



Pork raised without antibiotics: new opportunities for WA's pork industry

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Introduction

Pork Innovation WA Inc received a grant from the Western Australian Grower Group Research and Development Grants Program (Application GGRD2 2016-1700160) to explore the feasibility of producing pork raised without antibiotics (RWA) in Western Australia (WA).

Internationally, pork RWA occupies a small but growing niche. With its reputation for delivering safe, high quality produce, particularly to export markets, the Western Australian pork industry is well positioned to explore further demand for its products. The aim of this project was to determine the feasibility of producing pork RWA under Western Australian conditions of production.

This publication provides an overview of the information gained over the course of the project. More specifically, it gives some thoughts around developing a pork RWA production system in WA and an insight into antimicrobial use in pork production in WA. An international perspective regarding pork RWA and a view on people's attitudes to pork RWA are also briefly examined in the next sections. Pork RWA as an opportunity for the Western Australian pork industry rounds up the discussion.

Developing a production system for pork RWA in Western Australia

Due to the very high health status in some pig herds, there are opportunities for Western Australian producers of pork raised without antibiotics (RWA) to market it as such. Such products are available in Europe and North America and often attract a premium over other pork products. Labels in those countries may refer to "raised without antibiotics" or "no antibiotics ever" (NAE). However, meat products should never be labelled "antibiotic free" because antibiotic use in livestock production is heavily regulated. Hence, all meat products available for human consumption should not contain any antibiotic residue(s).

Definitions for pork RWA and their production systems are already in the global community. Even so, it would be useful for the Australian pork industry to have



Australian Industry standards with regard to pork RWA. For example, in the USA, a producer can apply for a USDA "No Antibiotics Added" label based on self-reporting documentation that verifies that an animal was not given antibiotics, in any form, at any time during its lifetime. For the purpose of this publication, discussion with focus on pork RWA being the USDA description.

To successfully produce pork RWA, economic and production factors need to be considered by producers. Producers need to maintain an economically viable enterprise that does not compromise the welfare of their animals. For these reasons, producing pork RWA will only be appropriate for some systems.

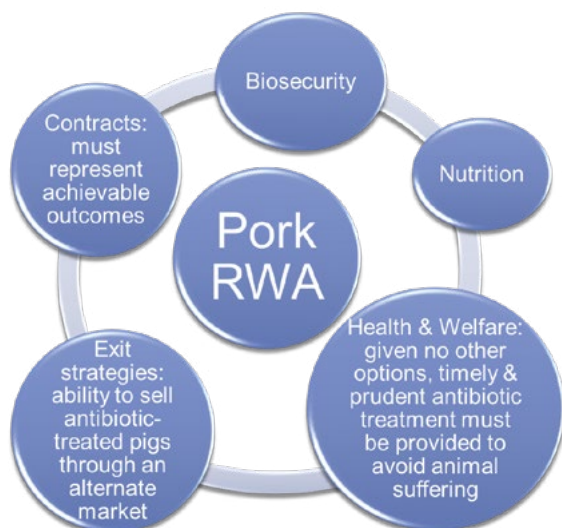
In terms of pork RWA production systems, consideration should be given to the following parameters:

- adequate nutrition and use of feed additives;
- breeding stock quality;
- buildings and equipment;
- farm management;
- health control and biosecurity; and
- development of human resources.

Whilst sow and piglet nutrition is important, the period immediately after weaning generally is when pigs are most at risk of developing complications. The younger the pig, the greater is this risk. Management should be put in place so that the pig recovers its nutrient intake as fast as possible after weaning.

The quality and formulation of the diet is important. For example, small amounts and fed often can be effective nutritional strategies after weaning. Research is continuing on the use of feed ingredients and (or) feed additives as alternatives or replacements to antibiotics. Producers should seek advice from their nutritionist and veterinarian but the following have all been shown to have varying levels of benefits as replacements/alternatives to in-feed antibiotics: probiotics; prebiotics; organic acids; in-feed enzymes; antimicrobial peptides; phytochemicals (e.g. essential oils); immune modulators; minerals; vaccines; bacteriophages; immunoglobulins.

Other important management practices include adequate space and biosecurity associated with housing. Biosecurity considerations for the whole-farm should also be well thought-out. Ambient temperature and water quality can also influence pig health and both should be carefully monitored.



