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# Australian Pork

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# Leabrook butcher in the spotlight

SOUTH Australian butcher Luke Moody of Leabrook Quality Meats has been awarded Australian Pork's Butcher in the Spotlight for February.

Luke received the award for the initiative that he has shown as a third year apprentice by managing the business's marketing program.

He has set up and delivers a regular email newsletter, as well as looking after the Leabrook Quality Meats Facebook page.

Luke has been working in the industry for six years, learning and training at Leabrook Quality Meats where he continues to develop his skills while finishing his apprenticeship.

Job security, sustainable prospects in the future and the fact that he loves the meat industry are the reasons Luke became a butcher.

He believes the most special part of working for Leabrook Quality Meats is the relationship he has with his boss, Michael Lawrence.

"Working there since I was 14, we have immense respect for each other," Luke said.

"I understand his vision for the business and he understands my eagerness to succeed and keep moving forward.

"The business will continue to grow in his hands.

"While the staff are all on the same page, Leabrook Quality Meats will powerfully move forward, offering better products, services and online marketing.

"The part of my job that I like the most is that every day is different... and my favourite part of the day is morning.

"The process may be roughly the same, but each day putting in a new cabinet display allows me to use my creativity to put together something that looks

enjoyable for the customers." Australian Pork Limited's butcher channel manager Terry Edgar said that everyone knows the younger generation today is far more equipped with technology; it comes to them as second nature.

"For an older generation butcher to get the younger staff to run their e-commerce marketing makes a lot of sense."

The Butcher in the Spotlight award is a monthly profile available to all butchers in Australia and will be awarded to butchers and apprentice butchers who have done something different and innovative to promote their industry.

This award is keen to showcase innovative approaches to improve business for independent local butchers, especially when they are com-

peting with aggressive major supermarkets' marketing strategies.

Butchers don't necessarily have the resources to compete with such competition, but Luke has shown that by using tools which are available and free, smaller operators can make a difference when promoting their businesses.

Australian Pork's Butcher in the Spotlight award is part of the Butcher's Battle Plan program, which has been developed to assist independent butchers with tips and tools based on extensive consumer research.

Contact Leabrook Quality Meats on 08 8331 3514, visit Shop 9, Leabrook Shopping Centre, Leabrook, SA or view its Facebook page at www.facebook.com/leabrookqualitymeats



Luke Moody was awarded Butcher in the Spotlight.

## Agriculture's engagement at Outlook 2014

CANBERRA traditionally hosts the Australian Bureau of Agricultural and Resource Economics and Sciences Outlook conference during the first week of March.

This conference looks at the forward prospects of the various agricultural commodities, both domestically and for export.

I'm writing this month's article in between sessions at Outlook 2014.

The messages where government sees the need for attention to secure prosperity for agriculture were around red tape reduction, infrastructure investment and maintaining the efforts in research and development that we need to sustain our competitiveness.

Minister for Agriculture Barnaby Joyce outlined how he saw the forward path to better returns behind the farm gate through better productivity, market access and reducing the burden of regulation.

Interestingly, various commentators are predicting a medium term reduction in the value of the Australian dollar to between \$A0.80 and \$A0.84 a US dollar within the next couple of years.

That would certainly help our ability to increase exports and compete better with imports.

I was asked to present at this year's Outlook on the pork industry's initiatives to better engage with the consumer and the community.

We timed this event to coincide with our latest announcements around the progress on the industry's Shaping Our Future sow stall phase out initiative.

As I have mentioned in a previous article, the response to the last Annual Industry Survey by our producers was quite poor (again, my thanks to those who did the right thing and gave us their information).

This has meant that we needed to find different methods to measure the progress on our sow stall phase out.



### Point of View

by ANDREW SPENCER CEO



Our APIQ system, which is now verifying whether particular pig production sites are compliant with the industry's definition of gestation stall free, was a great help in giving us some pointers as to the levels of compliance.

With the co-operation of some retailers with information on their supply base, as well as through quite a number of phone conversations with producers by APL staff, we have almost finalised our sow pregnancy housing survey.

At this stage, we can name sites across the country that are operating under our gestation stall free definition that in totality make up more than 60 percent of our sow production base.

We predict that by the time we have finished the survey, it will have identified that more than two-thirds of Australia's sows are in group or loose housing systems during the vast majority of their pregnancies.\*

So, looking back at our measures of progress over the years: in 2011, one year after our resolution, we were one-third gestation stall free; in 2012, we were more than 50 percent gestation stall free; and now after three years, we are more than two-thirds gestation stall free, subject to our final survey results.

That's a result the industry can be proud of and that's the message I gave at the

Outlook conference. We've had some great supporters along the way, such as the Australian government and the RSPCA, but we've also had those who would prefer to stand in our way than support us in implementing this global first initiative.

Our job at APL continues to be to ensure that our consumers and the community know about the very positive achievements of the Australian pork industry, and that they consequently choose to preferentially support us on the supermarket shelf and when dining out.

Many producers wouldn't yet see the positive contributions that the Shaping Our Future initiative is having on our industry but let me tell you that they are certainly there, admittedly not yet having trickled down fully into their profit and loss statements.

Be assured that we're working on it.

\* Industry definition of gestation stall free means a sow will only spend up to five days in a mating stall to stabilise pregnancy and then later be moved into a farrowing crate or birthing stall up to a week before she is due to give birth.

In this way, Australia's pregnant sows only spend a maximum of 10 percent of their total pregnancy individually confined under the gestation stall free definition.

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**Pig Industry  
Calendar of Events**

**2014**

**MAR 26 - 27** – London Swine Conference, Ontario, Canada, [www.londonswineconference.ca](http://www.londonswineconference.ca)

**APR 2** – Successful Group Housing Systems for Dry Sows Workshop, Toowoomba QLD P: APL 02 6270 8823 E: [imogen.gardiner@australianpork.com.au](mailto:imogen.gardiner@australianpork.com.au)

**APR 4** – Successful Group Housing Systems for Dry Sows Workshop, Parkroyal Hotel, Melbourne VIC P: APL 02 6270 8823 E: [imogen.gardiner@australianpork.com.au](mailto:imogen.gardiner@australianpork.com.au)

**MAY 13 - 14** – British Pig & Poultry Fair, Stoneleigh, UK, [www.pigandpoultry.org.uk](http://www.pigandpoultry.org.uk)

**MAY 19 - 21** – Alltech Symposium, Kentucky, USA, [www.alltech.com/symposium](http://www.alltech.com/symposium)

**MAY 20 - 22** – VIV Europe, Jaarbeurs Utrecht, The Netherlands, [www.viveurope.nl](http://www.viveurope.nl)

**MAY 21 - 22** – Pan Pacific Pork Expo, Gold Coast Convention and Exhibition Centre, QLD P: APL 02 6285 2200

**MAY 25 - 27** – 2014 Australasian Milling Conference, Feed & Food in the Asian Century, Gold Coast Convention and Exhibition Centre, QLD [www.millingconference.com.au](http://www.millingconference.com.au)

**JUN 4 - 6** – World Pork Expo, Des Moines, Iowa, USA [www.worldpork.org](http://www.worldpork.org)

**JUN 8 - 11** – International Pig Veterinary Society Congress (IPVS 2014), Cancun Mexico [www.ipvs2014.org/](http://www.ipvs2014.org/)

**AUG 8 - 10** – The 9th Biennial Conference of AAA, Newcastle NSW E: [androfest@newcastle.edu.au](mailto:androfest@newcastle.edu.au)

**AUG 10 - 14** – The 12th International Symposium on Spermatology, Newcastle NSW E: [androfest@newcastle.edu.au](mailto:androfest@newcastle.edu.au)

**SEP 13 - 16** – Allen D. Lemman Swine Conference, Minnesota, USA [www.cvm.umn.edu/vetmedce/events/adl/](http://www.cvm.umn.edu/vetmedce/events/adl/)

**SEP 13-16** – Joint ISNH/ISRP International Conference 'Harnessing the Ecology and Physiology of Herbivores', Canberra [www.herbivores2014.com](http://www.herbivores2014.com)

**SEP 20** – Code of Practice for On-Farm Biogas and Use (Piggeries) Consultation Workshop, Brisbane, QLD APL 02 6270 8827

**OCT 10** – Code of Practice for On-Farm Biogas and Use (Piggeries) Consultation Workshop, Adelaide, SA APL 02 6270 8827

**OCT 10 - 17** – Vietstock 2014, Ho Chi Minh City, Vietnam [www.vietstock.org](http://www.vietstock.org)

**OCT 11** – Code of Practice for On-Farm Biogas and Use (Piggeries) Consultation Workshop, Southbank, VIC APL 02 6270 8827

**OCT 17** – Code of Practice for On-Farm Biogas and Use (Piggeries) Consultation Workshop, Perth, WA APL 02 6270 8827

**NOV 11 - 14** – EuroTier 2014, Hanover, Germany [www.eurotier.com/](http://www.eurotier.com/)

**NOV 14** – Code of Practice for On-Farm Biogas and Use (Piggeries) Consultation Workshop, Parramatta, NSW APL 02 6270 8827

**How to supply event details: Send all details to Australian Pork Newspaper, PO Box 387, Cleveland, Qld 4163, fax: 07 3821 2637, email: [ben@porknews.com.au](mailto:ben@porknews.com.au)**

[porknews.com.au](http://porknews.com.au)

# ProHand and Physi-Trace revamped

IN this article I have provided an update on two key technologies that are being revamped to ensure relevance to enable industry adoption.

It's been a while but I can remember as a young student the many ProHand signs in piggery tearooms highlighting the virtues of proper stockpersonship and animal handling.

Like a lot of technologies these days, operating platforms need to provide users with systems that are easy to use, convenient and versatile.

The ProHand classroom style system that involves a trainer and participants working together over a few hours is redundant, according to feedback from the end users.

In the case of ProHand, I can only say "better late than never".

ProHand is currently undergoing a major revamp and if we are to believe the researchers' 'sales pitch', this should be a world beater, and I for one happen to share their optimism.

