



InnovatE

APL's E-news for innovative producers

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Latest research from the American Society of Animal Science Meeting in Des Moines, Iowa

March-April APL/Pork CRC Roadshow

Emalyn Loudon, APL

Just over 200 producers and industry stakeholders attended the APL/Pork CRC Roadshow held between 26 March and 8 April. A team of researchers and APL representatives travelled to Roseworthy, Perth, Toowoomba, Shepparton and Dubbo to present the latest information on our research programs and current industry issues.

Presentations are available on APL's website at <http://www.australianpork.com.au/pages/page133.asp>

Strategic planning

Dr Darryl D'Souza provided an update on APL's strategic planning process which is due to be ratified at the May Delegates Forum, as well as an outline on the national research, development and extension strategy, in line with the federal government's focus on rationalising R&D resources. The pork industry is one of the first sectors to undertake this process.

There were four presentations on CRC projects including:

Selenium enriched pork

Prof Frank Dunshea (University of Melbourne) reported that selenium enhanced pork through supplementation with selenised yeast may provide a dietary means of decreasing colon and other cancers, thus adding value to pork.

Weaner performance

Prof John Pluske (Murdoch University) spoke on the influence of birth and weaning weight on lifetime performance, research which found that pigs born under 1.2kg were lighter, grew 9% slower to slaughter and were 1 mm fatter at slaughter. Somewhat more controversial were the findings that the nature (and cost) of creep feed had no effect on whole-of-life performance, and there was minimal economic benefit in offering high-cost diets to pigs weighing more than 6.5kg at weaning at 4 weeks of age.

Gilt progeny

Drs Yvette Miller (Portec) and Trish Holyoake (NSW DPI) presented information based on the finding that piglets from gilts perform poorly compared to piglets from sows due to differences in birth weight, milk intake and transferred immunity. Management strategies to overcome this include maximising birth weight through nutrition, maximising milk intake through increased birth weight and providing a suitable 'milk-producing' environment, and repeated exposure of gilts to on-farm diseases and varying vaccination timing, to enhance immunity.

Further information:

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Feedlogic

Karen Moore (Department of Agriculture & Food WA) presented outcomes from trials using the integrated feed dispensing and management system, Feedlogic. This work found that blend feeding, where multiple diets which more accurately reflect nutrient requirements are fed using a combination of just two diets, can reduce feed costs without affecting carcass value. This research also found that the requirements for available lysine to digestible energy are somewhat higher than the industry is currently using, with 0.73g Av Lys/MJ DE being the current standard compared to males requiring 0.76–0.80g and females 0.70g.

Life Cycle Assessment

Preliminary results from an APL funded project on Life Cycle Assessment of pork production indicate that pork is a comparatively low environmental burden meat product when considering water and energy use and Greenhouse Gas emissions through the entire production chain. Steve Wiedemann (FSA Consulting) presented findings on water use (37L/kg carcass weight), energy use (54.8% of which is attributed to on-farm electricity and LPG gas) and Greenhouse Gas emissions, the majority of which are a result of pond methane.