Another element for a successful pork RWA system is the use of all-in-all-out (AIAO) pig production whereby animals are kept together, different groups are not mixed at any stage, and the facility is completely emptied and cleaned when the group is moved or sold. Any animals that are removed from the program due to illness must have identification showing that they are no longer pork RWA. A clear and defined pathway to market is also an important consideration for these animals. With participation of the whole pork supply chain the introduction of pork RWA into the marketplace could be a relatively straight forward process.

For Consideration

- Definitions for pork RWA and systems are already in the global community;
- It would be useful for the Australian pork industry to have Australian Industry standards with regard to pork RWA produced in Australia;
- Production parameters for producing pork RWA are essential considerations;
- Alternatives for antibiotics are available but effectiveness is contingent upon situation;
- AIAO reduces risk associated with producing pork RWA;
- Successful team work is required for successful pork RWA outcomes;
- The whole pork supply chain would need to work together to successfully establish pork RWA as a labelled product in WA.

Antimicrobial use in pork production in Western Australia

To explore the feasibility of producing pork RWA in WA an understanding of the current level of use of antimicrobials on pig farms is required. Antimicrobial agents (antibiotics) are important for the treatment and control of many bacterial diseases in pig production. Antibiotics can be given to pigs as an injection (treating a few individuals), or in their feed or water (treating larger groups), and while using antibiotics at sub-therapeutic doses is illegal in Australia, prophylactic treatment is sometimes used as a control method for endemic diseases on farm.

The conditions that commonly require antimicrobials in pigs are enteric and respiratory diseases that can lead to high levels of pig morbidity and mortalities. In Australia, antimicrobials are usually administered by the prescribing veterinarian, who decides what antimicrobial agent to use, and the producer follows the procedure for use.

Internationally, there is increasing pressure on the veterinary profession to reduce the use of antimicrobial agents in food producing animals. In several countries there are now various guidelines in place defining usage, dosage and associated documentation. In Australia, the Australian pork industry has allocated resources through the High Integrity Australian Pork CRC and Australian Pork Limited to target specific areas focused on refinement of antimicrobial use.

Whilst Australia is a relatively low user of antimicrobials, there is currently limited data available to verify the actual level of use. A small-scale case study measured antimicrobial use on farms that broadly represented the major types of pork production systems in WA. From these results, the level of bacteria (*E. coli* and *Enterococcus* spp.) resistant to antibiotics were compared across the farms to explore if high level use of antimicrobials is associated with a high level of resistance expression for a small selection of antimicrobials.

The study demonstrated that antimicrobial use between different production systems could be measured, albeit showing large variation. This variation in antimicrobial



use could be attributed to a myriad of factors including, but not limited to: population size, stocking rates, hygiene, biosecurity measures, endemic diseases on farms, vaccination strategies, maintenance of facilities, genetics and overall management. Nevertheless, the levels of resistance, whilst varying across farms, was not necessarily associated with antimicrobial use. Given specific details around herd health plans, pig flow and management could not be collected from the farms involved in the case-study, it is unknown how these factors may have influenced antimicrobial use.

For Consideration

- It is reasonable to acknowledge that the feasibility of producing pork RWA will be more challenging for some production systems than others;
- More research is needed to determine the relationship between antimicrobial resistance, the environment, management practices and antimicrobial use.

An international perspective

Pork RWA is produced in Europe and North America and whilst global supply of products labelled as such is still small relative to total pork production, supply is expanding in several countries. Pork RWA is about an alternative production method in much the same way as is producing pork in e.g., a free-range system.

The definition for pork RWA is not universal and is determined by either government regulation or private industry. Whilst it could be an option for the Australian pork industry or Government to define pork RWA, given the extent of the global market, the definitions are perhaps already predetermined. Nevertheless, having Australian Industry standards with regard to pork RWA could be useful for the marketplace.

Premiums for pork RWA products are common in Europe and North America, but the exact amount that can be attributed to pork RWA is variable as most products also contain other valued attributes such as “vegetarian diet” and “GMO-free”. Pork RWA products are often displayed in retail outlets side-by-side with pork products that were not produced under this system. As with all products, strategic placement is important for retailers and as expected, pork RWA products are not available in all outlets.