In a nutshell, ProHand Pigs and Pork Abattoir will be revamped to provide:

- A stable platform for the delivery of ProHand Pigs and ProHand Pork Abattoir. This is likely to be web-based

- A revised delivery method that maintains the effectiveness of the program

- An integrated tool to measure and benchmark pig welfare and stockperson attitudes for the whole pork supply chain.

The whole supply chain program will offer a 'one stop shop' for producers, transporters and abattoirs to monitor and benchmark pig welfare, stockperson attitudes and to train personnel in low-stress handling techniques utilising the proven ProHand approach, which targets attitudes and behaviour to improve productivity, ease of handling, meat quality and pig welfare.

While APL is the major funder (along with the Animal Welfare Science Centre), I am also pleased to see funding from the Australian Meat Processor Corporation.

We have set some very strict milestones for the project and have an industry advisory group that will provide the researchers with timely advice, and test the product right through the development process.

A testament to this ProHand revamp is the involvement of some of the biggest international industry identities, but more on that in a later issue.

The ProHand Stage 1 revamp will deliver the on-farm component of the program and is scheduled for completion mid-2014.

Another program undergoing a major revamp is Physi-Trace.

Physi-Trace is a scientific tool that can be employed to validate the



by **DARRYL D'SOUZA PhD**  
Research and Innovation  
General Manager



traceability or label claim of a pork product.

That means, in the case of fresh pork, it is possible to trace the fresh pork back to a kill lot (tattoo code).

For processed product, the Physi-Trace tool can be used to provide an assessment of a label claim (for example, PorkMark or Product of Australia).

The Physi-Trace system has also successfully investigated the potential use of trace elements and stable isotopes in the traceability of pork offal and its relationship to the Pork Meat Physi-Trace Database.

The Physi-Trace validation tool works on the basis of comparing determined elemental distribution patterns with a database of reference patterns.

This involves the regular collection of reference samples from selected kill lots.

In the event of a food safety incident or any other incident where traceability is required, these samples can be used to quickly and accurately identify potential sources of suspect product.

This enables the rapid exclusion of unaffected product, producing areas and processors, therefore

facilitating rapid re-entry to markets.

The Physi-Trace science has been proven and validated and the next stage is the crucial adoption phase of this technology.

At the time of writing, five of the seven major export abattoirs had signed up to the adoption phase and APL will be working hard to get all the export abattoirs on board.

In addition, a number of domestic abattoirs have also indicated their willingness to be part of this adoption phase.

A major 'risk issue' for Physi-Trace has also been resolved with the trace elemental profiling now being conducted at the National Measurements Institute.

This alleviates a major risk to the Physi-Trace program in that it does not rely on a single laboratory for these analyses.

The standard operating procedures are being developed so that the NMI laboratories across Australia will have the capability and expertise to

conduct these analyses.

**Porcine Epidemic Diarrhoea virus North American update**

The American Association of Swine Veterinarians website has reported 310 new cases in the US, bringing the grand total to 3873.

A total of 25 states have reported at least one confirmed case of PED.

In Canada, PEDv is confirmed in four provinces (Ontario with 21 cases, Prince Edward Island, Quebec and Manitoba).

At the recent Pork SA industry seminar (February 21), a number of producers were extremely concerned with the status of PEDv in North America and its potential to come into Australia.

PEDv was considered as part of the Import Risk Analysis – pork (2003) and there was an 'extremely low' likelihood that imported pork derived from an individual carcass would be infected.

The Biosecurity Strategic Review Panel met on

continued P3




## Successful Group Housing Systems for Dry Sows Workshop

**Wednesday 2 April 2014**

**Burke and Wills Hotel, Toowoomba Qld**

**Friday 4 April 2014**

**Parkroyal Hotel, Melbourne Airport Vic**

**Background**

These workshops will provide an update of how pork producers are managing the changes to lower confinement systems after weaning, after insemination and during gestation. The workshops will also provide information on the principles and strategies to mix sows in groups from weaning and after insemination.

**Program**

**Arrival, Registration and Morning Tea**  
9.30am

**Welcome and Introduction**  
10.00am, Ray King

**Setting the Scene**  
10.10am, Roger Campbell and Darryl D'Souza  
*How housing systems for dry sows has changed in the Australian pork industry in the past years from stall to group housing based systems.*

**Key Principles on How to Mix Sows and Manage Sows in Group Housing Systems**  
10.30am, Paul Hemsworth  
*This presentation will discuss the extensive literature review conducted by Hemsworth and Hansen for the Pork CRC.*

**Behaviour and Sow Welfare Results from Relevant Pork CRC Projects**  
11.15am, Paul Hughes and Jean Loup Rault  
*Mixing strategies (space, barriers, duration), mixing at weaning and mixing five days after Artificial Insemination (AI).*

**Animal Health Observations with Changes to Group Housing in Australia**  
11.45am, Bernie Gleeson

**Lunch**  
12.30pm

**Facilitated Panel Discussion of Successful Group Housing Systems**  
1.30pm, Ray King, Paul Hemsworth and Bernie Gleeson  
*The panel will consist of up to six pork producers together with Paul Hemsworth and Bernie Gleeson. The panel will provide insights into their operation as they have shifted to group housing over the past couple of years.*

**Close**  
4.00pm

**Registration**

Full registration is \$120 for Non-APL members and \$50 for APL members (inclusive of GST). Registration includes a copy of a publication addressing key issues and outcomes from the day, lunch and refreshments. To register contact Imogene Gardiner on 02 6270 8823 or [imogene.gardiner@australianpork.com.au](mailto:imogene.gardiner@australianpork.com.au).

# Pork CRC invests in future with significant new R&D budget

A MAXIMUM budget of \$2,384,031 for investment in 2014/15 across proposals recently supported by the Pork CRC's R&D Committee has been recommended by its board.

The committee met last month to consider proposals received in response to our call in November/December 2013.

A total of 39 proposals were received – the number in each program is summarised below.

Following review of all proposals, recommendations were made to the R&D committee, which supported 22 proposals to be considered for approval by the Pork CRC Board at its February 26 meeting in Adelaide.

There were only three proposals supported without change and a number requiring major changes.

The Pork CRC executive and R&D committee will negotiate necessary revisions to methodology and budgets.

All researchers have been notified of what is



## Initiatives

by DR ROGER CAMPBELL  
CEO



required and most have responded, so we should have it all sorted shortly.

The deadline for receiving revised proposals and having them approved by the R&D committee is March 14.

We received excellent proposals across the programs, with some real stand-outs in each and we certainly look forward to seeing the outcomes of all projects, and I thank the researchers for responding to the call so positively.

In Program 1 (Reduced confinement of sows and piglets) several very innovative proposals on

enhancing satiety and enriching the environment of group-housed pregnant sows were supported.

As were proposals on comparing the welfare and performance of sows and piglets housed in conventional and modified farrowing accommodation, with increased emphasis on defining and enhancing the welfare of sows in conventional farrowing crates.

In Program 2 (Herd health management) some large proposals on the incidence and cause of pleurisy and the 'control' of APP were supported.

Proposals on osteochron-

dic lesions and lameness and on how fibre affects the microbial diversity and health of weaner pigs were also supported, along with a proposal on the incidence of novel pathogenic Brachyspira species in the Australian herd and their sensitivity to antimicrobials.

The highest ranking proposal was received in Program 3 (Healthy pork consumption) and relates to the consumption of pork and its health consequences based on an analysis of the 2011-2013 Australian health survey.

Two proposals to investigate the causes of low ultimate pH in pork, which we know has a marked effect on eating quality, were also supported, albeit with considerable changes requested to one of these.

In Program 4 (Carbon conscious nutrient inputs and outputs) two proposals on enhancing biogas production and its utilisation and one proposal on the use of algae to clean up undiluted piggery effluent were supported.

The latter was based on a recent discovery by a Pork CRC honours student of a number of algae species that grow on high N content effluent.

**What's happening with group-housed sows and reproduction in general?**

Pork CRC  
Results of Pork CRC re-

search on group-housing of sows will be revealed at the two sow-housing solutions workshops to be held in Toowoomba and Melbourne on April 2 and 4, respectively.

More importantly, we will receive producer feedback on how they are progressing and where future investment in R&D should be directed.

We have made good progress in understanding the factors contributing to success and have a number of large projects just finishing up – let's see what everybody thinks in early April.

### Reproduction reports

Several Pork CRC researchers and students attended the 2013 International Conference on Pig Reproduction at Olsztyn, Poland and the 47th meeting of the International Society for Applied Ethology at Florianopolis, Brazil.

Some of the interesting ICPR outcomes reported by Dr Rebecca Athorn were associated with set time AI and piglet survival.

Rebecca works at Riv-

continued P4



Dr Rebecca Athorn

Program	Proposals received	Proposals supported	Without change	With major change
1	16	8	0	2
2	11	6	2	2
3	7	5	1	2
4	5	3	0	0
<b>Total</b>	<b>39</b>	<b>22</b>	<b>3</b>	<b>6</b>

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## ProHand and Physi-Trace revamped

from P2

February 24 to discuss a number of issues including PEDv.

APL will be taking a closer look at the literature supporting the IRA conducted in 2003.

In addition, a number of producers were also concerned with reports that the spread of PEDv from the US to Canada may have been due to contaminated spray dried porcine plasma.

The Canadian Food Inspection Agency is conducting tests to determine whether contaminated animal feed was a factor in spreading PEDv in

Canada (WATTAgnet.com.au; February 20).

It has been reported that the CFIA said testing has found the virus was present in plasma that originated in the US and was obtained at the Ontario-based third-party manufacturer for Grand Valley Fortifiers, a livestock feed company.

The plasma was used in the company's feed pellets, which Grand Valley recalled on February 9, 2014.

The CFIA said the results of tests to assess whether the feed pellets could have caused PEDv in piglets are expected soon.

It is important to note

that the CFIA report only stated that PEDv was identified in spray dried porcine plasma, with no mention if the virus was still alive or not.

