farrowing, two male and two female piglets were chosen based on their birth weight. Each litter was represented by a light, two medium and one heavy piglet. Two blood samples were collected from the ear and two blood samples from the cut-off tail of one-day old piglets. The design was fully cross-classified within each litter in regard to the order of haemoglobin measurements from each blood-collection site on the piglet.

C.3.4 Key research findings

Improving selection for carcass quality using image analysis

The research showed that the image-analysis measurements had predictive power for the weight of pigs or carcasses and the weight of primal cuts, demonstrating the usefulness of image analysis for predicting carcass market value.

The measurement that was most useful in predicting primal cut weights at a given carcass weight was found to be the first width measurement of the middle of the pig at the tail end. This was followed by the area of the leg, the area of the middle and the length of the pig.

Weights of primal cuts at a given carcass weight were found to be moderately heritable. Two economic approaches were developed and compared to include primal cut weights in pig breeding objectives. It was demonstrated that more weight in the more-valuable middle section of the pig contributed 9 per cent to the breeding objective used in terminal lines. This contribution is similar to the contribution of the current main carcass trait of P2 fat depth to the breeding objective, highlighting the need to include weight of primal cuts in pig breeding programs.

Selection strategies for improved carcass market value that involve measurements on the live animal will be outlined to industry through the established technology-transfer pathways of the AGBU, a joint venture between the NSW Department of Primary Industries and the University of New England, to ensure that results from this project are adopted by Australian breeders.

Use of haemoglobin to improve piglet survival, performance and pork quality

Herds with higher mean haemoglobin levels in sows were found to have higher mean haemoglobin levels in piglets. Within herds, higher haemoglobin levels in sows were associated with higher haemoglobin levels in piglets. These results offer opportunities to target selection and intervention strategies to maintain adequate haemoglobin levels in sows with beneficial effects on haemoglobin levels in piglets.

A number of weight traits of the sow and the litter as well as litter size had negative associations with haemoglobin levels, indicating that a larger litter is associated with lower haemoglobin levels in piglets. Associations between the number of still-born piglets and haemoglobin levels were predominantly negative supporting the hypothesis that higher haemoglobin levels favour survival of piglets.

C.3.5 Project cost

APL provided \$248,528 in funding to this project. This was matched by a \$217,977 in-kind contribution from the University of New England and a \$198,100 in-kind contribution from breeders.

C.3.6 Value of potential benefits to industry

Improving selection for carcass quality using image analysis

Initially this project was to be conducted using an augmentation of PorkScan (which is currently used to measure muscle depth and back fat only, via ultrasound), a prototype light striping lean meat yield (LMY) system that was installed on the slaughter floor at the cooperating abattoir. However, significant technical issues experienced with the unit resulted in it not being used – hence the use of the live animal imaging system.

According to APL, further work is being undertaken with support from the Pork CRC to refine PorkScan, utilising off-the-shelf components to deliver the light striping component to industry at \$50,000-60,000 per unit. The system will enable lean meat yield (and saleable meat yield) of pig carcasses and key primals to be assessed at line spend (approximately 350 pigs per hour). APL estimates that it will take 5 years for the system to be fully developed, with expected development costs of approximately \$400,000. Further work by genetics companies to develop new breeding lines, estimated by APL to cost \$2 million over 5 years, will also be required.

Assuming that each of the top 20 producers in the country (which collectively account for about 50 per cent of all carcasses produced) operates a PorkScan unit, a price of \$55,000 per unit, an average machine lifespan of 5 years and operational (including maintenance) costs equal to 5 per cent of capital costs, the total capital and operational costs of the PorkScan machines would be approximately \$275,000 per annum.

The research project indicated that improved selection of pigs for breeding would generate an increase in the value of each carcass by \$15 (based on an assumed net return of \$0.21/kg HSCW at the farm gate and an average HSCW of 72 kg), by increasing the weight of the more valuable cuts relative to the less valuable ones. Over time, the increase in value would likely decline (to say, \$10) as the supply of the more valuable cuts increase relative to that of the less valuable cuts, thereby reducing their price differential.

