AUSTRALIAN PORK LIMITED

SUBMISSION

Inquiry into the progress in the implementation of the recommendations of the 1999 JETACAR

19 February 2013

Australian Pork Limited (APL) welcomes the opportunity to comment on the inquiry into the progress in the implementation of the recommendations of the 1999 Joint Expert Technical Advisory Committee on Antibiotic Resistance (JETACAR).

2 APL is the national representative body for Australian pig producers. It is a producer-owned, not-for-profit company combining marketing, export development, research & innovation and policy development to assist in securing a profitable and sustainable future for the Australian pork industry. APL works in close association with key industry and government stakeholders.

3 APL has taken on board the JETACAR recommendations, and where possible has invested significantly in their implementation. Our industry has taken these recommendations for guidance for working with, and advising industry stakeholders on, appropriate antibiotic usage regimes.

4 APL's submission to this inquiry is confined to the JETACAR recommendations 1, 2, 6, 12, 13, 18 and 20, which we address in turn.

Recommendation 1

That Australia adopt a conservative approach to minimise the use of antibiotics in humans and animals and, to further this policy, that in-feed antibiotics used in food-producing animals for growth promotant purposes, or other routine uses where duration and dose level are the same, or very similar, should not be used unless they:

- are of demonstrable efficacy in livestock production under Australian farming conditions; and
- are rarely or never used as systemic therapeutic agents in humans or animals, or are not considered critical therapy for human use; and
- are not likely to impair the efficacy of any other prescribed therapeutic antibiotic or antibiotics for animal or human infections through the development of resistant strains of organisms.

5 APL supports this recommendation in principle, noting that since the report was handed down, no evidence has emerged showing that antibiotic effectiveness in humans has been undermined as a result of any antibiotic prescribed in the pork industry.

6 Antibiotics are not used in the Australian pork industry for growth promotant purposes. Antibiotics are only used for either prophylactic use (to prevent a disease from occurring) or therapeutic use (to treat a disease once it has occurred). For this reason, antibiotic usage in the Australian pig herd is markedly less than many of our international trading partners, including the USA, Japan, Spain and many other industrialised nations.

7 APL continues to fund research into issues of antibiotic resistance, and also surveillance of antibiotic resistance, in order to reduce the industry's reliance on antibiotics. The requirements of the industry's quality assurance scheme (APIQ✓®) also entail producers meeting minimum standards with respect to antibiotics.

8 The industry, through APL, has funded a range of projects addressing the issue of antimicrobial resistance. This is also a specific objective of the CRC for High Integrity Australian Pork (HIAP CRC). Details of the HIAP CRC's Herd Health Management Research Program are elaborated further under Recommendation 13. Since 2004, the pork industry has invested more than $10 million in research addressing this issue (a list of these APL and HIAP CRC projects can be found in Appendix 1). These projects have been funded, as, on the whole, Australian pork producers see the use of antibiotics for growth promotion as unacceptable.

Recommendation 2

That the National Registration Authority (NRA) reviews the use of antibiotic growth promotants currently registered in Australia that do not appear to fulfil the criteria listed in

Recommendation 1 in terms of their impact on human and animal health, using a risk analysis approach, including a cost-benefit analysis. The priority determined should be consistent with recent international reviews and use the conditions outlined in Recommendations 1 and 4.

It is recommended that the priority of the review at this stage be:

1. glycopeptides (avoparcin is currently under review by NRA)
2. streptogramins (virginiamycin)
3. macrolides (tylosin, kitasamycin, oleandomycin)

This review is to be completed and outcomes acted upon within three years. Growth promotant claims of such antibiotics that do not pass the review process should be phased out of use within one year subject to consultation with relevant stakeholders.

It is also recommended that the NRA should review the prophylactic use of avoparcin and virginiamycin in animals and the possible public health impact of this use using the parameters outlined in Recommendation 4.

In order that the reviews are performed in a timely manner, it is further recommended that the federal ministers of health and agriculture ensure an adequate allocation of resources to the NRA to facilitate the rapid completion of the task and implementation of changes.