I think this is a pretty important fact and we should not jump to any wrong conclusions.

I make this point given reports from the USDA (Meatnplace.com; March 3) stating, "tests conducted in the US and Canada on animal feed have determined that even when the Porcine Epidemic Diarrhoea virus is present, it may not infect the animals that eat it, according to summaries of the results available from

USDA and the University of Minnesota".

These results, if substantiated, do throw up more questions than answers with the biggest one being, "How did the PED virus get to the US from China?"

APL urges pig producers and feed manufacturers to be vigilant and maintain their biosecurity protocols.

APL will have sent out industry alerts by the time this article is published.

For further information on any of the topics discussed in this column, please do not hesitate to contact me on 02 6270 8804 or [darryl.dsouza@australianpork.com.au](mailto:darryl.dsouza@australianpork.com.au)

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**Topic 2:** Human Food Waste – Why We Must Use It

#### PLENARY SESSION 2

**Topic 3:** Australian Pork Future Challenges and Opportunities: A Small Producer's Story

**Topic 4:** Australian Pork Future Challenges and Opportunities: A Large Producer's Story

#### CONCURRENT SESSIONS

**Topic 1:** Sow Housing

**Topic 2:** Enhancing Eating Quality of Pork

**Topic 3:** Making More From Manure

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	Control		Treated	
	Multiparous	Primiparous	Multiparous	Primiparous
Number	168	38	174	39
Insemination rate %	97.6 (164/168)	94.7 (36/38)	91.9 (160/174)*	82 (32/39)
FR %	84.1 (138/164)	86.1 (31/36)	88.1 (141/160)	78.1 (25/32)
Total born	13.89 ± 0.26	12.83 ± 0.61	13.69 ± 0.31	13.16 ± 0.80
TBA	12.85 ± 0.25	12.29 ± 0.56	12.46 ± 0.27	12.60 ± 0.76

Table 1 - Reproductive performance observed in weaned sows, comparing fertility and prolificacy following either Buserelin and single fixed time insemination or two inseminations detected at oestrus (controls). \*P = 0.02 v control multiparous



Dr Sean O'Leary (right), with fellow Pork CRC supported researchers, Dr Jae Kim and Dr Stephan Tait.

# Pork CRC invests in future with significant new R&D budget

from P3

alea under Pork CRC's industry placement program.

Set time AI after weaning has long been the objective of many researchers and some producers, especially those who find themselves constantly short of experienced staff.

At the meeting, experiments were presented using Buserelin and Ovulgel.

French researchers used the GnRH analogue Buserelin to synchronise ovulation in sows after weaning and to mate them at a set time after weaning using one dose of semen.

Buserelin was injected 83 to 89 hours after weaning and single fixed time insemination was done 30 to 33 hours later.

Results are shown in Table 1.

Bottom line was that set time AI removed the need for oestrus detection, reduced the time associated with AI and the amount of semen used (one dose v two or more), but resulted in similar reproductive performance.

#### OvuGel

OvuGel (GnRH agonist triptorelin) is administered intra vaginally to stimulate ovulation in fixed-time AI programs in weaned sows.

The reported study was conducted on four commercial sow farms in the USA between April and August.

Sows were assigned to the Control treatment (bred once each day of oestrus) or an OvuGel treatment (2ml of OvuGel administered intra vaginally 96 hours after weaning followed by a single AI 20 hours later).

OvuGel sows were bred without regard to oestrus.

Results are shown in Table 2.

Again, the set time AI

technology resulted in similar reproductive performance as the control, but required no oestrus detection and a single dose of semen only.

The technology certainly has advantages over what we do conventionally and has the potential to markedly reduce the number of boars required by the industry and hopefully increase the genetic merit of those servicing the industry.

#### AI timing

Using another product (Gonavet), Pork CRC supported researcher at the University of Adelaide Dr Sean O'Leary has been investigating set time AI at the experimental and commercial levels for the past three years.

His results are similar to those shown in Tables 1 and 2, except that in studies with set time AI in summer he found a significant increase in farrowing rate associated with the technology.

In a study with parity one sows in the summer of 2012/13, he found the use of Gonavet and set time AI improved farrowing rate by 10 to 15 percentage units, suggesting the technology may have a role in alleviating summer infertility.

Again, oestrus detection was not required and only one dose of semen was used.

Litter size was not affected.

The race for this technology began in earnest in 2005 and looks like it is all coming together now.

#### More feed

Rebecca also reported on a study in Denmark, which investigated whether the allocation of additional feed in the last few weeks before farrowing affected litter birth weight and piglet survival.

The trial was conducted on two farms with DanAvl sows.

On both farms, sows were fed individual energy levels in electronic sow feeding stations during gestation.

In the first part of gestation all sows were fed to be uniform four weeks before farrowing.

Six weeks after mating, the sows were divided into three equal groups according to parity and allocated to one of three feeding strategies.

From four weeks before farrowing, sows in group one were fed 2.5 FUsow (one FUsow = 12.4 MJ) a day; sows in group two were fed 3.5 FUsow a day; and sows in group three were fed 4.5 FUsow a day.

The feed dose in group three was increased over a period of about seven days (from gestation day 79), while group two was increased over a period of about four days (from gestation day 82).

The sows were moved to the farrowing unit about a week before farrowing and stayed on the feed dose used in the gestation unit.

Two days before expected farrowing, the daily feed dose was reduced to 2.5 FUsow a day.

In the farrowing unit, all sows were fed a lactation diet.

All piglets were weighed individually at birth and all live born piglets were ear-tagged and followed until they were seven days old.

The study included about 26,000 live born piglets from about 1500 litters.

The bottom line is birth weight significantly (P<0.005) increased in sows on the two higher feeding levels in late gestation.

This differs from the results of three large Pork CRC studies where increasing feed intake in the last three to six weeks of gestation had no effect on birth weight.

The difference might be

because the average born alive in the Danish studies was just over 17.

In our studies, the corresponding values ranged from 11 to 13.2 and we speculated that the outcomes may differ in prolific sows.

What didn't differ is that in the Danish and Australian studies, the higher feeding levels in late gestation had no effect on the variability in birth weight or on piglet survival or growth.

Subsequent sow reproduction was also unaffected by the level fed in late gestation.

Our conclusion remains - there seems to be little value in increasing sow feed intake in late gestation.

#### Sow surfaces

An interesting outcome reported by Dr Kate Plush (Pork CRC industry placement with Australian Pork Farms Group) after attending the 2013 ISAE meeting, concerned the behaviour of sows housed on concrete or straw during gestation.

Yolande Seddon, Harold Gonyou's postdoc reported distinct differences in temperament and behavioural traits between sows housed on concrete versus those on straw (both fed via ESF stations).

Sows housed on straw were found to be more active and fearful compared to those on concrete (that exhibited more passive and confident traits).

It was suggested that this may have implications for management as housing system may influence ease of movement and handling of sows.

As I said previously, there are still questions to be answered on the housing and management of group-housed pregnant sows.

I am sure we will learn more at the sow housing workshops.

See you in Toowoomba or Melbourne in early April.

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	OvuGel	Control
Number	374	842
FR %	79.9	78.2
Total born	12.3	12.4
Born alive	11.6	11.2

Table 2 - Reproductive performance observed in weaned sows, comparing fertility and prolificacy following either OvuGel and single fixed time insemination or Control.



Dr Kate Plush

www.porknews.com.au

## Korea - Australia Free Trade Agreement

AUSTRALIA concluded negotiations for a free trade agreement with Korea on December 5, 2013.

The resulting Korea-Australia Free Trade Agreement is an excellent outcome for agriculture as a whole, and made good progress in tariff elimination for pork products into Korea.

Korea, Asia's fourth largest economy and Australia's third largest export market, with \$A30 billion in two-way trade, is consistently in the top 10 markets by both volume and value for Australian pork exports, with 1060 metric tonnes worth \$1.83 million exported in FY11/12.

APL provided advice to the Department of Foreign Affairs and Trade regarding the industry's priorities for exports to Korea.

In particular, APL highlighted the high tariff rates imposed by Korea, urging Australia's negotiators to focus on the early elimination of these tariffs for pork exports.

KAFTA outcomes include the total elimination of the 22.5 percent tariff on all fresh/chilled pork lines over five to 15 years.

Australia's major export line, frozen cuts under the 0203299000 'other' tariff line of 533 tonnes were exported to Korea in 2012 incurring a 25 percent tariff, have also achieved tariff elimination over five years.

Other outcomes include:

- Smoked/salted/dried pork – tariffs eliminated from 30 percent and 25 percent over five years

- Frozen carcasses and half-carcasses; frozen hams, shoulders and cuts thereof with bone-in, and frozen streaky pork - excluded from tariff liberalisation

- Preserved bellies - tariffs eliminated from 30 percent over five years
- Offal – tariffs eliminated over five years.

The two governments are now undertaking the necessary domestic legal processes to introduce the agreement and achieve its entry into force.

Tariff elimination will then occur in equal annual phased tranches over the defined period (for example, five years), with the first tranche on entry into force.

APL policy monitors all free trade agreements Australia is involved with, and will continue to pursue improved market access for Australian pork exports to Korea, notably for the remaining frozen pork lines and faster phase-out periods through the Trans-Pacific Partnership free trade agreement currently under negotiation.

For further information on APL's engagement on free trade agreements, please contact senior policy analyst Sam Lawrence at [sam.lawrence@australianpork.com.au](mailto:sam.lawrence@australianpork.com.au)

# Gutsy effort for the sake of piglets

PROGRAM 1 (Reduced confinement of sows and piglets) Pork CRC funded student Diana Turpin has just finished the first year of her PhD.

Based at the School of Veterinary and Life Sciences at Murdoch University, WA, Diana has a Bachelor of Science and a Bachelor of Veterinary Medicine with Merit Honours.

She spent four years working in a small animal veterinary clinic in Perth before returning to Murdoch University to embark on her Pork CRC PhD.