Assuming that 4.8 million carcasses are produced each year and a 50 per cent adoption rate of the PorkScan LMY system among pig producers that is reached in 10 years' time, the industry-wide net benefits of the project would then be approximately 4.8 million x 50 per cent x \$10 - \$275,000 = \$23.6 million per annum. This result would only be achieved after development costs of \$2.4 million have been incurred by the Australian Pork Industry.

Use of haemoglobin to improve piglet survival, performance and pork quality

The research project is expected to facilitate selection and intervention strategies to maintain adequate haemoglobin levels in sows with beneficial effects on haemoglobin levels in piglets. It is expected to enable better selective breeding of sows with high haemoglobin levels.

A better understanding of haemoglobin levels in sows and piglets will lead to a reduction of the incidence of anaemia on farm with subsequent benefits for piglet survival and sow reproductive performance.

According to APL, the mortality rate of piglets is approximately 15 per cent and 30-50 per cent (say, an average of 40 per cent) of piglet deaths in the farrowing house are caused by overlays, that is, piglets being accidentally crushed to death by sows. APL estimates that maintaining sound haemoglobin levels in sows could reduce piglet overlays by 5-10 per cent (say, an average of 7.5 per cent) through improving piglet health and strength.

As approximately 4.8 million piglets survive to become growers and then finishers each year, it is estimated that there are approximately $4.8 \text{ million} \times (0.15 / (1 - 0.15)) = 850,000$ piglet deaths a year. Assuming an adoption rate of 50 per cent, maintaining sound haemoglobin levels in sows (and consequently, in piglets) is thus likely to prevent $50\% \times 7.5\% \times 40\% \times 850,000 = 12,750$ piglet deaths a year.

According to APL, producers value each live pig born at \$70-90 (say, an average of \$80). The value of piglet deaths avoided is therefore $\$80 \times 12,750 = \1.02 million per year.

As noted previously, the top 20 pig producers in the country account for 50 per cent of total production. Each of these producers have 3-4 sites on average and would need to have a HemoCue machine on each site. The total number of machines required is therefore 60-80 (say, 70).

A HemoCue machine that enables blood samples to be drawn from 1,210 sows per hour costs \$1,220, while a cuvette for holding a blood sample costs \$1.35. Assuming that each machine has a lifespan of 5 years and maintenance costs are equal to 5 per cent of capital costs, the total capital and maintenance costs of machines across the top 20 producers would be approximately $(\$1,220 / 5 + 5\% \times \$1,220) \times 70 = \$21,350$ per annum.

Australian Bureau of Statistics (ABS) data indicate that there are approximately 260,000 sows in Australia. The top 20 producers would therefore have approximately $50\% \times 260,000 = 130,000$ sows between them. On average, each sow produces 2.3 litters a year. Assuming that an average of 2.3 samples are drawn from a sow each year (that is, sampling once before each pregnancy), and that cuvettes are not re-used, the cost of consumables would be $\$1.35 \times 130,000 \times 2.3 = \$403,650$ per year.

The potential net benefits of the project to industry are therefore \$1.02 million - \$21,350 - \$403,650 = \$595,000 per annum.