9 As stated previously, antibiotics are not used at sub-therapeutic levels as growth promotants in the Australian pork industry. Only antibiotics which are not critically important to humans are used. There are currently no registered products containing avoparcin in Australia and avoparcin is not used in any Australian pig herd. Virginiamycin is not registered for use in pigs and moreover has not been prescribed for off-label use. Of the macrolides, tylosin is used, but not widely, and kitamycin is even less widely used; both to control some enteric diseases. Oleandomycin is not not registered for use in pigs.

10 A recent APL project focused on antibiotic usage in the pig industry and its influence on antimicrobial resistance in porcine pathogenic and commensal Escherichia coli isolates. This Australia-wide, transparent survey involved the majority of Australia's specialist pig veterinarians, was both comprehensive and confidential, and confirmed that resistance in broad spectrum cephalosporins such as ceftiofur is currently at negligible levels within the pig industry i.e. there is widespread reliance on other drugs, rated to be of low importance in the context of human health. This project has also shown that Australian pigs do not carry plasmid-mediated E. coli resistance genes of public health significance.

11 It is the aim of the Australian pork industry to minimise the use of antibiotics through vaccines and better management of the animal. Prudent antibiotic usage for both humans and animals is the key to ensuring that development of resistance in certain bacterial populations in both groups will not occur.

Recommendation 6

That all antibiotics for use in humans and animals (including fish) be classified as S4 (prescription only).

12 APL agrees with this recommendation and supports the control of antibiotic access through veterinarians and doctors (as appropriate). APL acknowledges the important role of veterinarians in their choice of prescriptions and routinely encourages all pig producers to maintain regular contact with a vet. Indeed, 97% of Australian pig production is regularly seen by a vet as a requirement of the Australian Pork Industry Quality Assurance Program (APIQ).

13 The Australian Pesticides and Veterinary Medicines Authority (APVMA) is responsible for the assessment and registration of pesticides and veterinary medicines and for their regulation up to and including the point of retail sale. Their role is to independently evaluate the safety and performance of chemical products intended for sale, making sure that the health and safety of people, animals and the environment are protected. Only products that meet these high standards are allowed to be supplied. The APVMA will not register products if their use is likely to jeopardise trade or they don't work.

14 APL does not promote or endorse the use of antibiotics as growth promotants. Moreover, industry is committed to utilising alternatives to antibiotics such as vaccines. APL believes industry endeavours in this regards are being stifled by what is typically a protracted registration process experienced by a number of companies that wish to import efficacious and safe vaccines. APL would urge the APVMA to rationalize the registration process for imported vaccines.

15 In the Australian pork industry, control of antibiotics on farm is handled through herd health programs, supported by Standard Operating Procedures and competent staff. The states regulate competency requirements for staff as described in the Model Code of Practice for the Welfare of Pigs (2007). All APIQ✓®-certified herds (see Recommendation 12) must have a Herd Health Plan, which for large holders is developed in consultation with a veterinarian. This is also a requirement regulated by each state. Additionally, APIQ✓® herds must also have an Approved Medications List (AML) signed, by a veterinarian The AML must:

- describe clinical signs of diseases and the medications to use,
- any in-feed medications used, and
- dose rate to apply and if label or off-label use.

16 Approximately 87% of Australian pork production is covered by the APIQ✓® quality assurance program. APL continues to promote uptake of this program and enthusiastically welcomes any support from governments in further promoting uptake. We aim to see all commercial Australian production covered by this program and see benefits with respect to this issue and other issues as industry moves closer to this goal. The APIQ✓® program is described in more detail below, in our response to Recommendation 12.

Recommendation 12

> That 'hazard analysis critical control points' (HACCP)-based food safety procedures be implemented as a means of reducing the contamination of food products with foodborne organisms, including antibiotic-resistant organisms and that these programs also address on-farm infection control.

17 APL has built a quality assurance program around HACCP principles which, as mentioned previously, accounts for 87% of Australian production. APL invests significant resources in promoting the uptake of Australian Pork Industry Quality Assurance Program (APIQ✓®).