Diana's research within Pork CRC Subprogram 1B (Innovative weaning systems), focuses on the use of gradual weaning regimes to improve piglet performance, gastrointestinal function and welfare in the pre-weaning and immediate post-weaning period.

### Weaning meaning

Piglet welfare and sub-optimal production is an ongoing challenge for the pork industry in Australia.

Weaning under current commercial conditions generally takes place when piglets are three to four weeks, which is in stark contrast to a weaning age of 12 to 16 weeks under semi-natural conditions and it is characterised by an abrupt transition to independence, involving sudden environmental, dietary and social changes.

Since this takes place at an age when piglets are not fully able to

**'Gradual weaning of piglets: effects on performance and gut health'**



**Diana Turpin:** Pork CRC PhD candidate, School of Veterinary and Life Sciences, Murdoch University, WA

Supervisor: Prof John Pluske, Murdoch University

deal with these sudden changes, they pass through an adaptation period, as evidenced by altered behaviour patterns, reduced solid feed intake, a growth check and marked changes to the gastrointestinal tract, increasing pigs' susceptibility to gastrointestinal diseases.

### Intermittent suckling

Intermittent suckling is a type of gradual weaning regime in which the sow and piglets are separated for a specified period before weaning.

It has the potential benefit of improving adaption to weaning by mimicking the increasing amount of time sows would spend away from the piglets during the lactation period when sows themselves can control contact with their litter.

In doing this, piglets potentially become more familiar with maternal separation and more familiar with solid food as an alternative nutrient source to milk.

This could lead to an improved voluntary solid feed intake in the immediate post-weaning period, therefore eliminating the growth check and reducing the risk of disease.

### CRC project

While previous studies looking at the effect of intermittent suckling regimes on piglet performance before and after weaning have generally shown positive results for growth, feed intake, gastrointestinal changes and behaviour, most have only measured one or two of these indices at a time and have varied in their length and duration of separation, age of weaning and the age at which separation started.

These differences have made it difficult to draw firm and unifying conclusions regarding the effectiveness of this regime with respect to these indices.

Diana's project aims to comprehensively look at the effect intermittent suckling regimes have on piglet performance, gastrointestinal structure and function and behaviour and welfare at the same time, using one type of intermittent suckling regime.

The duration of the intermittent suckling regime and length of separation has been selected for its realistic application into an Australian commercial setting (eight hours separation per day during the last week of lactation).

### Industry benefits

Weaning is one of the most stressful events a pig will encounter and it is well known that stress plays a critical role in disease susceptibility.

If decreasing adaptation time to weaning through a commercially viable intermittent suckling regime could ameliorate such stress, it could alleviate the major constraint that the weaning event has on the pork industry.

This project aims to demonstrate how using a gradual weaning regime such as intermittent suckling can decrease adaption time to weaning, therefore achieving better post-weaning piglet performance, reducing the risk of weaning associated disease and potentially even reducing the use of antibiotics at weaning.

As well as improving piglet welfare, another possible benefit of intermittent suckling regimes is the potential to induce an oestrus and ovulation during lactation as a result of a reduced suckling stimulus.

This may play a role in new production systems.

Contact Diana Turpin, email [D.Turpin@murdoch.edu.au](mailto:D.Turpin@murdoch.edu.au)



Diana Turpin

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## 2014 Ron Collins Memorial Travel Award

**APPLICATIONS are being sought for the Pan Pacific Pork Expo – Ron Collins Memorial Travel Award 2014**

The Ron Collins Memorial Travel Award is proudly sponsored and supported by the 2014 Pan Pacific Pork Expo Committee, Australian Pork Limited and the *Australian Pork Newspaper*.

The Pan Pacific Pork Expo was created as an event that would attract both international and local pig communities to meet and share information and ideas. As well, it provided the Australian pig industry with the ideal forum in which to showcase the local industry.

The first PPPE was held in October 1998 in Brisbane. The inaugural event was a huge success leading to continuation of the event biennially. Ron Collins was one of the leaders of a group of industry forward thinkers who brought PPPE into life. He was also the owner, editor and publisher of Australia's leading pig industry newspaper *Australian Pork Newspaper*.

APN first saw the light of day in 1997 and is still produced today by Ron's son Ben Collins. Through his beloved APN Ron continued throughout his life to support every aspect of the Australian pig industry.

Tragically in 2003 Ron passed away after a battle with cancer. In memory of the tireless work and support Ron gave the industry the Ron Collins Memorial – Pan Pacific Pork Expo Travel Award was established.

### PURPOSE OF THE AWARD

The Ron Collins Memorial – Pan Pacific Pork Expo Travel Award has been designed to assist a person involved in any part of the industry supply chain to travel overseas and further investigate a nominated innovative topic that would be of benefit to Australia's pork industry.

### AWARD VALUE

The total award is valued at up to \$10,000. Overseas travel limited to \$6000.

### CLOSING DATE

All applications must be received by the Committee by close of business Monday, April 28, 2014. No late applications will be accepted.

For further information and application forms contact:  
Wayne Bradshaw on 0429 301 500 or email [wbradshaw@jefo.com](mailto:wbradshaw@jefo.com)

### Send completed applications to:

Darryl D'Souza  
Ron Collins Memorial Travel Award  
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PO Box 4746  
Kingston ACT 2604  
or email  
[darryl.dsouza@australianpork.com.au](mailto:darryl.dsouza@australianpork.com.au)

**Australian Pork**  
NEWSPAPER



The author with his father Ray on his 80th birthday last year. A good horseman in his younger days, Ray no longer drives a car, let alone rides a horse, although he rode horses well into his 60s and drove a car until 80.

## Smoke signals writing wrongs

SINCE mentioning media madness in last month's column, I've been to writer's heaven and back again.

The Perth Writers Festival, for me a much anticipated highlight of the annual Perth International Arts Festival and hosted in the glorious grounds of the University of Western Australia, is an opportunity to meet and chat with authors from around the world and many much closer to home.

Held in tents, outdoor tropical groves and indoor lecture theatres, the talks, typically of one-hour duration, were held over four days from Thursday to Sunday and I managed to attend three of those.

The 2014 Writers Festival welcomed novelists, illustrators, politicians, actors, soldiers, judges, gamers, poets, critics, journalists, adventurers, activists, film makers, comedians, publishers and much and many more.

A highlight for me was a chat in the tropical grove, but it could easily have been around a bush campfire, with charming Nhanhagardi man Clarrie Cameron who recently authored a book mysteriously titled *Elephants in the Bush*.

Clarrie, 70-plus, born in Wiluna but now living at Sandstone between Mt Magnet and Leinster in WA's north is very proud that at 50 he went to university in Adelaide, graduating with a Bachelor's degree in Aboriginal affairs.

A former stockman in WA's outback and – surprise, surprise – a great horse lover, he told some ripping yarns while offering subtle messages about stockmanship along the way.

Referring to his much-loved, long-deceased stockhorse Cheeky Boy, Clarrie made the point repeatedly that the horse is the real stockman and the real cattleman, not the rider.

According to Clarrie, Cheeky Boy was as good a night horse as he'd ever had.

As he explained, a



**Cant Comment**  
by  
**BRENDON CANT**

stockman usually can't see when riding and driving cattle on a dark night, but his horse can, therefore protecting the rider from being brushed off by unseen low hanging branches.

Yarning about yarning, Clarrie said, "Blackfellas like myself live the story and we can smell the campfire smoke or the mulga tree as we tell our stories, even years and years after the event."

"We live our stories. They're not something that's for sale," he said, somewhat ironically, as he later signed a copy of his book for my dear ol' dad, himself a horseman of equally fine pedigree.

Clarrie's chat was starkly contrasted by a later panel presentation on press freedom, featuring *The West Australian* editor in chief Bob Cronin, Walkley award winner West journo Steve Pennells and former Murdoch journo Tony Barrach, best known for once being jailed for refusing to reveal his sources to the court.

Inevitably, the recent Australian Federal Police raid on Seven West Media's Sydney offices, when they were trying to find evidence of a cash deal allegedly cut with convicted Bali drug smuggler Schapelle Corby, came into the frame.

The panel generally

agreed that many people profited from proceeds of crime, and Schapelle should be treated no differently.

Speaking of reaping the rewards of crime, Indian author Jeet Thayil, whose novel *Narcopolis* was shortlisted in 2012 for the prestigious Man Booker Prize, was once quoted as saying that he lost 20 years of his life to addiction.

And he repeated it at the Writers Festival, during what was a refreshingly honest account of his life and his writing exploits.

His novel captures the essence (and opium smoke!) of the Indian city of Bombay in the 1970s.

As one reviewer wrote, "Long intoxicating sentences weave like opium smoke into the story of Dimple, a streetwise prostitute in a '70s Bombay opium den."

Another wrote, "The ingenuity of Thayil's novel lies in how he has squeezed this entire universe into an opium pipe."

On a less controversial note, Carrie Tiffany, who has written the odd agricultural and environmental story over the years, talked about her earthy book *Mateships with Birds*.

A story about nature, sex and family, it was shortlisted for the Miles Franklin Award and won the inaugural Stella Prize.

She told one particularly delightful story from her days as an agricultural journalist.

Briefed to do an on-farm story with a dairy farmer, who I gather was somewhat older than Carrie, she got to backgrounding the yarn with him, as you do, then it suddenly dawned on her that when he was tallying up the number of cows he milked and what machinery and equipment he owned, it was amounting to something akin to a dowry and a shy and awkward marriage proposal.

I suspect she may well have suffered a classic case of writer's block when later pulling the opening parts of that story together. 🐷

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# Pork CRC project leader profile

■ Pork CRC projects 1A-104: 'Maximising the fertility and fecundity of sows mated in lactation' and 1A-102: 'Managing the sow to stimulate lactational ovulation'

WILL van Wettere leads a number of projects in Pork CRC's Program 1, Reduced confinement of sows and piglets.

In 2003 Will commenced in the Australian pork industry as a post-graduate student with no pig-specific background beyond a general degree in agricultural science from the University of Edinburgh, Scotland.