C.4 Assessed value of Project 4

C.4.1 Project title

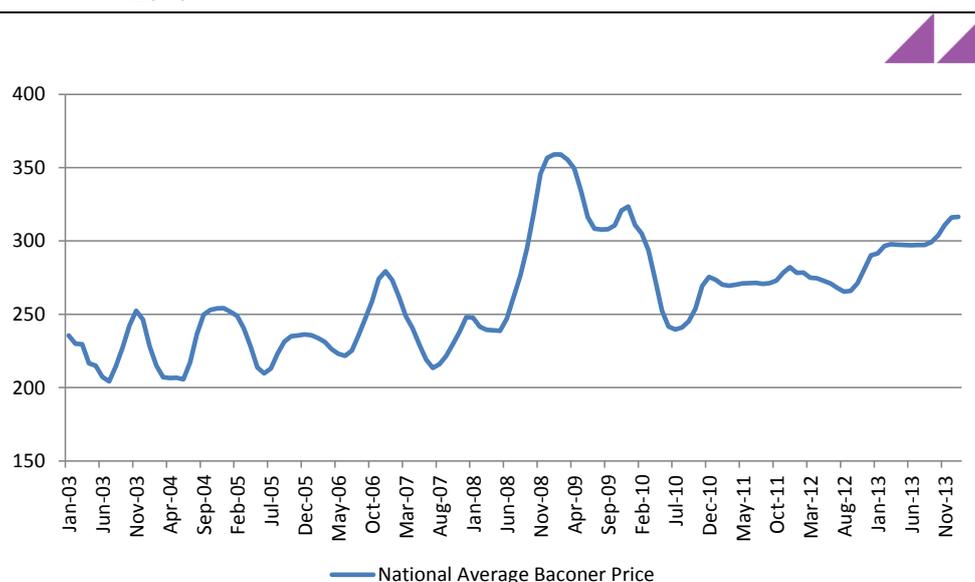
April 'Porkfest' marketing initiative

C.4.2 Objective of initiative

Most of Australia's pig herds breed and grow best in the cooler months, meaning that piglet batches born at the end of summer catch up in size with litters born a week or two earlier at the beginning of the colder months. Consequently, more pigs come into the market at around the month of April each year.

Until the industry profit crisis of 2007-2008 there was a pig price seasonality that had a low in July and a peak in December (see Figure C1). The crisis was followed by a period of short supply which drove up prices from mid-2008 to early-2010. It was agreed with APL Delegates, that if demand could be built in April each year, the deep low of price seasonality could be made less deep. This would increase annual average prices.

Figure C1 **Average monthly price of market pigs – June 2003 to November 2013**



Source: APL

As a result, PorkFest was conceived in 2011 as a largely retail initiative spanning late March to late April each year that encourages all retail channels to promote pork simultaneously through price and product promotions. In economics terms, the initiative was intended to shift the demand curve to the right.

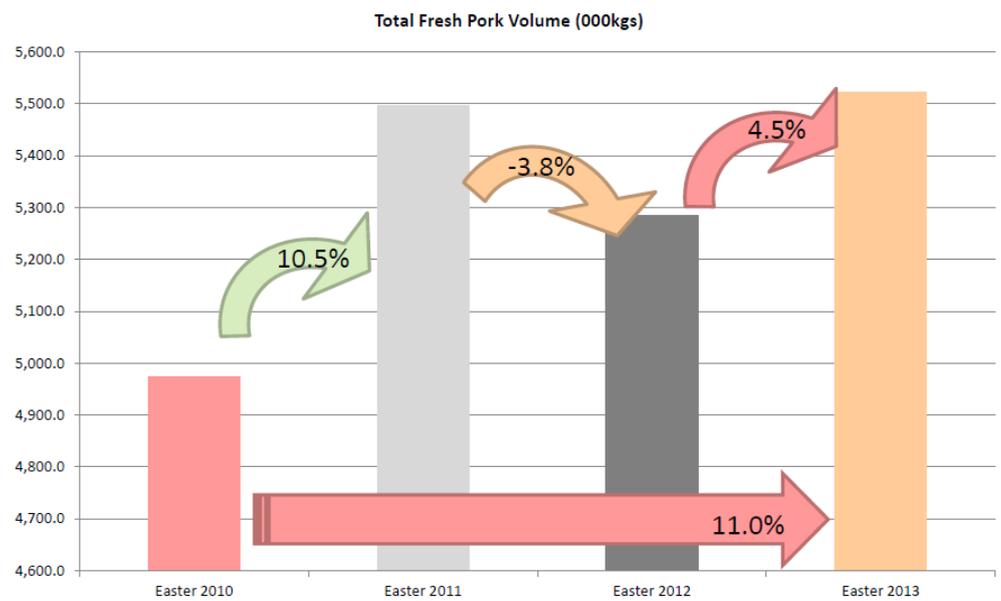
For each Porkfest, four special recipes are created by a well-known personality. For example, Porkfest 2011 featured recipes by Julie Goodwin, the inaugural winner of the Masterchef Australia TV program.

