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# Understanding the pork industry

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This Primefact provides a brief overview of pork production in NSW with reference to the Australian and world pork industry. The major headings for this Primefact are:

- · Pork industry overview
- Legislation
- Production
- Processing
- Consumption
- · Imports and exports
- Profitability
- Research
- · NSW DPI and industry organisations
- Further information

# Pork industry overview

#### **Outlook**

- The pork industry is undergoing considerable change which threatens the survival of pork producers and support industries. However, understanding the reasons for change and developing a business plan will assist in positioning the business to take advantage of opportunities.
- The Australian pig meat industry has been under pressure since imports were first permitted from Canada and Denmark in the mid 1990s. This pressure will further increase as free trade agreements are established.
- Exports, mainly to Singapore and Japan, fluctuated over the 2005 year. Competition in these markets has become difficult for Australian exporters due to the increased value of the Australian dollar.

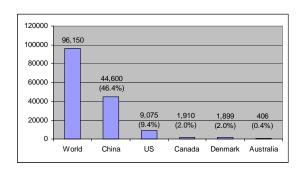


Figure 1. World pork production (tonnes × 1000) Source: APL, 2004

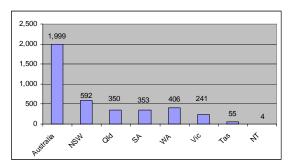


Figure 2. Australian pig breeding herds by state Source: ABS, 2004

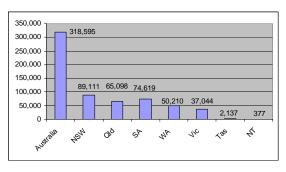


Figure 3. Australian sow numbers by state Source: ABS, 2004

 If the volume of imports continues to increase and exports decrease, the majority of processed meat in Australia will be from imported product. The main focus for the Australian pork industry will move to the production of fresh pork.

- Current cost competitiveness of the Australian pork production sector has declined due to a shift from a domestic focus to a global market. In recent years the average cost of production in Australia has been higher than for some of its major competitors. This is mainly due to higher feed and labour costs together with various forms of subsidisation and market protection in the global market. Also, extended droughts over recent years and the higher value of the Australian dollar have considerably reduced the competitiveness of Australian pig farms. Processing costs in Australia are also higher when compared to US plants with their greater economies of scale.
- During the next 10 years competitive pressures on the Australian pork industry are likely to intensify. World pork consumption is increasing, particularly in Central and South America, the Pacific Rim and in Central and Eastern Europe. Countries such as Canada, the United States and Brazil are increasing exports to meet this demand.
- There has been an increase in political pressure for trade liberalisation. Market access is guided by trade policy as well as veterinary and food safety controls. Exporting countries want a competitive edge, and importing countries aim for fair treatment of local producers.
- The global trend is to use grain for human consumption and biofuel production rather than animal production. Increasing amounts of world grain production will be diverted to ethanol production as world oil supplies decline after 2010. This will cause higher grain prices and a cost-price squeeze on industrialised animal production (feedlot cattle, pigs and poultry).

# Global pork production

- Pork is the most widely consumed form of animal protein, at around 40% of world meat consumption.
- International trade has increased at about 6% per annum over the last 5 years. The main growth in world pork production is occurring in China, Brazil, USA and Canada.
- The major importing countries of the world include Japan, Russia, USA, Mexico and Hong Kong.
- The major pork exporters include the European Union, Canada, USA and Brazil.
- Annual pig meat production in Australia is currently about 406 000 tonnes, which is about 0.4% of world production.

# Australian pork production

 Australia has about 2000 pork producers (see Figure 4) that supply approximately 5.6 million pigs annually. For 2002–03 the estimated gross value of production (GVP) was \$891m, an 8% decrease compared with 2001–02.

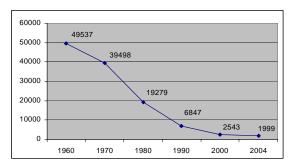


Figure 4. Australian pig holdings Source: ABS

- The total value of pork produced is about \$2.6 billion and it generates over \$1.1 billion in household income. In 2002 the pork industry directly generated approximately 6000 full-time jobs, with a further 33 863 jobs generated indirectly in other sectors of the national economy.
- Pork production in Australia is a relatively small component of agriculture. In 2002–03 it accounted for approximately 3% (\$0.9b) of the gross value of agricultural production, which was less than beef (\$6.4b), lamb and mutton (\$2b) and poultry (\$1.2b).
- Pig meat production from 1970–71 to 2002– 03 has increased by over 130%. This has been due to the increased herd size among the remaining pig producers, an increasing number of slaughtered pigs per sow and an increasing meat yield from carcases.
- A small number of large producers account for a large proportion of Australian pig production. In 2004, 3% of producers had over 1000 sows and accounted for over half the Australian breeding herd. About 24% of producers had more than 100 sows and accounted for nearly 90% of the sow herd. The average herd size in Australia is approximately 160 sows.