He subsequently completed his PhD with Prof Paul Hughes in gilt management and reproduction, became Pork CRC's first postdoctoral fellow and more recently was appointed lecturer in intensive animal production (pig) within the School of Animal and Veterinary Sciences at the University of Adelaide.

Will's research centres on strategies to improve reproductive performance of female pigs, using a range of methodologies from dietary interventions through to in vivo assessments of piglet viability at birth, and in vitro assessment of oocyte developmental competences.

#### Career highlights

Will regards his career highlights so far as demonstrating for the first time that dietary betaine alleviates the negative impact of summer on farrowing rates and litter size; providing evidence that high fibre diets improve potential litter size in gilts and reduce aggression in gestating sows, making significant contributions towards the understanding and alleviation of seasonal infertility; and being responsible for mentoring and supervising 20 honours and six postgraduate students.



Pork CRC project leader Dr Will van Wettere.

His current active research areas include developing peri-farrowing nutritional strategies to improve piglet viability at birth, strategies to reduce aggression in gestating, group-housed sows, methods of reducing sow confinement and stress during lactation and the focus of this article, 'use of natural strategies to induce lactation oestrus in sows and ways to maximise the fertility and fecundity of sows mated in lactation'.

Simply stimulating For the past four years Will and two of his PhD students, Robyn Terry and Alice Weaver, have investigated ways to use natural stimuli (boar exposure, manipulation of suckled litter size and grouping of sows) to stimulate a high proportion of sows to express oestrus during lactation and produce similar farrowing rates and litter sizes as sows mated post-weaning.

This work has involved several methodologies, including intensively investi-

gating the quality and gene expression of oocytes and embryos produced by sows ovulating and mated in lactation and a large scale trial involving 600 sows on a big commercial piggery.

Results so far indicate for the first time that providing sows with full boar contact from day 18 of lactation onwards effectively induces sows to ovulate during lactation, with the proportion of sows responding to this stimuli improving when suckled litter size is reduced to seven piglets.

Importantly, oestrus expression synchrony was also similar for animals coming into heat in lactation and post-weaning.

This work has been published in *Animal Reproduction Science*, with results of the commercial study soon to be published in the *Journal of Animal Science*.

Will is currently investigating the effect of housing sows in multi-suckle groups and short periods of sow-piglet separation during the last week of lactation on incidences of lactation oestrus expression and piglet performance.

#### Piglet viability

Will also has a keen interest in reducing piglet mortality pre-weaning and, thanks to the financial support of APL, is currently investigating

the potential of specific nutrients pre-farrowing (creatine monohydrate, caffeine and melatonin) to improve piglet viability at birth, as well as piglet survival and growth to weaning.

Ongoing research by Will, along with Pork CRC funded post-doctoral research fellow Kate Plush and post-graduate students Patricia Condous and Anthony Martyniuk, will focus on commercially applicable strategies to reduce the stress of sows during the peri-parturient period, with the objective to improve piglet survival.

Contact Dr Will van Wettere, email [william.vanwettere@adelaide.edu.au](mailto:william.vanwettere@adelaide.edu.au)



Patricia Condous is a Pork CRC honours student supervised by Dr Will van Wettere.



Dr Will van Wettere oversees Pork CRC master student Anthony Martyniuk.



## Growth in grains demand leading to opportunity

STRONG growth in global consumption – particularly across Asia – is expected over the medium term, according to the Australian Bureau of Agricultural and Resource Economics and Sciences.

ABARES commodities analyst Neil Thompson told delegates at the annual Outlook conference that consumption growth reflected higher demand for coarse grains and oilseeds for use as livestock feed and cooking oil.

"The increase in global demand for grains and oilseeds is expected to keep world prices relatively high, prompting growers to increase production," Mr Thompson said.

The largest increases in production over the next five years are expected to be concentrated in South America, particularly Brazil, and the Black Sea region.

Mr Thompson said rising international grain [www.porknews.com.au](http://www.porknews.com.au)

production and exports will result in greater competition for Australian grains and oilseeds exports destined for Asia.

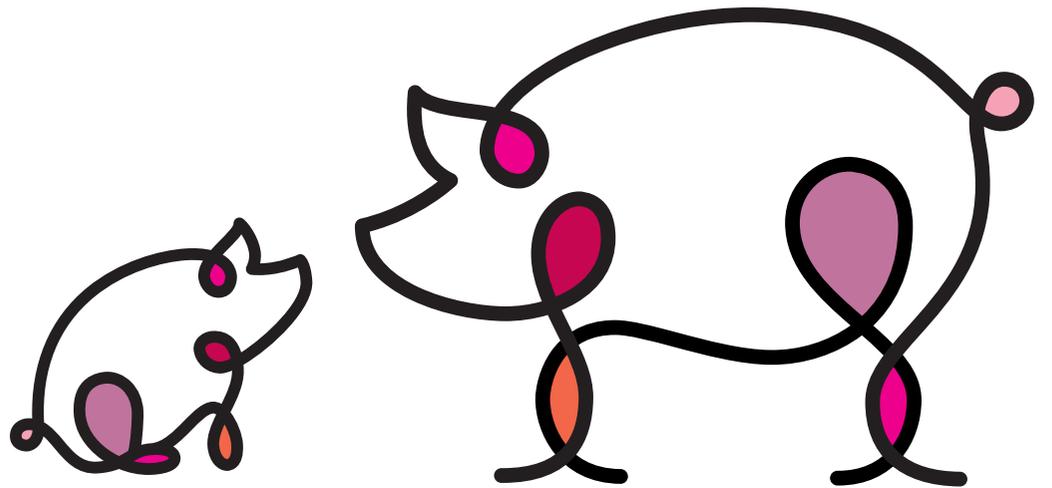
"ABARES projects that exports of grains and oilseeds from the Black Sea region alone will increase to almost 80 million tonnes by 2018–19, which is 20 percent higher than 2013–14."

Australian production of grains and oilseeds is expected to increase only modestly over the medium term.

Mr Thompson said with increasing competition, Australian producers will need to focus on productivity growth to maintain and improve farm gate returns.

"Finding new and innovative ways to improve production demands a continuing emphasis on research efforts across the Australian grains industry."

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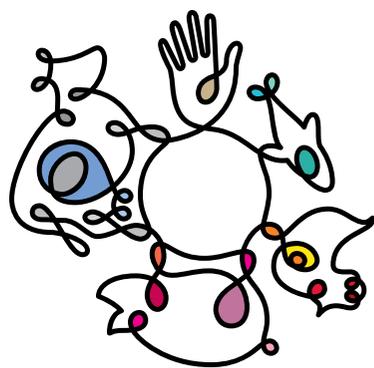
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# Webinars to help producers with transporting livestock

BIOSECURITY Queensland is proposing to hold a series of webinars to help answer any questions regarding the changes to the compulsory requirements for transporting livestock.

Senior policy officer Greg McDougall said while the new laws came into effect on January 31, 2014, there was a six-month grace period for enforcement.

"Before the grace period expires on August 1 2014, we are providing webinars to discuss the changes to the code which were the result of discussions between the livestock industries, scientists, welfare agencies

and government and aim to safeguard the welfare of livestock being transported," he said.

"The first webinar will be held on Wednesday March 12, 2014 from 12 to 1pm.

"Participants can register for the compulsory code of practice for the transport of livestock webinar at [www.daff.qld.gov.au](http://www.daff.qld.gov.au) (or go directly to <https://attendee.gotowebinar.com/register/8022038292204991234>).

"Anyone can participate in the webinar and the level of interest will determine if others are scheduled."

Mr McDougall said the changes to the Ani-

mal Care and Protection Act 2001 achieve a nationally consistent approach to livestock transport and align Queensland with other states and territories.

"The laws apply to the transport of both commercial and non-commercial livestock and start once livestock are assembled prior to loading and continue until the animals are unloaded at the final destination," he said.

"Only fit animals must be transported and the laws provide standards that animals selected for transport are fit for the intended journey.

"It is the responsibility of the persons involved

to ensure livestock are fit for transport."

The land transport code applies to the following animals being transported by road, rail or by a road vehicle or container aboard a ship: pigs, cattle, sheep, poultry, alpaca, buffalo, camel, goats, horses, ostriches, emus and deer.

For information on the national animal transportation standards, visit [www.australiananimalwelfare.com.au](http://www.australiananimalwelfare.com.au)

Producers can contact Biosecurity Queensland on 13 25 23 or visit [www.business.qld.gov.au](http://www.business.qld.gov.au) to register for the webinar or for more information. ☞

# No stalling on more space for Australian sows

AUSTRALIA'S pork producers have passed another key milestone in their positive and world-leading move to voluntarily phase out the use of sow or gestation stalls.

Interim survey results of industry progress on the phase out show that over 60 percent of sows are now gestation stall free.

The industry forecasts that when the survey is complete, more than two-thirds of Australian sows will be shown to be meeting the gestation stall free phase out definition.

\*See below for gestation stall free definition.

Australian Pork Limited CEO Andrew Spencer said in his speech to the Australian Bureau of Agricultural and Resource Economics and Sciences at the Outlook conference in Canberra, "This is a world-leading initiative, boosting Australia's animal welfare credentials globally that puts us well ahead of what is happening in other countries."

"In Europe, pregnant sows are confined for up to 30 percent of their pregnancy (except in the Netherlands and the UK) while in North America they still typically use gestation stalls for the entirety of a sow's pregnancy," he said.

"The gestation stall phase out initiative was our in-

dustry's response to meet the growing desires among consumers for higher welfare food, balanced with ensuring the long term sustainability of the industry by managing the transition in a balanced and cost controlled way.

"Our industry's ability to make the change has come through millions of dollars of investment in research and development, with estimates of well over \$50 million to complete this change made voluntarily by farmers."

Mr Spencer said despite the phenomenal efforts and progress made by the Australian industry since making the decision just over three years ago, we still face considerable difficulties and challenges.

"This includes competition from subsidised imported pork sent to Australia from countries with lower welfare standards than we have here," he said.