18 APIQ✓® is an on-farm quality assurance program, based on managing farm through using the HACCP principles. APIQ✓® is designed to assist producers identify and manage risks in their piggeries and provides tools, such as Piggery Management Manuals, diaries, standard operating procedures and recording systems. Importantly, producers must show how they meet the principles of HACCP which are relevant to their piggery using the Critical Control Points analysis provided in the APIQ✓® Reference Manual.

19 The APIQ✓® program includes standards on farm management, animal welfare, food safety, biosecurity and traceability. APIQ✓® certified farms are audited annually by an external auditor, and must also complete their own annual internal audits. All certifications are approved by APIQ✓® Management (APIQM). A list of APIQ✓® management standards, as well as other relevant standards, is provided in Appendix 2.

20 As part of the pork industry's PigPass National Vendor Declaration (NVD) system, which accompanies pigs to slaughter, there are specific withholding periods stated on the NVD regarding use of chemical substances within the farm. This clearly sets out the required time animals need to be withheld from slaughter before they are classified safe to enter the food chain. The PigPass is a Statutory Declaration any incorrect information on this document is an offence under the law.

21 The Department of Agriculture Fisheries and Forestry (DAFF) Biosecurity also administers the National Residue Survey where pig carcases are sampled at random to ensure that veterinary medical (whether prescribed or not), pesticide residues or environmental contaminants enter the food chain. The Australian pork industry participates in and allocates funds this survey to meet requirements for market access and satisfy obligations under the Australian Standards for domestic markets.

Recommendation 13

That where the intensive animal industries (such as meat chicken, pig, feedlot cattle and aquaculture) currently depend on the use of antibiotics to improve feed conversion and prevent and treat disease, cost-effective nonantibiotic methods to increase productivity and prevent disease should be developed by these industries. In relation to this, it is further recommended that the federal ministers of health and agriculture explore additional funding alternatives for this work, taking into account the current efforts of the animal industry research and development organisations.

22 The HIAP CRC's Program 2, "Herd Health Management" focuses on the reduction of antibiotic usage. This research program will involve new and novel diagnostic tools to monitor enteric and respiratory pathogen loads in production units and better characterisation and understanding of the virulence genes which cause disease. These technologies and information will enable the development of new strategies which will include new quantitative genetic methodology and the strategic use of genomics to identify and develop robust genetic lines more resilient to environmental constraints, including disease. The aim of the program is to enhance animal health, while reducing routine antibiotic use in commercial pork production. This research program is comprised of the following subprograms (overleaf):

Subprogram 2A: Novel Disease Diagnostics

Novel Disease Diagnostics will involve the refinement of quantitative PCR and other diagnostic tools developed for enteric pathogens in the current Pork CRC and investment with the University of Melbourne on the development of PCR analysis of respiratory pathogen loads. Non-specific measures can be used to identify acute changes in herd health in real time and in combination with these, new cost-effective diagnostics will be developed for diseases such as Rotavirus and Corona virus. Conventional diagnostics which fail to separate causal and non causal subtypes in enteric organisms such as *E. coli* and Salmonella also require improvement.

Subprogram 2B: Healthy, Robust Pig Genotypes

Healthy, Robust Pig Genotypes will arise from selection strategies that focus on welfare and health status of highly productive pigs across multiple commercial grow-out systems with varying environmental stressors, with the development of new selection criteria, statistical methodology and molecular, genetic strategies to improve disease resilience and robustness in current Australian genotypes. Collaborative research programs with Iowa State University and INRA (through AGBU) both of whom have unique selection lines (for immune responsiveness and disease tolerance) and expertise in strategic genomics will be integral in this program.

Subprogram 2C: Replacement of Antibiotics with Effective Integrated Health Strategies

Replacement of Antibiotics with Effective Integrated Health Strategies will allow reduction in expenditure on therapeutics while maintaining or enhancing production efficiency. This approach also reduces concerns for human health associated with antibiotic use in livestock production. Research results from Subprogram 2A will be utilised to produce eco-suppressive agents, which may include nutrients (nutriceuticals) such as organic acids, beneficial bacteria such as Lactobacilli, and gene based vaccines, probiotics, and bacteriophages, all of which are designed to alter the ecology of the gut or respiratory microbial populations, thus suppressing pathogens. New vaccine technology and integrated management systems will be developed.

