

A newsletter for pork producers



Pigbytes

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Pork producers to discuss industry challenges

Sara Willis

The Australian Pork Industry will face a number of challenges over the next 5 to 10 years. To provide producers with an opportunity to compare the merit of a number of new and emerging technologies, the Queensland Pig Consultancy Group (QPCG), and Department of Agriculture, Fisheries and Forestry (DAFF Qld) with support from APL will host a seminar, "Facing the Challenges in the Grower Herd – Where will you be in 2020?" in Toowoomba on Friday 1 November.

Sara Willis, Senior Extension Officer, DAFF Qld and Chair of the Qld Pig Consultancy Group stated that the seminar and supporting trade display will feature speakers who have implemented programs to safeguard their futures in the industry.

Edwina Beveridge of Blantyre Farms, Young NSW will discuss the opportunities for biogas production. Edwina and husband Michael adopt new technologies to keep at the leading edge of animal rearing and sustainable farming.

Zane Harper, Production Manager for CEFN Pty Ltd, Clifton will discuss how the company is implementing new technologies to improve labour efficiency, pig performance, feed utilisation and marketing.

Laurie Brosnan is Farm Manager for BettaPork; a family owned and operated business based in Biloela. To ensure they are in business in 2020, the Brosnan family have adopted a number of new technologies including feed preparation systems. They have recently invested in a new breeder unit with the aim of improving the quality of the weaner produced to enhance grower herd performance and market opportunities.

John Riley, JCR Associates International, will review the profitability of the industry and identify key issues which will impact on businesses between now and 2020.

Dr Hugo Dunlop, veterinarian with Chris Richards & Associates will inform producers how to get the best value from their veterinarian. He will also highlight the information that managers/supervisors should provide for the veterinarian to make herd health decisions in their business and what producers should do to reduce the risk of developing issues.

The very important issue of people management will be introduced by Ken Cameron and addressed by Maria Nolan and Tracy Cooper of SeeChange Consulting. Ken is the Managing Director of Cameron Pastoral Co. The Cameron family have interests throughout the supply chain including grain production, feed milling, genetics, commercial production, slaughter/boning and marketing and is a member of the CHM Alliance.

Maria and Tracy are the owners of SeeChange Consulting, a Brisbane-based company. SeeChange Consulting work with businesses to develop processes and build relationships to result in high performance teams.

In addition Sara Willis, will address the seminar on the subject of measuring to manage feed costs. Units are currently under threat from high feed

costs and for survival to 2020, improving feed utilisation is a priority.

The trade display will allow delegates to discuss new technologies with a range of companies servicing the pig industry.

The seminar will be held at The Chapel, 10 Old Goombungee Rd, Toowoomba. People wishing to attend should contact Sara Willis, sara.willis@daff.qld.gov.au or phone 07 46881214.

Neonatal Scours: don't forget *E.coli*

Karen Moore (Snr Research Scientist DEPI Victoria)

E.coli infections continue to be an important cause of illness and death in pigs. At the Pig Health and Research Unit (PHRU) we commonly isolate pathogenic *E.coli* from recently weaned pigs with diarrhoea, but less frequently we isolate it from sucker pigs.

Although there are differences in the strains of *E.coli* involved in causing infection in sucker and weaned piglets they have two things in common; they all possess a way of attaching to the lining of the intestine and they all produce toxins that act on the cells of the intestine to cause the diarrhoea. We refer to these attachment antigens as pili or fimbria.

Figure 1: Scouring piglet



Source: Courtesy Karen Moore

The challenge for the laboratory is differentiating pathogenic *E.coli* from the *E.coli* that are the normal inhabitants of the gut.

A diagnosis of colibacillosis is dependent on the laboratory confirming the presence of either the attachment antigens or the toxin genes.

The presence of attachment antigens is determined in the laboratory using specific antisera to the known fimbrial types ("serotyping").

Molecular assays (PCRs) are used to detect toxin genes in submitted samples. Serotyping is less expensive than molecular assays, so are usually the first choice test for *E. coli* diagnosis.