"At the same time, our industry has been impacted by high profile campaigns from anti-farming groups that have misled consumers and worse still, farm invasions by these groups under the guise of protecting animal welfare.

"If animal welfare is the true motivation for these groups, then they should be supporting Australian farmers in implementing their world-leading ini-

tiative."

Mr Spencer said the broader challenge for Australian pig farmers was not only communicating their positive results in animal welfare, but also their leadership on environmental initiatives including management of by-products, reduction in carbon emissions and the positive impact this has on production costs.

"Gaining recognition and managing consumers' expectations about different types of pork production, the high quality Australian pork and how healthy it is to eat are also high on our agenda," he said.

"Rest assured as proud and progressive farmers producing wholesome Australian pork, we are listening to and responding to consumers.

"In turn, we call on Australian consumers to support our world-leading initiatives."

\*This means that a sow will only spend up to five days in a mating stall to stabilise pregnancy, and then later be moved into a farrowing crate or birthing stall up to a week before she is due to give birth. In this way, Australia's pregnant sows only spend a maximum of 10 percent of their total pregnancy individually confined under the gestation stall free definition. ☞

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# Alltech receives ISO22000 certification in Thailand

GLOBAL leader in animal health and nutrition Alltech recently earned an ISO 22000:2005 certification in Thailand.

The ISO certificate, in conjunction with the Alltech Quality System is consistent with Alltech's continued commitment to provide excellence in quality assurance.

Regional manager of Alltech Thailand, Vietnam and Myanmar Dr Kij Soonthorn said today's consumers demand total traceability and transparency from their suppliers in Thailand.

"Alltech is dedicated to having every facility certified to the highest standards," he said.

"Alltech is leading, and has been leading this trend for decades and in doing so, will achieve our goal of exceeding our cus-

tomers' expectations."

The Alltech Quality System is recognised throughout the feed industry as a standard quality system to follow.

AQS delivers the exact same level of quality assurance and traceability in each of Alltech's geographical markets, based on a uniform process designed to meet and exceed other third-party systems of certification.

By receiving the ISO 22000:2005 external certification, Alltech Thailand's business activities will be fully compliant with international standards in order to ensure the highest quality products and services in the Thai market.

According to the recently published Global Feed Tonnage report by Alltech, Thailand is

the world's 13th largest animal compound feed producer with 16 million metric tonnes of domestically produced feed in 2013.

In addition to Thailand's strong position in the global feed industry, the demand for better meat quality presents huge opportunities as well as challenges for Thailand in the coming years.

Alltech established its office in Thailand in 1998 and in 2013 celebrated its 15-year anniversary.

The Alltech Thailand team has grown dramatically from just two people in 1998 to 38 staff today.

The company's commitment has been to consistently provide solutions for the Thai animal production industry, focusing on feedmills, integrators and especially farm level. ☞

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# Positive exploitation of wastewater grown microalgae

RYAN Cheng has a Bachelor of Medical Science with majors in microbiology, neuroscience and physiology and a Bachelor of Science (Hons), both from South Australia's Flinders University, where he is now a Pork CRC supported PhD candidate.

## CRC studies

Anaerobic digestion, which is a well established process for treating many types of solid and liquid organic wastes, is often used to reduce the mass of solids and pathogen load and produce energy in the form of methane gas.

Increasingly, covered anaerobic lagoons are being considered by the pork industry to manage greenhouse gas emissions and recover the methane for energy production.

Algal biomass produced in high rate algal ponds treating piggery wastewater removes CO<sub>2</sub>, contributing to GHG mitigation and is an additional source of biomass energy which could be released via co-digestion with pig slurry.

While other wastes such as industrial organic wastes, fruit and vegetable solid waste and olive wastes and farm wastes are commonly co-digested, there are limited studies on the digestion of algal biomass as a sole substrate or co-digested with other wastes such as pig slurry.

Batch anaerobic co-digestion experiments were performed to study the effect of algae addition on the co-digestibility of pig slurry.

Ryan's Pork CRC PhD study program has two essential research areas to determine:

- The impact on algal growth of CO<sub>2</sub> addition to wastewaters of varying organic carbon – this research is largely completed (Stage 1)

- The factors influencing the anaerobic co-digestion of algal biomass with pig slurry.

This project builds on the outcomes of Pork CRC Project 4A-101 'Algae for Energy & Feed: a wastewater solution' which reviewed options for the industry to integrate algal biomass production for energy and feed into pig slurry treatment.

## Manure handling

Currently, the overwhelming majority of pork producers use lagoon systems for wastewater treatment.

A small minority of producers have covered anaerobic lagoons to reduce emissions of the GHG methane from slurry.

The life cycle assessment analysis indicates that rather than 'flaring' this renewable energy source, the industry should be en-



Ryan Cheng

## 'Exploitation of wastewater grown microalgae for the production of biogas and feedstocks'



Ngai Ning (Ryan) Cheng, Pork CRC PhD candidate, School of the Environment, Flinders University, South Australia  
Supervisor: Prof Howard Fallowfield, Flinders University

couraged to exploit biogas for water or space heating or in combined heat and power systems thereby reducing fossil fuel usage and associated GHG emissions.

To achieve this, the review investigated a large range of advanced manure handling strategies.

Only those strategies with real prospects of successful integration on-farm have been recommended for further study.

Specifically the review recommends the integration of controlled, closed vessel aerobic treatment (with heat recovery), followed by solids separation to enable microalgal growth on anaerobic digester effluent.

The LCA indicates that further wastewater treatment by microalgae, followed by additional energy recovery via co-digestion of the algal biomass with pig slurry is the option most likely to achieve the Pork CRC aspirational GHG emission target of 1kg CO<sub>2</sub>e/kg HSCW-1 by 5 percent of the Australian pork industry.

Further, this strategy will enable research on the subsequent production of microalgae for pig feed, post-wastewater treatment, potentially facilitating better management of the microalgal growth environment and control of species and nutritional content.

## Manure energy

There are two ways of obtaining energy from manure: aerobic or anaerobic treatment.

During the breakdown of organic material by aeration, heat is produced by aerobic bacteria, which can be recovered with the aid of heat exchangers and/or a heat pump.

Perhaps of more significance is that ammonia, an inhibitor of algal growth, can be oxidised to non-toxic nitrate by aerobic treatment.

During anaerobic fermentation the complex organic matter is degraded to the relatively clean and easily purified gaseous products carbon dioxide and methane, which may be collected from covered anaerobic lagoons or from engineered digesters.

There are three options for the biogas utilisation:

1. Flaring (if there is no need or infrastructure to produce steam or electricity)
2. Substituting gas for

existing LPG/NG (that is, boiler)

3. Generating electricity.

For power generation units, the gas is usually fed into methane-powered engines that generate electricity.

The waste heat, a by-product of generating electricity, can be used to heat other industrial processes (including covered lagoons and space heating).

After anaerobic treatment, there is still a large amount of nutrients (nitrogen and phosphate, in particular) in solution, leaving the possibility of recycling nutrients from the liquid

phase, along with CO<sub>2</sub> from the biogas, through a High Rate Algal Pond and using the biomass for further energy production via digestion.

The renewable energy generated by this photosynthetic process, offsets fossil fuel usage and reduces GHG emissions by the industry.

## Expected outcomes

1. Determination of the effect of CO<sub>2</sub> addition on the growth of algae on wastewater effluent from an anaerobic lagoon. This information will inform decisions regarding the infrastructure required at

core facilities to conduct research on the growth of algae for fuel and feed.

2. An understanding of the optimum conditions for co-digestion of wastewater grown algal biomass with pig slurry, which will include determination of the effect of feed ratios and digester residence time on the quantity and quality of biogas produced and suspended solids/COD removed.

3. Determination of the effect of proximate composition of algal biomass on the biogas yield and quality.

4. Data on biogas yield and quality for use in subsequent life cycle assessments to determine sustainability and GHG abatement of integrating algal wastewater treatment with co-digestion of the biomass with pig slurry.

Pork CRC Program 4 (Carbon Conscious Nutrient Inputs and Outputs)

conducts research to improve the sustainability of the pork industry within Australia, specifically, to reduce greenhouse gas emissions to about 1kg CO<sub>2</sub> equivalent/kg pork produced for 5 percent of the industry by 2015.

Pork CRC Project 4A-101 'Algae for Energy & Feed: a wastewater solution' has identified that one of the most promising means of meeting this target is to integrate the treatment of piggery wastewaters in covered anaerobic lagoons or in engineered anaerobic digesters (with biogas production and/or electricity generation) with algal biomass production to recycle CO<sub>2</sub> and provide additional biomass for energy production.