23 At the farm-level, producers undertake a range of strategies to reduce antibiotic usage. For example, the use of probiotics and acidification of water supply is of common use within the Australian pig industry to prevent and minimise the incidence and impact of several enteric diseases. In addition producers often clean, disinfect and rest sheds before restocking to prevent infection. Furthermore, producers undertake other management-related protocols (for example, enforcing an "all-in/all-out" policy, whereby co-mingling of groups of pigs is prohibited or minimised to prevent disease spread and allow thorough shed cleaning) as poor management can contribute to health issues.

Recommendation 18

That all relevant research funding agencies be asked to give priority to research into antibiotic resistance, including:

- alternatives to antibiotics for growth promotion;
- alternatives to antibiotics for prevention and treatment of infections (including vaccines);
- molecular epidemiology and mechanisms of gene transfer;
- population dynamics of antibiotic resistance;
- resistance epidemiology;
- pharmacoepidemiology;
- efficacy of interventions to reduce antibiotic prescribing and use;
- clinical efficacy studies; and
- rapid diagnostic tests.

24 APL's research is prioritized through the Specialist Group process, while the Pork CRC's research priorities are determined by the Expert Scientific Group. APL's research priorities in areas relating to APL's strategic objectives are decided on by specialist R&D groups. These groups comprise of people with relevant expertise from within and outside industry. Research funded through these processes is listed under our response to recommendation 1.

Recommendation 20

That a recognised expert authority (the Working Party on Antibiotics or its successor) assume responsibility for ensuring and coordinating the communication of data on antibiotic usage and prevalence of resistant bacteria to the public and other relevant stakeholders on a regular basis, taking into account the sensitivities of trade and other international implications.

25 APL does not feel that communication on this issue has been adequate. The quality of information received by APL on developments in this field is inconsistent, and there is no particular forum or point of contact to go to inform or share information. It would be of great help to the industry if we received earlier advice on the views, and early engagement on the intentions of government.

APPENDIX 1
R&D Projects

APL R&D Projects

Project (year/ID)	Name	Total Project Spend
2012/1034.495	Dietary manipulation of feed intake in pigs by bitter compounds	$79,500
2011/2315	Comparison Trial for Fish Peptide Isolate (Perfect Digest), Spray Dried Porcine Plasma and Spray Dried Bovine Plasma	$7,900
2011/1039.422	The prevalence Clostridium difficile in Australian piggeries and the role of *C. difficile* in neonatal scours	$76,458
2010/1029	Review of Innate Immunity in Pigs	$35,000
2010/1016.346	Underpinning Knowledge for Prerequisite Programs for Food Safety Regarding Pork	$94,000
2010/1003.324	Travel Award - Michele Squire to Attend the 3rd International *C. difficile* Symposium - Slovenia	$3,000
2009/2260	Pork on-farm HACCP Plan	$49,650
2008/2247	Risk Profile of Methicillin-resistant Staphylococcus aureus (MRSA) as regards domestic herd animals (sheep, cattle, goats and pigs) and their respective meat products	$10,000
2008/2245	Risk profile of Clostridium difficile as regards pigs and pork derived meat products	$5,000
2008/2226	Sampling and Detection of Zoonotic Microbial Agents (ZMA's) in Pig Production	$78,750
2004/2013	Identification & prevalence of antimicrobial resistance genes in pigs at slaughter	$377,379
TOTAL		**$816,637**