Value chains, suitable for marketing pork RWA, range from being simple to complex, and so small and large producers can move into this market. Australian producers will need to consider the net benefits and risk of doing so if they decide to consider this production alternative.

For Consideration

- Pork RWA is being marketed and sold at a premium in North America and Europe;
- Internationally, both small and large producers are engaged in producing pork RWA.



People's attitudes to pork raised without antibiotics

With its reputation for delivering safe, high quality produce, particularly to export markets, the pork industry in WA is well positioned to explore value-added markets. Growing sophistication of consumers' food choices is increasingly causing differentiation of the meat market, including pork. A small but fast-growing proportion of consumers are seeking meat with more defined credence and provenance values. Pork RWA is placed in a dynamic niche market internationally and may give these consumers an option that they are looking for.

Antibiotic use is an inevitable part of most pig enterprises due to the need to treat disease or injury and uphold welfare standards. However, due to strict guidelines associated with their use there shouldn't be any antibiotic residues in meat sold to consumers. Nevertheless, consumers are increasingly concerned about food safety and animal welfare. American consumers ranked antibiotic free production as being one of three most important attributes when considering meat products. Therefore and as might be expected, pork RWA is available in Europe and North America in some farmer markets, supermarkets, fast food outlets and restaurants. It is therefore timely to gain some understanding of Australian consumer attitudes with respect to pork RWA. This information is important for decision makers charged with the task of working out how the pork industry should respond to the notion of pork RWA moving into mainstream Australian markets.

As part of this project, activities involving consumers, producers and other stakeholders involved in the value chain were completed to ascertain their views on the matter. This snapshot provided a good insight into opportunities for pork RWA in WA.

The study emphasised that overall knowledge was low in all sectors of the supply chain. Whilst this might often indicate a lack of interest, in this case, it perhaps presented as a lack of awareness. Nevertheless, the

consumer survey indicated that respondents were able to reliably answer the questions and revealed that they would be willing to pay a premium for pork RWA. Whilst there was found to be some apprehension amongst producers about the future of pork RWA in WA, there was some acknowledgement that it could be a niche product.

The literature recognises that there are known differences in intended behaviour and actual behaviour of shoppers faced with product decisions. Therefore, actions taken by the supply chain to give consumers confidence and knowledge, regarding pork RWA, should it become available in WA, would be important.

For Consideration

- Should pork RWA come onto the market, information about this product would be necessary for the value chain;
- If a market for pork RWA eventuated then most likely, it would be a niche market in WA;
- It was considered imperative that should pork RWA become an option in WA, then the whole industry should determine how this should evolve and not just one sector of the value chain.

An opportunity for WA's pork industry

Project findings concluded that members of the pork industry in Western Australia were interested in the prospect of pork RWA being made available to consumers. However, they were resolute that introducing such a product into the marketplace should be done in such a way so as not to disrupt the current markets for pork.

Pork producers considered that such pork products should be pork from pigs that were RWA from birth. Regulations regarding what this actually means is required for the Australian pork industry. Continued research into nutrition associated with pork RWA will be important to ensure that it is cost effective to produce. Likewise continued research into biosecurity needs will be imperative for producers should they decide to produce this product.

Whilst regulations, science and management will drive reductions in antimicrobial use on the farm, consumer demand will guide potential markets for subsequent products. Consumers are important but so too are processors, retailers and exporters who also play a big role in the pork value chain. Labelling of products and associated integrity is also paramount to ensure consumer confidence.

Marketing tools are also likely to be important for decision makers involved with pork RWA. With a concerted effort from industry there is opportunity to develop products labelled as pork RWA into Western Australia.



For Consideration

- There are challenges with producing pork RWA that have solutions already, whilst others need further research;
- There are potential benefits associated with producing pork RWA, e.g., price premiums, and reduced antimicrobial use and resistance;
- Given their innovation in developing niche markets, Western Australian producers may consider pork RWA to be a viable option for them;
- There are potential opportunities for Australian producers to market their products as being made from pork RWA and for consumers to have a choice regarding this production method;
- Industry support would be required and the extent of this would need to be ascertained;
- Consumers, processors, retailers and exporters are vital for creating growth in a pork RWA market.

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