The PHRU recently isolated pathogenic *E.coli* from two-day-old scouring piglets.

The *E.coli* was confirmed as a pathogenic strain by the presence of the fimbrial antigen K99 and also the toxin gene responsible for the production of one of the enterotoxins known to cause diarrhoea.

Neonatal colibacillosis is now generally well controlled by the vaccination of sows at 3-4 weeks prior to farrowing, with a priming shot usually given to gilts at selection (at about 24 weeks of age) .

These vaccines contain all the fimbrial types that we know infect young piglets. As these pigs were from a farm with a sow vaccination program in place, the likely reason for their infection is that the sow somehow missed her vaccination or that the piglets did not get sufficient colostrum in the first 24 hours of life.

Case study – Oedema disease in weaners

Dr Judy Ellem (District Veterinarian Central North LHPA)

In February 2013, Central North Livestock Health & Pest Authority district veterinarian Dr Judy Ellem visited a two hundred sow piggery with a history of increased weaner mortality at approximately 6 weeks of age. Initial investigations were carried out by the private practitioner and pig health consultant Dr Alan Sharrock.

Pigs were weaned at 4 weeks of age and housed in a continuous flow system in weaner sheds. Pigs were subsequently moved to ecoshelters, dependent on size, and then to grower sheds. Approximately one hundred and twenty pigs were sold weekly when they reached 45 kg liveweight.

Fifty sows were introduced to the piggery in 2012 and quarantined from the rest of the breeding herd during pregnancy. Prior to farrowing, the introduced sows were moved to the farrowing shed along with the other breeders.

Initially, the owner only noticed an increase in weaner mortality, but subsequently reported that weaners had swollen eyelids, purpling of the skin 1-2 hours prior to death and displayed some nervous signs including convulsions, staggering and circling.

A number of pigs were selected for autopsy. Common gross post-mortem findings included:

- Swollen/oedematous eyelids

- Swelling of the face and snout
- Lung oedema and congestion
- Purple skin discolouration
- Enlarged lymph nodes
- Fluid in the chest and abdominal cavities

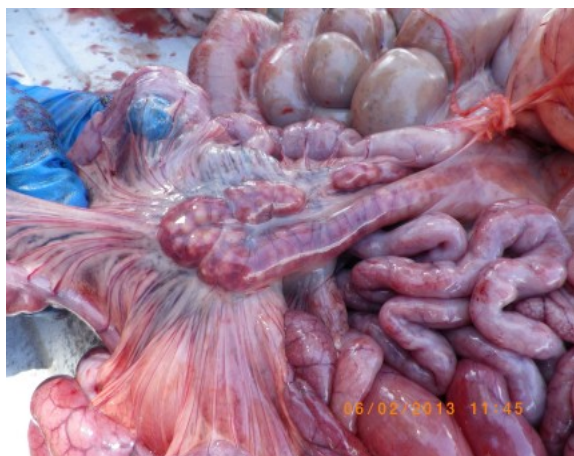
Figure 2: Eyelid oedema in a dead weaner.



Source: Courtesy Judy Ellem.

Dr Alan Sharrock submitted lung and brain swabs to the Elizabeth Macarthur Agricultural Institute for bacterial culture. Laboratory results included a profuse predominant growth of haemolytic *Escherichia coli* (HEC) from one brain sample. Subsequent tissue samples submitted by Dr Judy Ellem cultured a profuse mixed growth of HEC from lung and mesenteric lymph node samples, which was subsequently identified as HEC serotype 0139.

Figure 3: Enlarged congested lymph nodes.



Source: Courtesy Judy Ellem.

Ileal swabs were also submitted to the Pig Health and Research Unit in Bendigo, Victoria for culture and serotyping. A profuse predominant growth of

HEC serotype 0139 was cultured from these samples.

Despite the use of a number of different antibiotics, antimicrobial therapy alone did not halt clinical disease or decrease mortalities. A milk-based *E. coli* 0139 probiotic was introduced on 26/2/13. Piglets were given two doses at 7 days of age and 7 days prior to weaning.