Pork CRC Projects

Project (Program-ID)	Name	Total Project Spend
2A-101	Validation of (antibiotic) data collection protocol	$35,000
2A-102	Real time detection of airborne pathogens	$1,231,572
2A-103	Comparing The Mucosal And Systemic Immune Response After APP-Alive Vaccination With Natural Challenge	$147,932
2A-104	Evaluation of diagnostic tests to detect Clostridium difficile in piglets	$99,002
2A-105	Reducing *E. coli* risk lupin hulls	$295,504
2A-106	A comprehensive risk factor analysis of *E. coli* disease in the piggery environment	$542,000
2A-107	Antibiotic sensitivity of Haemophilus parasuis plus Actinobacillus pleuropneumoniae and other respiratory pathogens	$330,000
2A-108	Evaluation of oral fluid samples for herd health monitoring of pathogens and the immune response in pigs	$155,003
2A-109	Development and validation of assays to measure gut health in order to identify risk factors for *E. coli* disease in weaner pigs	$198,080
2B-101	Quantifying variation in environments within and across herds	$165,866
2B-102	Development of economic methodology to incorporate robustness in pig breeding programs	$159,045
2B-103	Estimation of genetic parameters for immune-competence and other physiological-priority traits for use in selection of disease resilience	$410,915
2C-101	Bacteriophage to control enterotoxigenic *E. coli*	$290,238
2C-102	Quantitative measure of Lawsonia load in herd	$1,102,470
2C-103	Evaluating the efficacy of a live APP vaccine bacterins	$632,860
2C-104	Live Erysipelas vaccine	$943,932
2C-105	PPEO plant compounds	$1,003,033
2C-106	Bacteriophage peptides for the control of pathogens	$95,762
2C-107	Rennin & passive immunity	$122,096
2C-108	Passive immunisation for Oedema Disease	$427,000
2C-109	Reducing sucker mortality through the use of a novel feed supplement	$264,010
2C-110	Dietary manipulation of the inflammatory cascade	$281,888
2C-111	Bacteriophage to control & treat enterotoxigenic *E. coli* infection	$95,500
2C-112	Impact of dietary supplementation on intestinal barrier function in ETEC challenged weaners	$254,000
TOTAL		**$9,282,708**

APPENDIX 2

APIQ✓® Management Standards and Standards of note to the Committee

Number	Standard
	Management
1.1 A	The enterprise has a system in place to demonstrate compliance with APIQ✓® Standards, including as a minimum: • a Piggery Management Manual including a quality policy, enterprise description, organisational structure chart and a system for document control which identifies all quality documents by number and date • Standard Operating Procedures (SOPs) or Work Instructions • recording system (e.g. recording sheets or a diary) • a Food Safety and Biosecurity Plan that meets the industry on-farm Hazard Analysis Critical Control Point (HACCP) requirements.
	Food Safety
2.1 A	All pigs are clearly identified according to state legislation. • Before moving from the property of birth all pigs are identified with a tag or brand which indicates the PIC/tattoo of birth (except where ownership does not change). • Where a movement occurs and ownership does not change (excluding movements to shows/events and sale yards), pigs are exempt from being identified before movement, provided traceability back to last property of residence (such as through on-farm records) is maintained. • Tattoos / brands on pigs for delivery are legible.
2.1 B	All pig movements where pigs are sold, slaughtered or purchased are accompanied by a correctly completed PPNVD which is retained by all parties for three years.
2.1 C	Farm Records relating to pig movements, including movements between properties, where ownership has not changed, are kept to enable traceability. • records must be retained for three years.
2.2 A	All potentially contaminated sites and sources of contamination are identified and plans are in place to minimise risk to any pigs.
2.2 B	All identified sites and sources of contamination are managed to prevent access by pigs.
2.2 C	Foreign objects are removed from the pig environment.
2.2 D	Any potentially exposed pigs are identified and managed in a manner that reduces the risk of contamination of pork products for human consumption in accordance with legal requirements, including pigs involved in on-farm research and development studies.
2.2 E	Critical Control Points (CCP) identified in the SARDI report are monitored for identified food safety hazard indicators and corrective actions are taken where necessary.
2.3 F	SOPs, Work Instructions and records are in place to manage food safety related risks on the piggery to acceptable levels including pigs in on-farm research and development studies.
2.3 A	Records are kept for pigs that are treated with medications and chemicals that specify: • the weight of the pigs to ensure they receive the correct dose • the name of the medication or chemical used • the date of treatment • the amount administered • label directions/off label • Withholding Period (WHP) and Export Slaughter Interval (ESI).