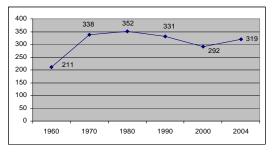


Figure 5. Australian sow herd ('000s) Source: ABS

 Approximately 40% of producers in Australia are specialists in pig production; however, the industry has a spread of small to large family operations and large corporate enterprises with vertically integrated businesses. The major pig-producing areas in Australia closely align with the grain-producing regions.

# **NSW** pork production

- NSW is the largest producer and exporter of pork and pork products in Australia, with a pork-value-chain impact of nearly \$1500m in 2002 with a further value adding of \$625m. This represents a farm gate value of \$266m and employment of nearly 8000 people in the total pork chain.
- There are approximately 500 commercial piggeries in NSW with about 90 000 sows. A regional breakdown of production is approximately 15% in the North Coast, 15% in the Tamworth, Gunnedah and Boggabri areas, 15% from the Dubbo, Forbes and Young areas, and 30% from the Corowa region (see Table 1).
- Changes in traditional agriculture and greater urban and environmental pressures have meant that production has moved away from coastal areas. Except for an area in the Richmond—Tweed, the majority of the pigs are raised in the inland grain-growing areas of NSW.

Table 1. NSW pig herd (ABS, 2002)

Sows & gilts
1 612
2 962
1 017
6 665
11 036
7 352
11 795
9 306
8 346
38 161
98 252

# Legislation

#### Local council and environment

When planning a new piggery or expanding an existing unit, it is important to first contact the planning department of your local council for information on how to lodge a development application (DA) under the *Environmental Planning and Assessment Act 1979*.

The National Environmental Guidelines for Piggeries can be found on the Australian Pork Limited (APL) website (under Issues watch / Environment). This provides a nationally agreed approach to the management of pig production in Australia to achieve environmental goals. Producers are required to demonstrate that they take every practicable step to minimise the likely impact that a piggery might have on its environment.

#### Stock identification and health

Rural Lands Protection Boards (RLPBs) play a key role in protecting rural lands in New South Wales. They deliver essential services to ratepayers and others in each district. They are the front line for the management of animal health, pest animal and insect control, travelling stock reserves, stock movement, stock identification and natural disaster relief.

The Stock Diseases Act 1923 requires pig producers to brand all pigs at 25 kg liveweight or above with a six-digit registered brand before sending pigs to an abattoir for slaughter or sale. Branding is required for identification and traceback of stock in the event of a disease outbreak. Registered brands are controlled by the RLPB.

Arrangements can be made with the abattoir for the slaughter of pigs for private use, that is, pigs that are not for sale into the food chain.

# Swill feeding

The Stock Diseases Act bans the feeding of swill to pigs. Swill includes uncooked feed scraps containing meat or meat products. Swill feeding is banned to protect Australian livestock industries from outbreaks of exotic diseases, particularly foot and mouth disease.

# Welfare

NSW uses the Australian Model Code of Practice for the Welfare of Animals—Pigs, which has been adopted in regulations under the Prevention of Cruelty to Animals Act 1979. A breach of the national code is not an offence; however, if it causes suffering to pigs, it may be an offence under the Act.

#### Residues

The National Residue Survey (NRS) is the authority responsible for residue surveys and testing and the development of residue prevention programs. Pork is monitored to determine whether any residues that may be harmful, for example organochlorines, are present. When set limits are exceeded, authorities can take corrective action.

# Occupational health and safety (OH&S)

Pig producers are required to comply with the NSW Occupational Health and Safety Act 2000 and the OH&S Regulation 2001. Producers in NSW must develop and implement safe work procedures on-farm to minimise the risk and impact of workplace accidents.

The onus is on every business to demonstrate that they have developed an appropriate safe workplace and that they have met their legal obligations under the OH&S Act.

Currently in NSW, workers compensation premiums are paid to licensed insurers who administer policies on behalf of WorkCover. Premiums are based on a percentage of the total wages bill. In the farming sector, it is approximately 12% of total salaries plus levies, plus claims experienced over a 3 year period for individual businesses.