## Industry benefits

The research proposed here will contribute to industry by:

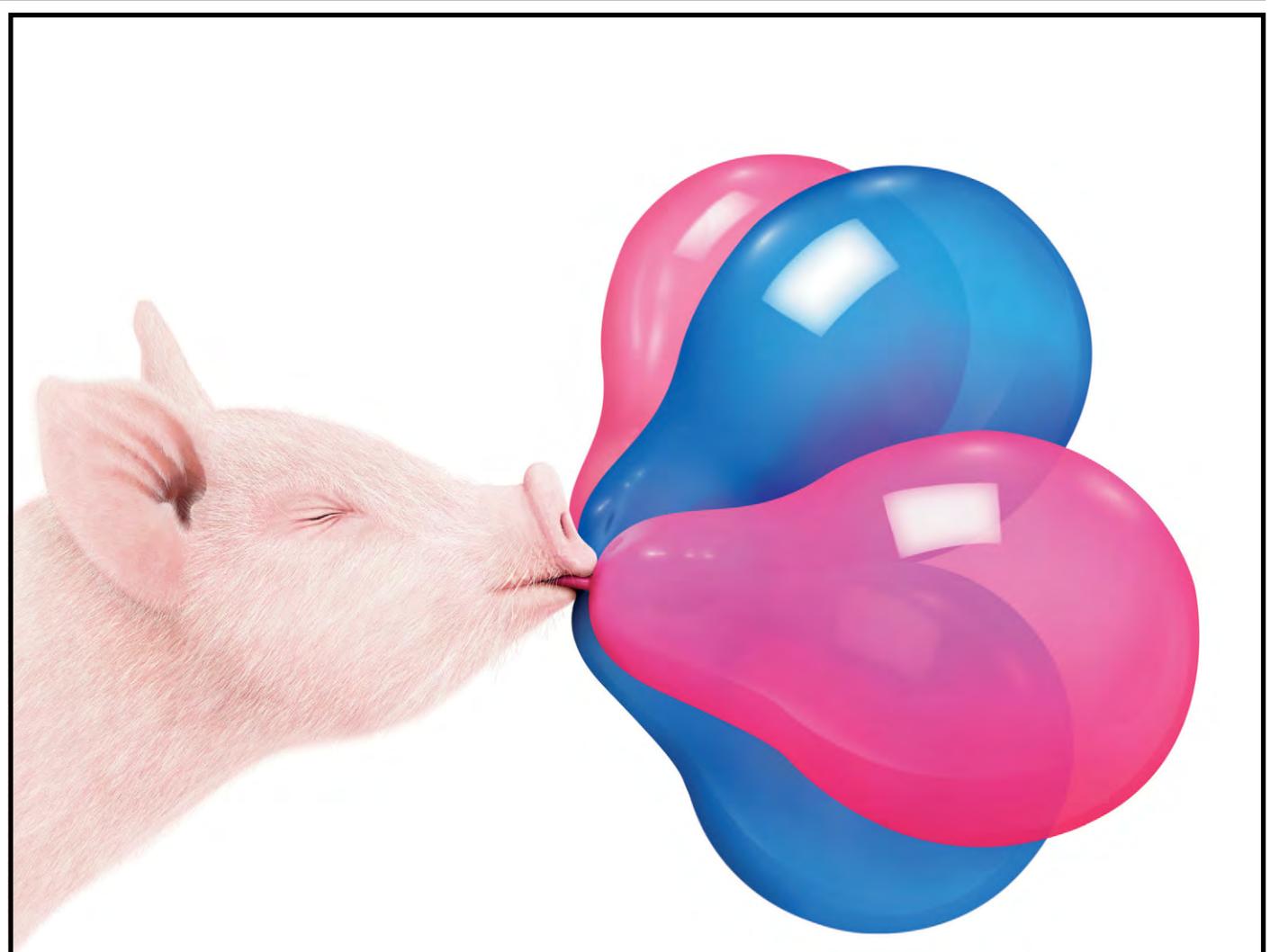
- Resolving the infrastructure required to adopt

the technology by determining whether external CO<sub>2</sub> addition is beneficial to algal growth on anaerobically pre-treated piggery slurry. This will assist industry in assessing the costs associated with the proposed technology.

- Identifying the operating parameters (ratio slurry: algal biomass feed and anaerobic digestion retention time) for efficient co-digestion of slurry and algae for biogas production and wastewater treatment. This will hopefully contribute significantly to the target reduction in GHG emissions through pork production.

- Enabling construction of research/demonstration scale facilities at selected pork producer sites to showcase and encourage uptake of the technology by the industry.

Contact Ryan Cheng, email [ryan.cheng@flinders.edu.au](mailto:ryan.cheng@flinders.edu.au)



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# Firefighters stay cool

AUSTRALIA'S leading portable fire pump specialist Australian Pump Industries has released a new product that will help firefighters stay cool.

Called the Aussie Cool Vest, it provides a level of comfort that maintains efficiency, extends endurance and can even save lives.

The secret of the Aussie Cool Vest is a series of elements that gently cool the body when worn under normal firefighting clothing.

Aussie Pump product manager Hamish Lorenz said the product was originally designed for mechanical engineers operating in tight spaces in the mining and construction industries.

"Cleaning inside a pug mill, where the operator has to actually be in the drum, is an example of where a Cool Vest will increase the comfort level

and efficiency of the operator," he said.

"The Aussie Cool Vest cools the operator working in 60C for up to 90 minutes."

In more extreme conditions, the period of operational use decreases proportionally.

Duration of operation for the vest at 60C is 90 minutes while four hours is easily achieved at temperatures of 45C in normal firefighting or industrial applications.

The Cool Vest is normally worn over a T-shirt, wrapped tight against the body, and under covering garments such as overalls, protective clothing or uniforms.

The concept is unique but simple.

The vest uses Temptech elements which consist of a non-toxic, non-flammable blend of salts sealed in an aluminium wrapper. The salt compound

melts at 28C.

At the moment of transition from solid to liquid, 50 times more energy is absorbed compared to a rise of 1C when the compound is already in either liquid or solid condition.

The Aussie Cool Vest is therefore able to absorb excessive body heat.

The Aussie Temptech elements recharge (the salt crystals reform), at normal room temperature (20C) in about four hours.

If the elements are placed in a freezer they recharge in less than 10 minutes.

They can be used and recharged over and over again and are guaranteed by the manufacturer for 1000 cycles.

The 'FLEXI' Cool Vest is fully adjustable so that one size fits all.

It is designed to be easy to put on and closes with Velcro on the shoulders and sides.

The vest incorporates 16 Temptech elements to absorb heat.

Apart from the standard material, it's also available in fire-resistant Nomex.

With the elements removed, the vest can be washed in a warm water cycle and astonishingly only weighs 1.6kg.

Temptech elements can be easily replaced and most users keep one or two spare sets available for prolonged applications.

The Aussie Cool Vest is a great addition to API's world-renowned range of high pressure fire pumps.

Professional firefighters, national parks and many other government bodies love the idea of keeping firefighters cool in extreme heat situations.

For further information on the Aussie Cool Vest, contact Aussie Pumps on 02 8865 3500.



The Aussie Cool Vest absorbs excessive body heat, enabling firefighters to maintain efficiency and extend endurance during extreme conditions.

# Adding dollars and certainty

THIS year's APL 2015-2020 strategy consultation has raised some interesting questions.

If we go back to this time five years ago, we had all been through the financial nightmare of 2007-2008 and those of us who were left then enjoyed a profitable 2009.

However, the experience left us shaken.

For me, the underlying theme of the last five years has been to rebuild the messy balance sheets of the businesses that make up the Australian pork industry.

Over the last five years, depending on whose numbers you use, two things are clear.

Balance sheets are (on average) in better shape than they were five years ago; and return on assets is not currently at a level that justifies significant investment for most of the industry.

In five years there have been several firsts.

For example, pig prices have been relatively stable and lost much of the historic seasonality, APIQ as a quality assurance system now covers about 90 percent of the Australian industry, the removal of gestation stalls has progressed, and slightly more Australian pork is going into ham and bacon.

The challenge for the next five years is to continue the trends in pricing, while making more market driven product without signifi-



Marketing Matters

by PETER HAYDON  
General Manager Marketing



cant new investment. Also, we need to do this in a way that makes future earnings more certain.

This translates (should the consultation program continue to indicate this) into challenges on-farm that include increasing pigs sold per sow per year, increasing pig weight where the market desires it, and increasing consistency of pigs on top of all the other things that are currently happening.

The same extra work needs to be completed in processing regarding the identification, separation and marketing of the very best Australian pork, as well as the continuous task of improving lean-meat-yield from the more consistent carcasses from producers.

At the market end, we too have some additional work if the strategic direction and desired outcomes of producers are to be realised.

The base job remains - continuing the current trend upwards in price and consumption of pork.

The additional work-

streams include:

- Finding ways to isolate and justify a premium for the best eating-quality pork;

- Finding more markets that are viable to service both at home and abroad to offer more sources of sustainable demand. In reality, this will rest on finding ways to justify Australia as a source of premium quality pork, as there is almost no history of Australia being cost competitive on the world stage, in part due to the size of our industry; and

- Finding ways to differentiate Australian pork both at home from other species and internationally from other pork producing nations.

We will only make the return on assets more attractive if all these things are made to happen, as they are all interrelated.

So more certainty of better returns is possible and we have some solid building blocks as a foundation.

And let's not kid ourselves; this might be what's required and when we succeed that will be another first.

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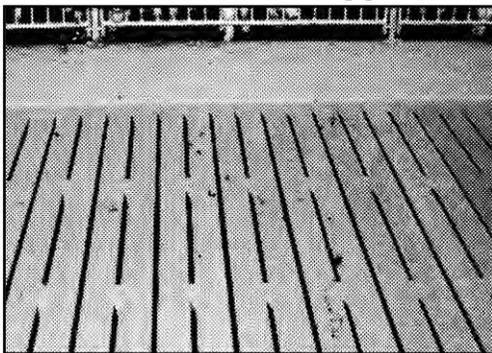
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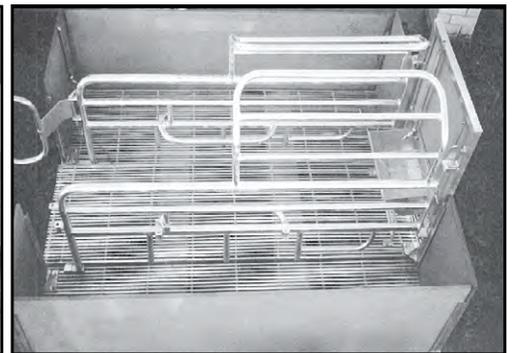
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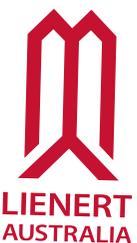


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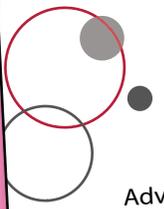
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A NEW composter turner currently being trialled by Seymour Rural Equipment is set to be the ideal machine for farmers and horticulturists to create compost on their own farms.

Seymour Rural Equipment is the company behind the Seymour Composter 4000 TravelA, which was released at the 2011 Elmore Field Days and won the Tractor & Machinery Association's Machine of the Year Award.

That machine has proved extremely popular with contractors, particularly in dairy farming areas.

The new composter is designed to be suitable for smaller tractors from 75hp up, and can achieve 1000 cubic metres/hour turning the compost on existing windrows, depending on

density and content of the waste.