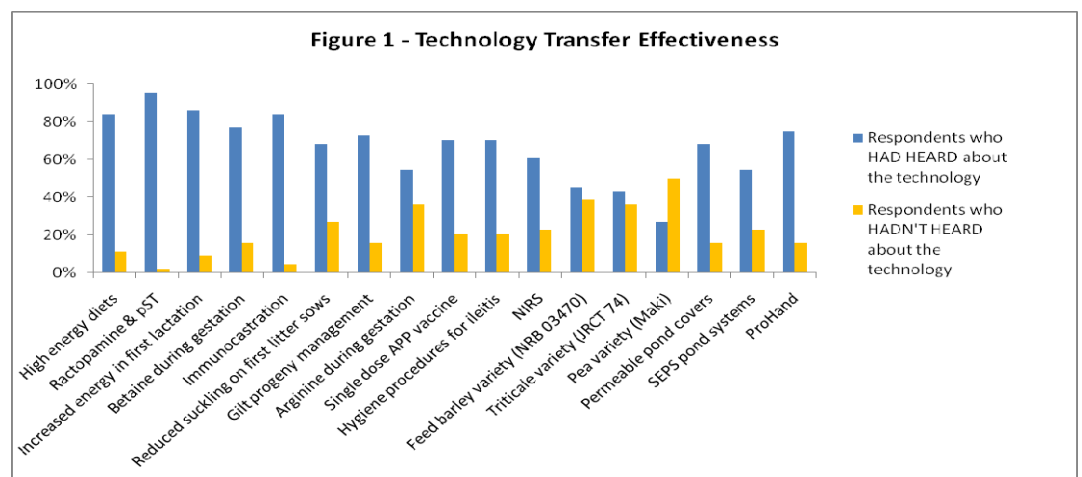
Training & competency

Amanda Reagan (APL) provided an update on projects undertaken by our Policy Division, with particular focus on APL's role in assisting producers with compliance with competency requirements of the Model Code. Emalyn Loudon outlined the revised ProHand stockperson training program which accommodates a number of changes seen in the industry since its release in 1996.

Adoption survey

The adoption survey conducted at the Roadshow provided us with some useful information about technology transfer and adoption of research outcomes.

Of the 44 respondents, 67% on average had heard about the various technologies and 25% had adopted them. The most heard about technologies were the economic use of ractopamine (Paylean) and/or pST (Reporcin) (95%), increased energy in first lactation (86%), and immunocastration and high energy diets, both at 84% (Figure 1).



Disclaimer

The opinions, advice and information contained in this publication are offered by APL and the Pork CRC solely for informational purposes and it does not constitute professional, commercial or technical advice. While information contained in this publication has been formulated in good faith, the contents do not take into account all the factors which need to be considered before putting the information into practice. Accordingly, no person should rely on anything contained here as a substitute for specific advice.

Ractopamine and/or pST had the highest adoption rate among respondents at 57%, followed closely by hygiene procedures for ileitis (52%) and betaine during gestation (48%) (Figure 2). A number of respondents had deemed some technologies unsuitable for their business or were in the process of trialling them.

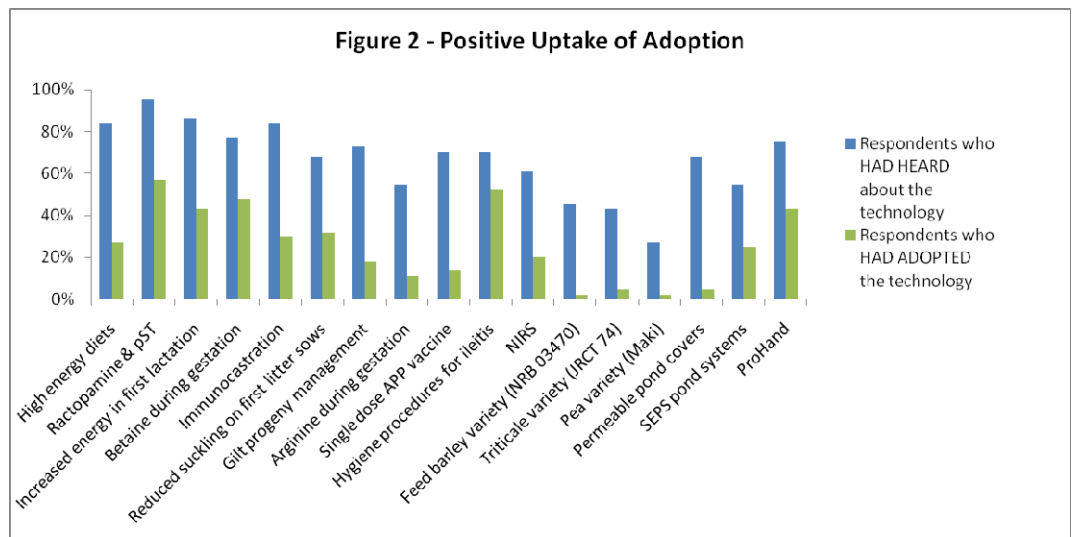
Do you miss the Roadshow?

Webinars on two Roadshow presentations are being held next month.

Management strategies for improved performance of gilt progeny - Wed 5 May 1.00pm EST

Selenium enriched pork - Wed 12 May 1.00pm EST

To register send an email to Greg Mills at NSW DPI
greg.mills@dpi.nsw.gov.au



Feedback

Fifty nine percent of attendees at the March/April Roadshow were producers while over 55% of the states' sow herds were represented in most locations. Evaluation forms indicated that presentations on gilt progeny, Feedlogic and weaner performance were deemed most relevant and informative, and 95% of respondents agreed that the timing, format, location and venues were suitable.