To assist with the development of an OH&S plan, APL has a Workplace Health & Safety System on CD-ROM. This will assist producers in developing policies and procedures for their enterprise.

#### **Production**

#### **Breeding**

Large White and Landrace are the most popular pure breeds in Australia. Several breeding companies in Australia supply F1 cross females and terminal sire lines.

In the past, genetic improvement was achieved through the use of on-farm performance testing using a selection index. By the 1980s, boar test stations accelerated the spread of superior stock through the industry.

PIGBLUP (Best Linear Unbiased Prediction) is a software program that allows higher rates of genetic gain. Comparisons of pigs can be made over time, and between herds and management systems. There are 10 herds currently on the PIGBLUP program and they supply about 80% of breeding stock to the industry.

The Animal Genetics and Breeding Unit (AGBU) at the University of New England in Armidale uses the National Pig Improvement Program (NPIP) for the genetic evaluation of pigs. This program uses PIGBLUP to provide across-herd estimated breeding values (EBVs) for participating herds. EBVs are derived from pedigree and performance data available from herd recording systems for a number of performance and reproductive traits.

#### Feeding

Feed is a major component of a pig producer's total costs. Common sources of feed include

grains (wheat, barley, sorghum and oats) and protein meals (meatmeal, canola meal and soybean meal).

In an average season, feed costs are 55% to 60% of overall production costs. This can increase to 70% during drought periods. A small change in feed/grain price will significantly alter production costs.

It is estimated that 70% of pig feed in NSW is supplied by commercial feed millers, and diets are formulated to least cost using computer programs.

The industry also has access to AUSPIG, a decision support software system. This program brings together a range of factors affecting the profitability of pig production such as pig type, feed, piggery environment, market prices, labour, capital and other resources. It enables the user to put in place more profitable pig management strategies.

AUSPIG helps with decisions on:

- · feed ingredients and diet formulation;
- · feeding levels;
- the use of capital, labour and other resources;
- · weight and quality of carcase to sell;
- modification of climatic and other housing conditions.

Australian grain prices are determined by export parity prices. Australia is a net exporter of wheat. Therefore, the opportunity cost of selling wheat on the domestic market is export parity. Domestic prices move towards export prices. Other grain prices are broadly benchmarked against wheat. However, during a drought, short grain supplies lead to domestic prices increasing above export parity prices.

Feed grain prices have been highly volatile over recent years due to drought, quarantine regulations for grain importation, lack of a dedicated feed grain market, and limitations to the use of alternative feedstuffs.

Feed costs are dependent on grain prices, which are very volatile, and protein prices, which are more stable. Budgets should allow for a feed price variation of at least 20% around average prices. Also, as droughts are the key driver of high feed prices, contingency finance should be available in the event of continued dry conditions.

The global trend is to use grain for human consumption and biofuel production rather than animal production. Increasing amounts of world grain production will be diverted to ethanol production as world oil supplies decline after 2010. This will cause higher grain prices and a cost-price squeeze on industrialised animal production (feedlot cattle, pigs and poultry).

### Housing

Traditional production methods involve housing pigs on concrete-floored pens with drains. More recently, pigs are being housed in deep-litter systems. There are also a few smaller specialised extensive systems.

Establishment of a new commercial piggery can cost \$4500 to \$5000 per sow place. Further funds will be required to stock the facility and it is likely that no income will be received for 8–12 months.

Low-cost-housing opportunities include strawbased deep-litter housing. Construction costs can be reduced by 60% to 70% when compared with conventional intensive pig housing. Hence, expansion in the industry over recent years has been based on this housing system.

Production systems for pig farms are best designed prior to construction of facilities to avoid costly alterations. There are many technologies such as multisite production, early weaning, batch farrowing, artificial insemination and 'all-in, all-out' housing that require consideration prior to designing a production system.

# **Contract growing**

Some farms specialise in either breeding or growing out pigs under contracts. In 2004, Victoria had 153 contract growers, compared with 145 in New South Wales, 116 in Queensland, 80 in South Australia, 34 in Western Australia and 7 in Tasmania.

Contract growing has the advantages of lower start-up costs and the security of using existing production/management systems with assistance from an established operator. A contract grower provides housing, labour and management for an agreed number of weaner/grower/finisher pigs for an agreed period. The supplier provides the pigs, feed and veterinary and management support and maintains ownership of the pigs.