Farmers are finding they need to think harder about how to solve the problems of improving pastures, and increasing fertiliser application is not the solution.

A system for making rows of compost from various types of manure and other material is proving useful in retaining nutrients.

Materials used can include pig, poultry, dairy or feedlot manure, damaged hay or straw and green waste.

The Seymour composter will turn what on most farms has traditionally been waste material into organically rich compost to help get organic matter back into the soil.

The machine passes through the row mixing, aerating and conditioning the product.

It is processed into a uniform blend by adding moisture, and then turned again when the compost heats up to around 60C.

Up to five turns is usual before the organic fertiliser is ready to be applied to pasture or worked ground.

As well as dairy farmers who are becoming more active in composting their manure and other green waste, it will appeal to piggeries, horticulturists, vineyards and similar enterprises.

Farmers are discovering that soil treated with a composted mixture has become more pliable, with more clover and greater numbers of worms.

This adds up to a more nutritious feed with lower nitrates and water content, and better storage attributes.

Managing director of Seymour Rural Equipment Colin Stray said the target was to build a machine suitable for smaller tractors already in use on the farm.

"There is no need for a

new dedicated tractor to handle the composter, as access to high horsepower is not required," Mr Stray said.

"The new design has eliminated the high PTO angle and input drive of the larger machine.

"The PTO shaft connects to a right angle gearbox which in turn transmits the power to two driver and driven tyred wheels, with the latter running the rotor shaft.

"The drive from the wheels and tyres is formed by slightly compressing the two tyres to increase the contact area for positive drive and the more 'fluid' drive absorbs the shock load back to the gearbox.

"The composter is economical to run as long as the tractor has a creeper gear to maintain 0.5km/h up to 1km/h.

"It has the potential to become a contractor machine, or to just expand on-farm activity."

The prototype is being put through its paces at Seymour Rural's composting site and has so far performed exceptionally after 200 hours on-site.

It will work on three metre wide rows and the height of the compost can be higher than that handled by the original Composter 4000 TravelA.

The frame is hot-dip galvanised for longer life and the tynes are mounted on a 170mm hollow rotor shaft made from extra strong seamless tube with 15mm wall thickness, so it will handle the toughest conditions with reliability.

The rotor shaft rotates at half the tractor's PTO rpm.

"The hood over the rotor and most parts of the frame are fabricated by

rolling heavy-duty steel tube, instead of welding in sections, to maintain the highest structural integrity," Mr Stray said.

"We kept it simple so that it is as strong as possible."

The composter is designed for farm to farm transport on narrow lanes.

The rotor and tyne assembly is lifted vertically through a hydraulic ram for transport and is under four metres in height.

A steel ballast on the left-hand side of the frame balances the turner when it is extended over the row.

Mr Stray pointed out that this machine has answered the call for a low

horsepower, reliable composter.

It is simple in construction, structurally strong and built to last, with efficient operation.

The composter will fulfil a niche market in horticulture as well as other farming industries.

The prototype, which is yet to be named, has been pre-ordered by a banana grower near Innisfail in Queensland to convert waste into compost to put around the banana plants.

More information on the new small composter is available from Seymour Rural Equipment on 03 5792 1100, or contact Colin Stray on 0418 576 660.



The new Seymour Composter shows its effectiveness in the Seymour Rural composting paddock.



The tynes on the Seymour Composter are mounted on a 170mm hollow rotor shaft made from extra strong seamless tube with 15mm wall thickness, for reliable operation.



The new Seymour Composter in transport mode is designed for narrow lanes, and is less than four metres in height.



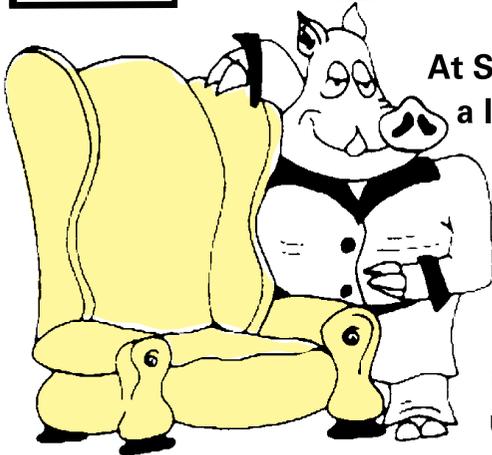
The interesting drive train on the new Seymour Composter means the PTO shaft connects to a right angle gearbox which in turn transmits the power to two driver and driven tyred wheels, and then to the rotor shaft.

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# ASX Feed Barley explained

AT the time of writing, ASX Feed Barley for March 2014 delivery was worth about \$248 track and May 2014 was worth \$254.

The uncertainty in the Black Sea region created by the conflict between Ukraine and Russia has lifted grain values globally.

Closer to home, the markets in Eastern Australia are still heavily influenced by the drought market that exists north of Dubbo in Central NSW.

The ASX Feed Barley contract is a track contract for NSW (Newcastle and Port Kembla) and Victoria (Geelong and Portland).

If you have a bought hedge in place for March 2014 feed barley and your piggery is in the NSW Riverina, one aspect you will want to know is which port zone does the \$248 represent?

In other words, where is delivery more likely?

Is it the Newcastle or Portland port zone?

Depending on the port zone delivered, you may be interested to hold on to that bought position and take delivery of the grain within the network of the ASX approved bulk handler.

ASX approved bulk handlers for feed barley are GrainCorp, AWB GrainFlow and Emerald Grain Logistics.

There are two ways you can assess the market price in terms of port zone:

- Analyse the location of stock lodgements as detailed in the ASX Grain Holding Report which is available on the ASX website; and
- Compare the ASX price with feed barley prices trading in all four

The following example is based on 1000 tonnes of feed barley hypothetically lodged and delivered at GrainCorp Horsham (Portland port zone).

Details	Value	Explanation
Number of Contracts	50	One contract = 20 tonnes (1000 tonnes)
Value	\$233,320	= Gross Price * Tonnage
GST	\$23,332	10% of Value
Total Value	\$256,652	GST Inclusive
S&H Company	GrainCorp	Name of Approved Bulk Handler
Location	Horsham	Silo name
Shrinkage	0.7%	As per applicable SHA <sup>1</sup>
ASX Futures Track Price	\$248.00	As traded and quoted on ASX <sup>2</sup>
Less GTA Location Differential	-\$24.50	GTA Location Differential <sup>3</sup>
Up Country Price Delivered	\$223.50	
Plus Receival Fee	+\$8.19	As per applicable SHA
Up Country Price Free in Store	\$231.69	= Up Country Delivered + Receival Fee
Gross Shrunken Price Free in Store	\$233.32	= Up Country FIS / 0.993

1 Bulk Handler Storage and Handling Agreements reviewed and updated annually.  
 2 The tender is calculated based on the settlement price on the day of tender. In this example it is assumed that \$248 is the settlement price on the day of tender as well as the traded price when the bought hedge was opened.  
 3 Grain Trade Australia Location Differentials updated October every year and available from www.graintrade.org.au



by **DOUGAL HUNTER**  
 Manager  
 Agricultural Derivatives  
 ASX Limited



port zones via merchant bids/offers.

It is the seller's responsibility to lodge the stock they wish to tender or deliver against their sold position.

Delivery economics will dictate which port zone represents the least value for the seller.

A seller is most likely to deliver in the port of least value.

It is important to note that the port of least value can, and does, change at any time.

That is within delivery periods, between delivery months or between seasons.

The port of least value is a continuous assessment of the local supply and demand fundamentals in each port zone.

This year, drought has adversely impacted the winter and summer crops in both the Brisbane and Newcastle port zones while the port zones south of Newcastle recorded decent winter harvest results.

Given the feed market pressure currently in place, it may be reasonable to expect that Newcastle will trade at a premium to Port Kembla, Geelong and Portland.

Based on this assumption, it may also be reasonable to expect that any deliveries in March 2014, if they occur, may well

occur in Victoria, either within the Geelong or Portland port zones.

If you do take delivery, you will want to know how the price paid for the ASX Feed Barley is adjusted once delivery is made.

Delivered ASX contracts are settled Free In Store.

Knowing the FIS price will help you assess whether delivery makes sense when compared with alternatives.

#### Industry training

The Pan Pacific Pork Expo will no doubt be well attended by pork producers from around Australia.

If demand warrants, ASX is happy to run an industry training course on the products and how they can be applied to hedge your grain price risk.

ASX has been running similar courses for Australia's lot feeding industry as well as international end users of Australian wheat based in South-East Asia.

Feedback received to date suggests that the training has been worthwhile for all concerned and may provide you with an opportunity to clarify issues on how it all works.

If you are looking to attend PPPE and would be interested in undertaking a workshop on

hedging your grain price risk sometime during the week of the conference (before or after), then please contact ASX on 02 9227 0197 to register your interest.

#### Where can I learn more?

The ASX Grain Futures and Options market provides piggeries with tools to manage exposure to grain price risk.

If you are new to the world of derivatives and would like to discuss your business aims and develop a hedging strategy that satisfies your requirements, seeking the professional services of a risk management adviser is the next step.

A contact list of licensed advisers is available at [www.asx.com.au/grainfutures](http://www.asx.com.au/grainfutures)

Disclaimer: This article is general and summary information only. It does not take into account your individual circumstances and to determine whether it is applicable to you, or should you require further information, please consult your licensed financial adviser.

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# Have you entered?

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We believe that it's worth acknowledging the positive contributions people are making to pig production and to recognise those innovative ideas that have been successful on farm.



We are inviting you to tell us about the on-farm initiatives of which you are most proud. These will be considered under 4 categories:

- Pig health
- Pig welfare
- Sustainable production systems
- Human resources management & training



Formal recognition of entries will take place at the Chris Richards & Associates conference in Queensland in May, where awards will be presented at the Gala Dinner for each of the 4 categories.

Send entries to [proud@chrisrichardsgroup.com.au](mailto:proud@chrisrichardsgroup.com.au)