

Pork CRC Powering Ahead in 2017

Based on bumper grain harvests nationally and globally and continuing good demand for High Integrity Australian Pork, 2017 promises to be a very good year for Australian pork producers.

I certainly hope so and we at Pork CRC will do everything in our power to ensure it is.

Margin call

Australia seems to have missed out on falls in grain costs across the rest of the world in 2015 and 2016 and you will see this when I cover the global situation next month or maybe in March.

In 2015 most EU countries enjoyed 14% to 16% declines in cost of production relative to 2014, due largely to reduced feed costs, but we certainly did not. In the US, feed cost declined from \$AUD 355/tonne in 2014 to \$AUD 291/tonne in 2015 and fell further in 2016. In Australia there was little change in average feed cost between 2014 and 2015 and little relief in 2016. We should catch up this year, although I imagine all pork producing countries will enjoy further feed cost reductions in 2017. With the exception of China, the other countries, however, did not enjoy the relatively high and stable prices we did over the past two years. This is shown for the US industry in Figure 1. They have been less profitable than Australia and are relying on tapping into the market in China to reduce domestic supply and improve profitability in 2017. Indeed, China will play the major role in shaping the global pork situation in 2017. The other big issues in 2017 are likely to be antimicrobial resistance and use and the impact Donald Trump's US Presidency has on global trade agreements.

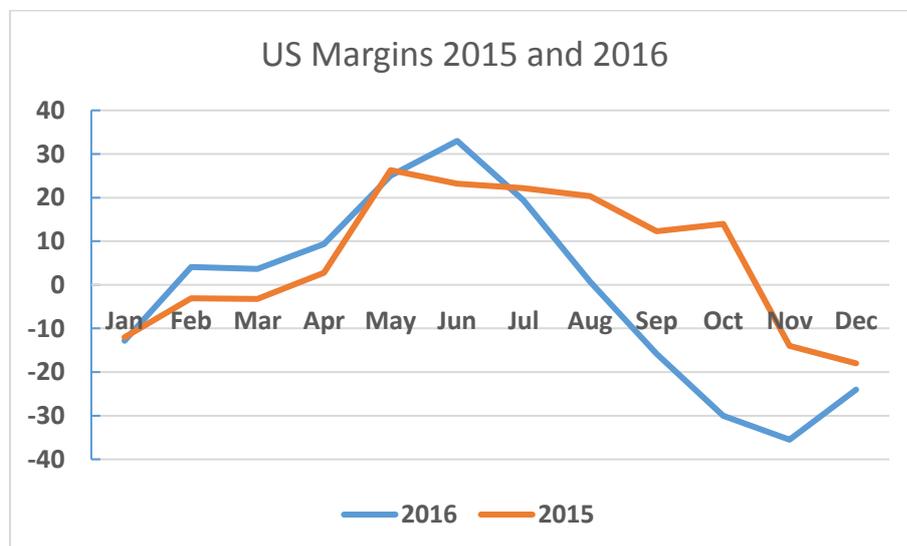


Figure 1 – US pork production margins (\$US/pig) in 2015 and 2016

Great expectations

For Pork CRC, 2017 will be one of great expectations. We have some 51 active projects and will review and commission new projects this year from our last investment round, which closes on January 9. I know there are many exciting and potentially system changing projects in the 51 currently active and, if history is any guide, I expect to see quite a few more from the current call.

We have seen some exciting outcomes to date from projects on the development of vaccines for APP and swine dysentery, we have a new project on Strep suis, which has vaccine implications and we expect some interesting results from a project investigating the effects of antibiotics and alternative strategies on the change of the gut microbiome and the development of antimicrobial resistance. Indeed, we have some very exciting projects in Program 2 (***'Herd health management'***) which will help veterinarians more effectively use and hopefully reduce the use of antibiotics. This 'issue' is not going away and if we can get ahead of the curve I think it will put the industry and individual businesses in a place we need to be nationally and globally.