The costs of the Porkfest initiative in 2011, 2012 and 2013 were \$647,300, \$700,000 and \$350,000 respectively. The average cost of the initiative over the 3 years was therefore \$565,800 per year.

C.4.3 Results of initiative and benefits to industry

The increase in fresh pork volume between Easter 2010 (prior to the Porkfest initiative) and Easter 2013 is shown in Figure C2. Over the three years, the volume of fresh pork sold across Australia over a 5-week period around Easter (comprising the 4.5 week Porkfest period and 0.5 weeks post-Porkfest to account for any displacement effects, that is, a potential post-Porkfest sales slump) increased by 11.0 per cent from 4,980 tonnes to 5,520 tonnes.

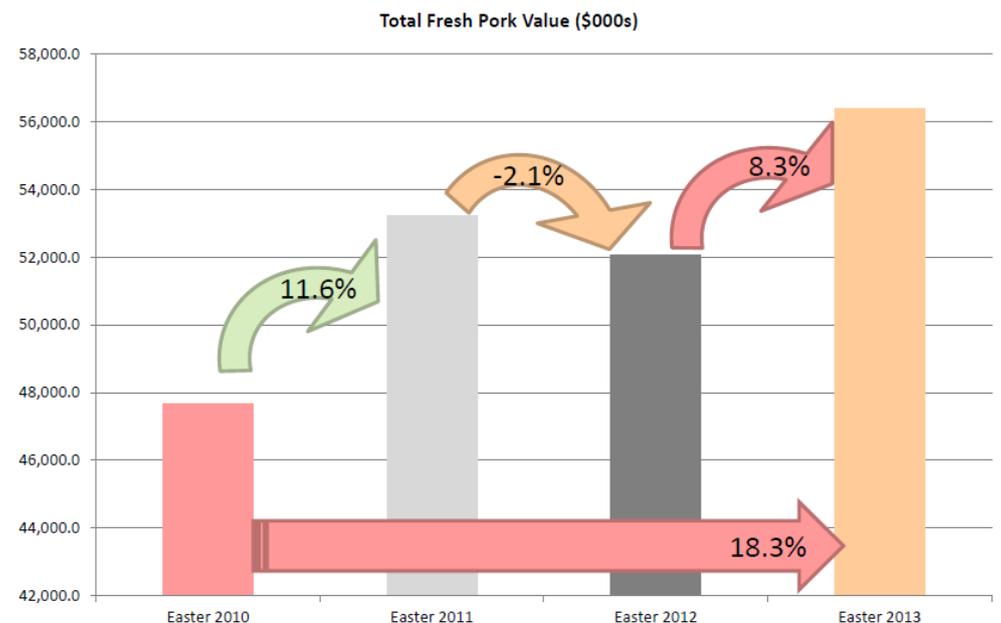
Figure C2 Fresh pork volume – Easter 2010 to Easter 2013



Source: APL

The increase in the value of fresh pork sold in Easter 2013 compared with Easter 2010 is shown in Figure C3. Over the three years, the value of fresh pork sold across Australia over the 5-week period increased by 18.3 per cent from \$47.7 million to \$56.2 million (an increase of approximately \$8.5 million). This reflects an increase in both the volume of pork sold as well as an increase in the unit price of pork.

Figure C3 Fresh pork sales – Easter 2010 to Easter 2013



Source: APL

According to APL, the marginal producer profit margin prior to the Porkfest initiative was approximately \$0.50 / kg (this represents national average gross profitability excluding interest, tax, depreciation, amortisation and fixed labour and corporate overheads). APL

data indicate that this has increased by \$0.07 / kg during the 5-week period surrounding Porkfest. This means that the benefits to producers over the 5-week period is approximately $\$0.57 / \text{kg} \times (5,520 - 4,980) \times 1,000 \text{ kg} + \$0.07 / \text{kg} \times 4,980 \times 1,000 \text{ kg} = \$307,800 + \$348,600 = \$656,400$. The first set of terms in the equation (before the addition sign) refers to the benefits from the increased sales volume while the second set of terms (after the addition sign) refers to the benefits from the increased margin on all sales during the 5-week period.