Contract growers are generally paid a price per head per day and may receive bonuses or penalties depending on feed use efficiency, carcase quality or a range of other measurements.

# Management

Effective management is one of the key factors in the operation of all piggeries. There are many tools available to assist managers with planning, organising, developing, supervising and leading businesses to achieve profitability and viability in the long term.

#### Health

In 2001, it was estimated that direct animal health costs averaged about \$8 per pig produced. Many key diseases could be eradicated with the introduction of 'all-in, all-out' and multisite rearing. However, this is not always practical, and continuous production is the common management practice but this may not be sustainable in the long term.

The threat of antibiotic resistance in public health is driving changes to the availability of antibiotics to livestock industries. Therefore, the pig industry is investigating alternative strategies to replace those antibiotics that are being phased out. These include the use of vaccination, probiotics and different management systems.

#### Welfare

Animal welfare is becoming an increasing concern to the pork industry as there is a delicate balance between animal welfare, food safety and productivity. Australian Pork Limited (APL) has developed a general animal welfare policy which outlines their position on animal husbandry practices based on science, consultation with industry and the community as well as education.

Current research includes looking at alternatives to dry sow stalls and farrowing crates.

Considerable work has been focused on housing systems using a combination of conventional stalls or crates with deep-litter-based systems for groups of sows.

#### **Quality assurance**

In 1997, the Australian Pork Industry Quality Program (APIQ) was introduced to signal to domestic and export markets that the Australian pork industry is committed to consistently providing a safe, wholesome product.

APIQ is administered by Australian Pork Limited (APL) and is Australia's main quality assurance program for pork producers. It covers food safety, biosecurity and animal welfare.

The APIQ program is based on the Hazard Analysis Critical Control Point (HACCP) system, an internationally recognised approach to risk management, and is widely used to ensure product quality. It assists producers to identify potential risks in their own operations and to determine measures to control or eliminate them. Once these hazards are identified, they are monitored and controlled through the establishment of standard operating procedures and records.

# **Biosecurity**

APL has also developed Porksafe, a crisis management plan and structure to handle any potential or actual emergencies that may arise within the industry.

The APL biosecurity program, Porksafe, and the APIQ program help to safeguard the pork industry's health status, pork meat quality, production, and domestic and international trade. These programs will also aid a rapid and effective response to emergency disease outbreak that may impact on the industry.

#### Labour

The Australian pork industry has experienced ongoing difficulties with the employment of sufficient, experienced, piggery staff. Detailed information, and training and education of staff can be obtained from the National Centre for Pork Industry Training and Education: http://www.nationalporkcentre.com.au

# **Transport**

Transport costs in Australia are relatively high when compared with Europe or North America. There are higher transport distances, higher fuel costs and smaller load frequencies for domestic distribution. Piggeries that are in close proximity to processing plants have a distinct advantage.

Australia has an inefficient and costly grain handling and transport system compared with its competitors. This has led to most commercial piggeries being located within close proximity to grain belts.

#### Marketing

Pig prices in Australia appear to have a close relationship with world pig prices, particularly those in the United States, Canada and Denmark. Historically, pig prices have followed a seasonal pattern, falling through the first half of the year, then rising to a peak in November and December as manufacturers increase demand for Christmas consumption. However, the increase in imported pigmeat has evened out this seasonal pattern, with little increase prior to Christmas.

To maintain viability, producers must strive to reduce their cost of production and continue to seek stable markets, preferably with long-term contracts. Primefact 66 Pork—cost of production details the impact that cost of production has on profitability.

Market news for the Australian pork industry can be obtained from the APL website.

# Slaughter weights

The slide in slaughter weights that started to occur in 2002 and which continues to trend downwards is an indication that imports are replacing pigs destined for the processing trade and that export markets are tightening. This tends to indicate that more pigs are being directed into the local fresh pork market. The current average carcase weight is about 73 kg.

# **Processing**

# Pork supply chain

In the pork supply chain, pork producers forward pigs to abattoirs for processing. Approximately 40% of product is processed for fresh meat and about 60% is transferred for further manufacture. Pork is distributed for:

- fresh product to domestic retailers/ wholesalers:
- domestic manufacturing, for example ham, bacon and smallgoods;
- · export.

Manufactured pig meat can also be exported. Imported pig meat includes products such as canned pig meat or pig meat for manufacturing.