Based on the positive feedback from both this event and that held in November 08 with guest speaker Randy Stoecker, we're committed to having the Roadshows play a key role in APL and the Pork CRC's technology transfer and adoption activities. The next Roadshow is scheduled for late August/September to fit in with other industry events, including the APSA conference in November.

Compilation of Reports on Recent Travel to the US

Dr Darryl D'Souza (APL), Dr Roger Campbell (Pork CRC) & Dr Bruce Mullan (Department of Agriculture & Food WA)

Early last month Drs Darryl D'Souza, Roger Campbell and Bruce Mullan travelled to the US to attend the American Society of Animal Science Meeting in Des Moines, Iowa, and meet with a range of US industry representatives. Below are some key points from their trip.

US Industry

- 6 million sows with the top 20% producing 24 pigs/year.
- Average carcass weight – 260-280lb (117-127kg) and likely to increase further.
- Export 25% of production.
- Pig imports from Canada are at historic lows due to recently imposed Country of Origin Labelling laws.
- Industry is in its sixth quarter of negative returns with better producers losing US\$28-\$30/pig in 2008. Most can expect to break even in 2009.
- Focussed on reducing costs, particularly cost of operating buildings, hence incorporating very sophisticated control and monitoring systems.
- Still concern over the impact of the ethanol mandate on feed prices.
- Keeping a close eye on Brazil regarding their use of Improvac and growth efficiencies realised. Immunocastration is likely to be available (approved) in the US within the next 12-18 months.

- The global financial crisis has had an impact on the pork industry. Fine dining is significantly down and supermarkets are putting out low price cuts (leg and shoulder steaks).
- The various vaccines against PCV2 associated disease syndrome (post weaning wasting disease) continue to prove effective and are now simply a cost of doing business in the US.
- Some impressive improvements made in sow productivity during the past five years as a result of tight profit margins and despite having to deal with PRRS.
- Value of effluent is being realised, at US\$20/pig place in the upper Midwest.

Other Meetings

- Hy-vee - one of the top 30 US supermarket chains. Their traditional cuts and most value added cuts are vacuum packed and all fresh pork is moisture infused.
- Hormel Foods' R&D site - approximately 30-40 meat scientists working on a range of fresh and processed meats, as well as "heat and eat" meals.
- National Pork Board - animal welfare having less of an impact as price is the biggest issue for consumers, some relocation of production towards the Midwest states, approximately 95% of the producer group is registered with the NPB's QA program PQAPlus, food safety is a big issue but no real push towards a system beyond paper/electronic ID systems, and food miles/carbon footprint a major project for the NPB.
- Land O'Lakes Purina Feeds - meeting attended by major players where discussion concentrated on the use of DDGS (Dried Distillers Grains with Solubles) where it compromises up to 45% of the diet. An interesting product described was Pig Gel, a gel-like substance containing micro-ingredients fed to piglets pre and post weaning (refer to www.gelresearch.com)
- Bruce visited a number of producers and research facilities fitted with various technologies for optimising nutrition and environmental conditions. He was able to identify a number of possibilities for collaboration based around the use of the Feedlogic system. It would seem that the US is doing or planning similar research to that underway at Medina and CHM, and so good scope for us to share the results of this research.

American Society of Animal Science Midwest Meeting

The Midwest meeting of the ASAS presented a number of research outcomes on a wide variety of topics including sow nutrition, ractopamine, PCV2 vaccines, housing and meat quality. Below is a selection of summaries from the meeting while further summaries can be found in the full reports on APL's website.

Effect of dietary Arginine between 14 and 28 days of gestation on foetal number, weight and myogenesis

J. Bérard et al., Agroscope Liebefeld Posieux, Switzerland

Arginine level is known to be elevated in porcine amniotic and allantoic fluid during early pregnancy suggesting that it plays an important role in embryonic, placental and foetal development. Researchers used 20 mated gilts to assess the effects of feeding 25g Arginine/day from days 14 to 28 of pregnancy on foetal numbers and weight at day 75 of pregnancy. The authors also measured primary and secondary muscle fibre numbers. It was reported that Arginine increased the number of viable foetuses at day 75 from 9.3 to 13.0 ($P<.04$) but had no effect on foetal weight. Arginine supplementation also significantly increased the number of primary muscle fibres in the semitendinosus (leg) muscle ($P<.04$). Foetuses of heavier weight at day 75 also had greater total muscle fibre numbers than those of average or light weight at day 75.