In addition, producers have agreed that the increased margin of \$0.07 / kg persists for another 4 months beyond the 5-week period (till early September). Assuming that 6,690 tonnes of fresh pork are sold each month for each of those 4 months, then the additional benefits of Porkfest beyond the 5-week period is approximately $4 \times 6,690 \times 1,000 \text{ kg} \times \$0.07 / \text{kg} = \$1.87 \text{ million}$.

The net benefit of the Porkfest initiative to the pork industry is therefore estimated to be $\$656,400 + \$1,870,000 - \$565,800 = \$1.96 \text{ million per annum}$.

Appendix D Documents reviewed but not cited

Table D1 Documents reviewed but not cited

Author	Month	Year	Title	Format	Privacy
APL		2010	Annual Operating Plan 2010-2011	PDF	External
APL	15 November	2011	Marketing Insights	PPT	Internal
APL	November	2010	Delegates Forum, Marketing Review	PPT	Internal
APL	November	2011	Marketing Past Performance Report	PPT	Internal
APL		2012	Board Performance Review 2012	PDF	Internal
APL	April	2014	Current Projects	Word	Internal
StollzNow Research	May	2010	Product Descriptor: Consumer acceptance of descriptions and terms	PDF	Internal
Colmar Brunton	June	2010	Project Welfare	PDF PPT	Internal
Piazza Research		2013	Industry Survey	PDF	Internal
APL			Terms of Reference: APL Board Audit Risk and Corporate Governance Committee	Word	Internal
APL	November	2013	Report on the Results of a Board Self-Appraisal Survey	Word	Internal
	December	2012	Board Manual	Word	Internal
APL			Code of Conduct for Directors	Word	Internal
APL		2012 (?)	APL Cost Allocation Policy and Procedures (Includes R&D Matching Claim Methodology)	Word	Internal
APL	6 June	2013	Letter: Re. Consent to Act as a Delegate	Word	Internal
APL		2011	Annual Operating Plan 2011-2012	Word	Internal
APL			Terms of Reference: APL Board HR and Remuneration Committee	Word	Internal
APL	January	2014	Intellectual Property Management Plan	Word	Internal
GA Research	June	2010	Producers and Delegates Research Report	Word	Internal
APL			Terms of Reference: Market Development Committee	Word	Internal
APL	26 February	2014	MDC Meeting Minutes	Word	Internal
APL			Terms of Reference: Quality Assurance and Animal Welfare Committee	Word	Internal
APL			Terms of Reference: Research and Development Advisory Committee	Word	Internal
APL	May	2013	Risk Management and Fraud	Word	Internal
APL	January	2014	Audit Committee Assessment	PDF	Internal
APL			R&D Advisory Committee Survey	PDF	Internal

Author	Month	Year	Title	Format	Privacy
APL		2011	Annual Report 2010-2011	PDF	External
APL		2012	Annual Report 2011-2012	PDF	External
APL		2013	Annual Report 2012-2013	PDF	External
APL			Membership Application	PDF	External
Commonwealth of Australia	28 April	2001	Pig Industry Ac 2001	PDF	External
APL and Pork CRC	December	2009	National Research, Development & Extension (R,D & E) Strategy	PDF	External
APL			DAFF Contract (Compliance Dates)	PDF	Internal
APL	30 June	2011	Statement of Income & Expenses to Reforecast (for the year ending 30 June 2011)	PDF XLS	Internal
APL	30 June	2012	Statement of Income & Expenses to Reforecast (for the year ending 30 June 2012)	XLS	Internal
APL	30 June	2013	Statement of Income & Expenses to Reforecast (for the year ending 30 June 2013)	XLS	Internal
APL	30 June	2011	Projects by Core Objective (for the year ending 30 June 2011)	XLS	Internal
APL	30 June	2012	Projects by Core Objective (for the year ending 30 June 2012)	XLS	Internal
APL	30 June	2013	Projects by Core Objective (for the year ending 30 June 2013)	XLS	Internal
APL	November	2010	Delegates Forum, Annual Conference and AGM	PDF	Internal
APL	May	2011	2011 APL Delegates Forum (May)	PDF	Internal
APL	November	2011	Delegates Forum, Annual Conference and AGM	PDF	Internal
APL	21 May	2009	Marketing Review (Delegate Forum)	PPT	Internal
APL	15 May	2012	Delegates Forum Survey	PDF	Internal
APL	15 November	2012	Delegates Forum Survey	PDF	Internal
APL	15 May	2013	Delegates Forum Survey	PDF	Internal
APL		2013	Communication Plan 2013-2014	PDF	Internal
APL		2013	2013 PorkFest Results	PPT	Internal
APL		2014	Marketing spend history	XLS	Internal
APL		2014	MDC – Pork Marketing Performance: Pre-reading (Supporting Facts)	PPT	Internal
APL			Objective, Scope and Approach (Selected Projects)	Word	Internal
APL	March	2014	Data: Price vs Slaughtering	XLS	Internal
APL	March	2014	Data: Retail Sales Conversion to Fresh Per Capita	XLS	Internal
APL	June	2013	Data: Return on Investment PorkFest	XLS	Internal
APL		2013	Specialist Group 1: Marketing, Supply Chain and Product Quality: 2013/14 Business Plan	Word	Internal