Ownership mostly changes at slaughter, with payment based on the hot standard dressed carcase weight. To receive the best premiums, carcases must be within a tightly specified weight and fat level. In some cases, abattoirs kill pigs under contract for producers who on-sell the processed pig meat.

The average slaughter weight in Australia of 73 kg is lower than that in other major producing nations such as Canada (85 kg), the United States (88 kg), China (78 kg), Denmark (78 kg) and Poland (87 kg).

Approximately 90% of pigs are sold by direct consignment and about 4% to 5% of pigs are sold through saleyards. Porkers are lighter pigs generally used for fresh pork, while baconer pigs are heavier and are used for the manufacture of bacon, ham and smallgoods.

# **Abattoirs**

The map of NSW in Figure 6 shows the location of abattoirs and slaughterhouses for pigs. Abattoirs at Booyong, Young and Corowa hold export licences.

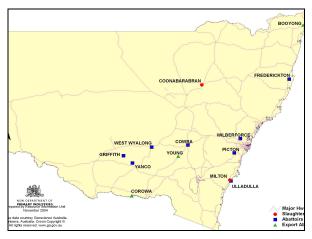


Figure 6. Abattoirs and slaughterhouses for pigs in NSW

Source: NSW DPI, 2004

The main products of pigmeat processing are primal cuts of shoulders, middles and legs. Fresh offal, including pig heart, kidney, tongue and liver, are also sold for human consumption. Occasionally offal is used as an ingredient in some manufactured meat products.

By-products are sold for pet food, rendering, blood meal, and hide and skin manufacturing. Other potential pig products include biological derivatives for use in pharmaceuticals.

# Consumption

The Australian per capita pork consumption has been steadily increasing over the past few years to 22.4 kg per year in 2004. This compares with 25.2 kg in the UK and 31.5 kg in the US. The country with the highest consumption is Denmark at 75.8 kg per capita.

# Imports and exports

Australian imports and exports have been affected by disease outbreaks in other countries, reduced quarantine barriers in Australia, and fluctuations in exchange rates. Imports were first permitted from Canada and Denmark in the mid 1990s. Canada supplies mainly legs and Denmark supplies mainly middles. More recently, imports have also arrived from the United States. In May 2005 the monthly import volume increased to 10 323 tonnes. However, the January 2006 figures declined to 6500 tonnes due to limited availability of chiller storage space and uncertainty about import regulations.

In December 2005 Australia exported 3600 tonnes of pork. Per kilo returns for Australian pork exports have progressively decreased since the start of 2003. This trend is mainly due to the drop in volumes of higher valued chilled pork cuts to Japan, while exports of lower valued cuts to New Zealand have increased.

# **Profitability**

Prior to 1990, the pig industry was domestically focused and protected from imports. In 1990, a revision of import regulations resulted in imports of pig meat being able to enter Australia for the first time. Since then, the increasing imports, drought and an appreciating Australian dollar have decreased profitability resulting in many producers leaving the industry.

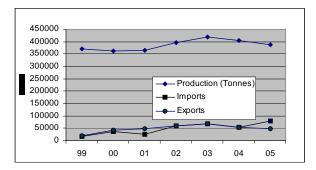


Figure 7. Pork production with imports and exports (tonnes) Source: APL

# Research

NSW Department of Primary Industries conducts research within the pork industry and is closely aligned with the APL Strategic Plan. Priorities are set through consultation with APL and major industry stakeholders and end users.

The major pig research capabilities at Elizabeth Macarthur Agricultural Institute (EMAI), Camden, include real-time assessment of growth, feed intake, lung lesions and body composition using computer tomography imaging. Current projects include:

- 'Characterisation of current pig genotypes for inclusion in AUSPIG'
- 'Quantifying the impact of pneumonia for AUSPIG'.

Also, veterinary laboratories at EMAI provide a diagnostic resource for the NSW pig industry for a wide range of pneumonic, enteric and viral diseases.

**NSW Department of Primary Industries** researchers are also in the new Pork Cooperative Research Centre (CRC) for an Internationally Competitive Pork Industry. The new CRC is a whole-of-industry venture based at the University of Adelaide's Roseworthy Campus. Key elements of the Pork CRC research program include feed grain quality and supply, efficient feed conversion, pork product enhancement and capacity building in the pork industry.

# NSW DPI and industry organisations

NSW Department of Primary Industries (NSW DPI) Intensive Livestock group provides advisory and education services and practical production solutions for profitable intensive livestock industries. The management of this group can be contacted at their head office in Orange on (02) 6391 3100.