From Program 1 (***'Reduced confinement of sows and piglets'***) we expect to see industry relevant outcomes from projects on defining and improving the welfare and even contentment of sows during farrowing and lactation, on means of improving pre-weaning survival and on the enrichment of group housed gestating sows, which include further studies on the Ridley Enrichment Block. The enrichment blocks will also be extended to weaner and grower-finisher pigs in 2017. We will be following up some interesting outcomes from Project 1C -103, suggesting that sows grouped during the last week of lactation and given boar contact had markedly bigger litters next time around. We will also see if a similar situation exists with sows housed in conventional systems during late lactation.

In Program 3 (***'Healthy pork consumption'***) we have a project on using NIRS to detect boar taint. If successful, it will have global implications.

In Program 4 (***'Carbon conscious nutrient inputs and outputs'***) we have a couple of projects that could be the next big step in improving growth performance and ongoing research on the use of algae to remediate effluent streams and as a potential feed source and a number of projects to further extend the use of biogas and the efficiency with which it can be used.

AusScan assistance

We also continue to refine the AusScan calibrations for rapidly determining the energy value of grains and the amino acid contents of soy bean meal and canola meal.

I urge you to have your new season grain tested, as we know it is not uncommon for some barleys to have a similar digestible energy (DE) level to wheat and that there is little relationship between how a grain is graded or even its fines content and its DE. Grain might be cheaper than last year, but there is still money to be made from knowing what your grain contains and adjusting diet formulations accordingly. The same applies for canola and soy bean meal, so ensure you have them tested – it takes just a few minutes these days.

I will keep you regularly and fully updated on all our R&D outcomes, but I expect 2017 to be a big year for Pork CRC.

Dysentery developments

Professor David Hampson and his team at Murdoch University recently submitted their final report on Project 2A -114 ('Identifying, tracking and controlling swine dysentery in Australian pig herds'). You might remember they previously found a number of new and uniquely Australian strains of *Brachyspira hyodysenteriae* (Project 2C-111) and, more concerningly, in herds previously thought to be free of the disease based on the lack of clinical signs. This situation was confirmed in the recently completed project, which had the objectives of further surveying the industry for SD, seeing if the new strains were pathogenic, determining changes in antimicrobial sensitivity over time and rechecking an ELISA test previously abandoned because of false negative results. Most of the false

negative herds have proven infected (positive). So, the disease can be silent under particular environmental and dietary situations and therefore unknowingly spread. Clearly, constant surveillance and testing is required. Hopefully, the ELISA test proves more accurate than thought and becomes a real advantage for industry. In challenge tests, some of the new strains have been pathogenic, or at least caused the same disease symptoms as known pathogenic strains. We also learned more on means of better defining the pathogenicity of *Brachyspira* serotypes.

Antimicrobial sensitivity, as you might expect, has declined over time, with some isolates found to be resistant to all antimicrobials tested. The changes over time to three commonly used antimicrobials are shown in Table 1. The project has brought the industry up to date on the situation with swine dysentery and, as I said, confirms the need for constant surveillance, an effective test for the disease and alternative to antimicrobials to control it. We are currently working on the latter.

Table 1 Classification of the *B. hyodysenteriae* isolates collected in 2014/2016 as being susceptible, intermediate or resistant to three antimicrobials, and comparison with reported results for Australian isolates from previous periods.

Period (no. of isolates)	Antimicrobial	No. (%) susceptible	No. (%) intermediate	No. (%) resistant
2014-2016 (n=46)	Lincomycin	9 (19.6%)	9 (19.6%)	28 (60.9%)
	Tylosin	-	4 (8.9%)	42 (91.3%)
	Tiamulin	12 (26.1%)	27 (58.7%)	7 (15.2%)
2006-2007 (n=60)	Lincomycin	19 (31.6%)	31 (51.6%)	10 (16.6%)
	Tylosin	-	-	60 (100.0%)
	Tiamulin ^c	57 (95%)	2 (3.3%)	1 (1.6%)
2002-2006 (n=89)	Lincomycin	26 (29.2%)	57 (64%)	6 (6.7%)
	Tylosin ^d	-	2 (2.7%)	73 (97.3%)
	Tiamulin ^c	16 (18%)	62 (70%)	11 (12.4%)

No no

An initial small experiment in Project 1C-114 suggested that feeding sows Magnesium Sulphate for three to five days before farrowing and three days after farrowing reduced pre-foster mortality.