Author	Month	Year	Title	Format	Privacy
APL	November	2011	Motor Racing, Clairvoyance, Sentiment, Courage and Commitment – Are we up for it (presentation to Delegates Forum and AGM)	PPT PDF	Internal
APL	15 November	2011	Marketing Insights	PPT PDF	Internal
APL	November	2010	Delegates Forum: Marketing Review	PPT PDF	Internal
APL	November	2011	Marketing Past Performance Report	PPT PDF	Internal
APL	21 November	2013	Annual Conference: Marketing Choices	PPT PDF	Internal
APL	November	2012	Marketing Performance and Plans	PPT PDF	Internal
APL	February	2014	Marketing Performance Review: PorkMark	PDF	Internal
360m	December	2011	Media Coverage Report, July-December 2011	PPT PDF	Internal
Media Monitors	June	2011	Media Analysis Report (Quantitative with Advertising Space Rates)	PDF	Internal
iSENTIA	June	2013	Media Coverage Report, January-June 2013	PPT PDF	Internal
360m	June	2012	Media Coverage Report, January-June 2012	PPT PDF	Internal
360m	December	2012	Media Coverage Report, July-December 2012	PPT PDF	Internal
APL		2012	Membership Survey	PDF	Internal
APL		2012	Pan Pacific Pork Expo 2012 Delegate Evaluation	PDF	Internal
APL		2012	Pan Pacific Pork Expo 2012 Exhibitors	PDF	Internal
APL		2013	APL R&D Priorities for 2013-2014	PDF	Internal
APL		2013	Annual Operating Plan Summary 2013/2014	PDF	Internal
Piazza Research		2010	APL Industry Survey 2010	PDF	Internal
APL	November	2011	Constitution	PDF	Internal
Piazza Research		2011	APL Industry Survey 2011	PDF	Internal
Piazza Research		2012	APL Industry Survey 2012	PDF	Internal
SED Consulting	June	2011	Australian Pork Limited: Three-Year Performance Review	PDF	External
APL			Senior Management Structure	PDF	External
Rural Solutions SA	April	2010	Benchmarking On-farm Benefits of Adoption of ProHand Principles: Final Report (APL Project 2009/2330)	PDF	Internal
Jayce Morgan, NSW DPI		2010	R&D Snapshot: Increasing feed conversion efficiency by reducing the bridging effect in feed silos (APL Group Demonstration Award)	PDF	Internal
Prime Consulting International (Australia)	November	2010	A Review of Australian Regulations and Standards for the Handling and Treatment of Biogas: Final Report (APL Project 2010/1013.333)	PDF	Internal
Australian Animal Health Laboratory	December	2011	Testing the Antibody Response of Pigs to Foot-and-Mouth Disease Vaccines: Final Report (APL Project 2011/1039.405)	PDF	Internal