2.3 B	Pigs with broken needles or other known retained foreign objects are identified, recorded and reported to the recipient at sale or slaughter, providing details of the object and the object's location is noted on the PPNVD.
2.3 C	All off-label use, including any changes to WHPs, is prescribed by a veterinarian and recorded, including the recommended WHPs and ESIs.
2.3 D	Recommended injection and treatment procedures are followed and the correct drug dose rates are used.
2.3 E	Staff administering treatments and injections to pigs are trained and competent (see also 3.2 A).
2.4 A	All purchased feed, feed ingredients and bedding materials that may be consumed by pigs or may be in contact with pigs are accompanied by a Commodity Vendor Declaration (CVD) stating any product(s) used in production and its WHP status or, where CVD's are not available, sufficient feed or bedding samples must be kept to enable residue testing when required. Samples must be kept for six months.
2.4 B	A system is in place to ensure that grain used for home-mixing is not within a WHP.
2.4 C	There is a system in place that records all feed received and the medications in those feeds.
2.4 D	All feed storage facilities are identified and feed is checked at delivery to ensure that feed is placed in the correct facilities.
2.4 E	Feed mixing, storage and delivery procedures prevent contamination of non-medicated feed by medicated feed, or by feed containing any hazardous risk materials (such as mouldy grains or other specified risk materials).
2.5 A	An Approved Medications List (AML) signed by a veterinarian is available. The AML must: • describe clinical signs of diseases and the medications to use, • any in-feed medications used, AND • dose rate to apply and if label or off-label use.
2.5 B	Records of piggery medication and chemical use are available that specify pig weight (where relevant) and amount administered (see also 2.3A).
2.5 C	Piggery medications and chemicals are stored, handled and used in accordance with manufacturer's instructions (unless APIQ✓® Standard 2.3 C applies).
2.6 D	On-farm systems are in place to minimise the risk of contamination or disease spread as per the Biosecurity Standards outlined in Module 4 of this manual.
	Animal Welfare
3.2 A	Pigs are cared for by personnel who are skilled and competent in pig husbandry to maintain the health and welfare of animals as explained in the provisions of the *Model Code*, or personnel work under the supervision of a competent person. Competency may be demonstrated or assessed by the following methods: • formal industry training in pig husbandry • individual skills assessment by a competent skilled person • documented work history outlining competency recognising prior learning.
3.5 A	A Herd Health Plan (HHP) is in place to manage the risk of infectious diseases and includes SOPs and/or Work Instructions. • Small Holders complete the HHP checklist in the Pig Management Diary.
3.5 B	Where vaccinations or minor surgical procedures are conducted, this is by or under direct supervision of a competent person, and is recorded in accordance with the documented HHP.
3.5 C	Pigs are adequately inspected at least once daily and more frequently when required.
3.5 F	Pigs with injuries or illness are identified and treated with an appropriate treatment regime as soon as practically possible.
3.6 A	Pigs not responding to treatment or that are in pain are identified and action taken to

	humanely destroy them using approved methods.
3.6 B	Pigs suffering from incurable diseases or injuries and/or moribund pigs are humanely destroyed.
	Biosecurity
4.1 B	Facilities and procedures as documented in the on-farm *Food Safety and Biosecurity Plan* are in place to minimise the risk of contamination or disease spread from animals, people or transport movements, including: • a controlled entrance to the piggery is in place through which all visitors, animal and transport movements are admitted • records of visitors, animal and transport movements are maintained • all staff are aware of the piggery biosecurity procedures and have signed a Personnel Biosecurity Declaration • hand washing and/or shower facilities and boots and clothing are provided to visitors prior to contact with pigs.
4.1 C	Trucks used to carry pigs follow the farm's Biosecurity Standards (as per the on-farm *Food Safety and Biosecurity Plan*) including: • drivers and other transport personnel must not enter piggery buildings or free range areas or designated 'clean areas' • vehicles are cleaned and disinfected between consignments • drivers complete section 'D' of the PPNVD.
4.1 D	All equipment used with pigs or brought into pig housing is cleaned and where practical, disinfected.
4.2 B	All introduced stock is inspected for signs of disease on arrival.
4.2 C	Introduced breeding stock of unknown health status or with a health status less than that of the herd are quarantined for a minimum of 14 days and observed for any signs of disease before being introduced to the breeding herd.
4.3 A	Staff are aware of important exotic and endemic diseases, are able to recognise the signs of ill-health in pigs and are aware of the procedures to follow when such signs are seen.