However, a validation study at SunPork SA involving 810 sows (270 per treatment) showed that MgSO₄ or a Mg rich marine algal product (ACIDBUF) tended to increase still birth rate and mortality to day three of lactation respectively. The results are shown in Table 2. The differences were small and may or may not be 'real', but the bottom line is that feeding sows Mg in the period before and for three days after farrowing would seem to have little commercial merit.

Table 2. Mean \pm SEM reproductive output from sows fed a standard lactation sow mash (CONTROL), and those provided with additional magnesium (MgSO₄ and ACIDBUF) from approximately five days prior to farrowing until three days post farrowing.

	CONTROL	MGSO ₄	ACIDBUF	Sig.
Gestation length (d)	116.2 \pm 0.1	116.1 \pm 0.1	116.1 \pm 0.1	0.653
Total number of piglets born	12.7 \pm 0.2	12.5 \pm 0.2	12.8 \pm 0.2	0.632
Piglets born alive	11.5 \pm 0.2	11.1 \pm 0.2	11.4 \pm 0.2	0.221
Piglets stillborn	0.7 \pm 0.1	1.0 \pm 0.1	0.8 \pm 0.1	0.014
Piglets at day 1 of age	11.4 \pm 0.1	11.3 \pm 0.1	11.4 \pm 0.1	0.95
Litter weight at day 1	16.0 \pm 0.3	16.3 \pm 0.3	16.1 \pm 0.3	0.74
Piglets at day 21 of age	9.5 \pm 0.2	9.6 \pm 0.2	9.1 \pm 0.2	0.154
Litter weight at day 21	58.9 \pm 1.3	59.3 \pm 1.6	55.6 \pm 1.3	0.098
Pre-fostering mortality	0.4 \pm 0.1	0.3 \pm 0.1	0.3 \pm 0.1	0.501
Mortality from day 1 to 3	0.5 \pm 0.1	0.5 \pm 0.1	0.7 \pm 0.1	0.05
Mortality from day 4 to weaning	0.4 \pm 0.1	0.3 \pm 0.1	0.4 \pm 0.1	0.386
Number of ill thrift piglets	1.0 \pm 0.1	1.0 \pm 0.1	1.2 \pm 0.1	0.193

Eye on

Apart from Pork CRC project outcomes which I will let you know about, whether they be positive or negative, the top of my list of technologies to keep an eye on or even implement in 2017 are:

1. **Sow caliper** for objectively measuring body condition. The caliper is quick and easy to use and provides a much more objective assessment of sow body condition than doing this visually using the old body condition scoring. USA and data from elsewhere suggests that getting the caliper score right can help optimise feed costs in gestation and result in an overall improvement in reproduction and sow longevity. The following link will take you to a video on how to use the caliper. They can be ordered from Dr Mark Knauer (mtknauer@gmail.com). They come from the US, but delivery is rapid. www.youtube.com/watch?v=YgxQEIzkjbQ
2. **Post cervical AI (PCAI)** – an older technology I have been banging on about for a while and it's good to see more producers testing and adopting the technology. According to those using it, some training and patience is required, which is no different from when we moved from using boars (natural mating) to artificial insemination way back in the late 80s and early 90s. A revolution back then and standard operating procedure now. PCAI is one of the next steps in the process. PCAI enables mating to be done more rapidly and if you are game for sperm numbers to be reduced. If you haven't tried it, talk to your semen supplier or AI equipment supplier.
3. **Set time AI** or synchronising ovulation in weaned sows – I think this is the next big advance in AI and reproductive technology. The technology enables matings to be done without the need for oestrus detection with just one dose of semen. Pork CRC research proved both outcomes and indicated that the technology may help reduce the incidence of summer infertility. The technology has been intensively researched in the US and a product, namely Ovugel was registered for use some time ago in America. The same product has since been registered in Australia by Elanco and will be launched, I believe, in November 2017.

What's on

January 9 – Call for Round 8 Pork CRC Proposals closes

January 30 to February 10 – Pig Science into Practice Course at Roseworthy

February 7 – Pork CRC R&D Committee Meeting

February 24 – SA Pig day

February 27 – First APRIL board meeting

February 28 – Pork CRC board meeting

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