Author	Month	Year	Title	Format	Privacy
Ross Cutler & Associates/Charles Sturt University	April	2011	A better outcome for sick & compromised pigs: Final Report (APL Project 2010/4451)	PDF	Internal
The Department of Primary Industries (VIC)	March	2012	Distinguished Visitors Award – Professor John Deen to present at Bendigo producer seminar: “Reducing Piglet Mortality”: Final Report (APL Project 2011/2214)	PDF	Internal
Department of Agriculture, Fisheries and Forestry	April	2012	DVA – Prof John Deen & Dr John Carr to present at “Survivability – The Key to Success”: Final Report (APL Project 2011/2307)	PDF	Internal
The Department of Primary Industries (VIC)	November	2012	Distinguished Visitor Award – An Afternoon with Flemming Thorup: Final Report (APL Project 2012/2408)	PDF	Internal
Animal Welfare Science Centre	November	2011	DVA – Charlie Arnot to present at AWSC Seminar: Final Report (APL Project 2011/2203)	PDF	Internal
Graeme Pope	May	2012	DVA Group Housing and Management of Sows: Final Report (APL Project 2011/2308)	PDF	Internal
Department of Animal Health and Antimicrobial Strategies	July	2013	First Out To Ban Feed Additives In 1986 Veterinary Challenges Within Swedish Pig Production. Part I: Use Of Antimicrobials And Respiratory Diseases: Final Report (APL Project 2012/2413)	PDF	Internal
Department of Agriculture, Fisheries and Forestry	July	2013	PigBal 4 user manual Draft v 2.2 (APL Project 2010/1011.334 Validation and development of the PigBal model - Stage 2)	PDF	External
APL		2014	APL Specialist Group (2014/15)	PDF	Internal
Commonwealth of Australia and APL	12 July	2011	Statutory Funding Agreement, 2011-2015	PDF	Internal
APL		2010	Strategic Plan, 2010-2015	PDF	External
Western Research Institute	3 August	2012	Economic Impact Report: Pig production and pig meat processing in Australia, 2010-11	PDF	Internal
APL	3 April	2012	Media Release: Just when you thought the pork barrelling was over...	PDF	External
APL		2013	2013 PorkFest Results: Marketing Insights	PDF	Internal
APL	March	2014	Data: Marketing spend history	XLS	Internal
APL	April	2014	Responses to specific questions from ACIL Allen	PDF	Internal
TSW Analytical	6 June	2013	Investigation into the potential use of Trace Elements in the Traceability of Pork Offal and its relationship to the Pork Meat Physi-Trace Database (APL Project 2010-0001)	PDF	Internal
Rural Directions	May	2013	Demonstrating the Utilisation of Spent Eco-Shelter Bedding in Broadacre Cropping Systems: Final Report (APL Project 2010/1015.338)	PDF	Internal
APL and Rural Directions	17 April	2014	Project Milestone Payments: Demonstrating the Utilisation of Spent Eco-shelter bedding In Broadacre Cropping Systems (APL Project 2010/1015.338)	PDF	Internal

Author	Month	Year	Title	Format	Privacy
Animal Genetics and Breeding Unit (University of New England and NSW DPI)	June	2013	Development of selection criteria to improve carcase quality and use of haemoglobin levels in sows and piglets to improve piglet survival, performance and pork quality: Final Report (APL Project 1025)	PDF	Internal
NSW DPI	April	2013	Barriers to Adoption of new technology in the pork industry – a preliminary study: Final Report (APL Project 2012/1034)	PDF	Internal
APFoodIntegrity	January	2014	Review of Pork On-Farm HACCP Plan APIQ [✓] ®: Draft report (APL Project 2013/2128)	PDF	Internal
Victorian DPI			Measuring Adoption: Final Report (APL Project 2012/1015)	PDF	Internal
University of Melbourne and Monash University	June	2013	Metrics to Benchmark Stock Handling: Final Report (APL Project 2010/1022.362)	PDF	Internal
Ross Cutler and Associates and University of Sydney	May	2007	The Structure and Dynamics of the Pig Meat Industry	PDF	Internal
Source: ACIL Allen Consulting					