Results also suggest a possible reason for pigs of light birth weight not performing at the same rate as heavy birth weight pigs.

There may be benefit in Australia trialling higher Paylean concentrations similar to those used in the US.

Effects of dietary protein, amino acids and Paylean on animal performance carcass yield and primal weights

Dean Boyd presented a paper on the effects of offering 23-120kg (105 days) pigs diets at 88%, 100% or 112% of lysine requirement (based on defined PIC requirement curves) and Paylean in the last 28 days (7.2ppm/8.8ppm). Growth rate and feed:gain improved with increasing dietary lysine but carcass yield and carcass weight declined linearly with increasing dietary lysine (protein). Dietary lysine had no effect on the weight of primal cuts at a constant carcass weight. Paylean significantly increased growth rate, feed efficiency (16.7%) and carcass weight compared with the 100% control diet during the last 28 days. Paylean also significantly increased carcass lean by 4.4% and the weight and proportion of loin and ham in the carcass (by 2.2kg) with no effect on the belly, resulting in an additional increase in carcass value of some US\$7.70/carcass.

Efficacy of different porcine circovirus vaccination regimens

B. E. Bass, University of Arkansas

An experiment was conducted to evaluate the efficacy of different circovirus (PCV) vaccination regimens on the performance of pigs from nursery to slaughter. Treatment groups were: 1) No vaccination; 2) 1.0ml IM injection of Boehringer Ingelheim CircoFLEX™ at weaning; 3) 0.5ml IM injection of Boehringer Ingelheim CircoFLEX™ at weaning and a 0.5ml IM injection 3 weeks later; and 4) 2.0ml IM injection of Intervet Circumvent™ PCV at weaning and a 2.0ml IM injection 3 weeks later. The results indicate that even in an experimental herd with no previously known PCV associated disease, vaccination greatly improved overall ADG, liveweight, and carcass weight.

Effects of birth weight on the overall performance of barrows and gilts

Ellis et al., University of Illinois

The researchers reported the results of two intensive experiments. With barrows they investigated the effects of three birth weight groups (Light 0.9kg ranging from 0.6-1.2kg; Average 1.6kg ranging from 1.3-1.9kg and Heavy 2.3kg ranging from 2.0-2.6kg) performance to 145kg. Light birth weight pigs grew slower and had a numerically poorer feed efficiency and carcass lean content. There were no significant performance differences between the average and heavy birth weight pigs. For gilts the researchers investigated two birth weight groups and two weaning weight groups on performance to 125kg. The heavy and light birth weight group averaged 1.75kg and 1.3kg respectively. Within each group there were two weaning groups (2x2), comprising heavy and light. Weaning weight differences were achieved by rearing pigs in litters of 6 or 12. Light birth weight pigs grew slower, had a lower fat free lean content in the carcass and tended to be less feed efficient ($P < 0.06$) than their heavier counterparts. Weaning weight had no effect on post weaning or overall performance.

Do heavier weaning weights of modern pigs affect their iron requirement?

J. S. Jolliff and D. C. Mahan, Ohio State University

A series of experiments looked at the impact on piglet performance and iron status when piglets are given more than the usual iron injection pre-weaning. There was a linear decline in haemoglobin (Hb) and hematocrit (Hct) concentration as weaning weight increased. Giving 300mg Fe at birth instead of 200mg resulted in higher Hb and Hct concentrations at weaning but did not affect weaning weight. However, when additional Fe given pre-weaning was combined with increased Fe in weaner feed there was a significant improvement in growth rate post-weaning.

Full reports are available on APL's website at

<http://www.australianpork.com.au/pages/page142.asp>

This confirms adverse effects of light birth weight on overall performance and carcass lean but suggests that weaning weight has little or no effect. It should be noted that pigs were reared under experimental conditions which may explain the difference in results to that of John Pluske's CRC project.