Australian Pork Limited (APL) is the national representative body for Australian pig producers. Its main funding, marketing, research and development is from statutory pig slaughter levies collected under the *Primary Industry* (Excise) Levies Act 1999.

**NSW Farmers' Association** has a pork subcommittee which assists the pork industry through political lobbying, member discounts, involvement in industry meetings and providing producer contacts.

#### **Further information**

Australian Pork Limited (APL) is a producerowned not-for-profit company combining marketing, export development, research, innovation and strategic policy development to assist in securing a profitable and sustainable future for the Australian pork industry. Resources and contacts are listed on their website:

http://www.australianpork.com.au or they can be contacted on 1800 789 099.

NSW Farmers' Association's NSW Pork Committee have resources and contacts listed on their website:

http://www.nswfarmers.org.au/pig or they can be contacted on 02 8251 1700.

Queensland Department of Primary Industries and Fisheries (QDPI&F) have a large range of fact sheets available on their website, and their <u>PigTech notes</u> can be obtained on CD.

A number of pig-specific magazines and newspapers also exist, including:

- Australian Pork Newspaper, (07) 3286 1833
- The Pork Producer, (07) 4690 9253
- Pork Journal, (02) 9798 3078
- Pig Industry News, (08) 8372 5222

Suggested sources for information on specific topics are listed below. (For NSW DPI publications on pigs, see http://www.agric.nsw.gov.au/reader/pigs)

#### Housing and environment

- National Environmental Guidelines for Piggeries (APL)
- Getting started in pigs in NSW (NSW DPI)

- Plan it—build it (NSW DPI)
- Effluent at work (NSW DPI)
- Alternative farrowing accommodation for the pork industry (Primefact 61, NSW DPI)
- National pig contracting book (APL)
- Deep-litter housing for pigs (Primefact 68, NSW DPI)

#### Welfare

- Animal welfare legislation (NSW DPI)
- National codes: Model Codes of Practice for the Welfare of Animals—Pigs, and Land Transport of Pigs (CSIRO)
- Australian Pork Limited (APL)
- NSW DPI Animal Welfare Unit

# Industry benchmarks

- Pig Stats (APL)
- Australian pig annual (APL)

#### **Breeding**

- PIGBLUP (Animal Genetics and Breeding Unit (AGBU), Armidale)
- National Pig Improvement Program (AGBU)
- The Australian Pig Breeders Association
- South Australia Artificial Breeding Centre (SABOR)
- · Cefn Genetics
- Pig Improvement Company Australia (PIC)
- Hyfarm Pty Ltd
- Breeds of pigs: Large White (Primefact 62, NSW DPI)
- Breeds of pigs: Landrace (Primefact 63, NSW DPI)
- Breeds of pigs: Duroc (Primefact 64, NSW DPI)

#### **Feedina**

• AUSPIG (CSIRO)

#### Management

- Basic pig husbandry—the boar (Primefact 69, NSW DPI)
- Basic pig husbandry—gilts and sows (Primefact 70, NSW DPI)
- Basic pig husbandry—the litter (Primefact 71, NSW DPI)
- Basic pig husbandry—the weaner (Primefact 72, NSW DPI)
- Basic pig husbandry—grower herd (Primefact 73, NSW DPI)
- Farrowing kit (APL)
- Mating and reproduction (APL)
- Segregated early weaning manual (APL)
- The manager's toolbox (APL)
- Weaning to sale kit (APL)

- Batch farrowing and production manual & spreadsheet (APL)
- Batch farrowing planner (NSW DPI)

#### Health

- Avian influenza (NSW DPI)
- Porcine myocarditis (NSW DPI)
- Ante-mortem inspection of pigs (APL)
- Control and eradication of leptospirosis (APL)
- Eradicating diseases of pigs (APL)
- Pathology of the pig (APL)
- The good health manual (APL)

#### Profit

- Gross margin budgets for pig enterprises (software) (NSW DPI)
- Pork—cost of production (Primefact 66, NSW DPI)
- Pork cost of production (software calculator) (NSW DPI)
- Pig performance recording system (NSW DPI)

#### Market

- Market weight variation in the pork industry (Primefact 65, NSW DPI)
- Eyes & ears (APL)
- · National Livestock Reporting Service

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Disclaimer: The information contained in this publication is based on knowledge and understanding at the time of writing (April 2006). However, because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up to date and to check currency of the information with the appropriate officer of New South Wales Department of Primary Industries or the user's independent adviser.