Table 1: This table shows the multiple antibiotic resistance of the ileum HEC serotype 0139 isolate.

Antibiotic	Sensitive(S)/Resistant (R)
Amoxycillin	R
Apramycin	R
Clindamycin	R
Lincospectin	R
Neomycin	R
Trivetin	R
Tetracycline	R
Tiamulin	S

The owner made some management changes including a change to an all-in-all-out production system. Weaner mortality gradually decreased over subsequent batches.

Oedema disease is caused by certain serotypes of *E. coli* bacteria that produce a powerful toxin. These toxins damage the walls of small blood vessels including those in the brain and cause fluid (oedema) to accumulate in the tissues. The damage to the brain is irreversible and despite treatment most pigs die. It is generally seen in pigs 1-3 weeks post-weaning. Management control and prevention of Oedema disease can be difficult and unrewarding.

If you think you have a problem with this disease complex in your herd, please discuss with your veterinarian.

Outdoor piggeries – odour, dust and noise issues unlikely

A/Professor Thomas Banhazi

Odour, dust and noise emission/pollution from outdoor piggeries has been acknowledged as a potential issue for the free-range pig industry.

The main objective of a recently completed and Australian Pork Limited funded study conducted by USQ/NCEA scientists was to quantify the generally encountered dust, odour and noise emission levels from free-range pig farms and thus allow the industry to develop appropriate responses, if required.

A well-targeted survey was executed that included the measurement of temperature, relative humidity, odour emission, dust concentrations and noise

levels on representative free-range piggeries in three different states.

Results indicated that odour emission rates measured on free-range pig farms were generally low and not affected by farm differences ($p=0.29$). While there was a significant difference ($p=0.049$) demonstrated in dust concentrations between different farms, essentially on all farms very low dust concentrations were measured (study mean of 0.014 mg/m^3).

Most peak dust concentrations were associated with tractor/machinery movements rather than pig activity.

The results of this study also demonstrated that very low levels of noise were detected on all farms (study mean of 37 dB) and free-range piggeries on average are quieter places than traditional piggery buildings.

Very few vocalisations by pigs were observed during farm visits. It was concluded that free-range piggeries are unlikely to be a major source of noise, odour and dust pollution.

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Botulism in pigs

Jayne Morgan

The recent contaminated whey powder incident in New Zealand and the potential risk of botulism prompted me to ask if botulism could be a hazard for pigs. Whey powder is used in some pig diets. Press reports indicated that the contaminated product was removed from circulation before its use in the human or livestock industries.

Botulism is a toxicosis characterised by rapidly progressing flaccid paralysis caused by the toxins of *Clostridium botulinum*. Clostridia are gram positive, anaerobic, toxin producing, spore forming bacilli and are fairly common in the environment. Swine are considered to be highly resistant to botulism which is basically food poisoning.

The botulinum toxin is produced when *C. botulinum* bacteria are present in decomposing organic matter of plant or animal origin. The tissues of dead animals that decompose during warm or hot weather are the most common source of toxin for animals.

Botulism occurs following consumption of the material containing the toxin by a susceptible animal. Any farmers whose pigs had access to dead animals would be in breach of prohibited substances (swill feeding) legislation and subject to hefty fines.

While reports of botulism in pigs are rare, they can occur. The time interval between onset of signs and death or recovery is variable and probably is determined by the amount of toxin consumed.

Reference: *Diseases of Swine 8th Edition*

Controlling flies on intensive livestock farms

Gary Levott

Nuisance flies can breed prolifically in animal manure, spoiled feed and straw bedding. Depending on the situation several species may be involved.

Most are just an annoyance to stock and workers but those that bite can irritate animals such that production may be affected.

Primarily however, the presence of large number of flies can irritate farm workers, affect produce, cause neighbours to complain and affect the reputation of the farm, so good farm management must include fly control.

Figure 4: An example of biological control. Parasitic pteromalid wasps emerging from house fly puparia.



Source: Primefact 1317

Some level of fly infestation is inevitable when animals are farmed intensively but pest numbers of

flies usually indicate a failure in one or several key areas of farm management.

This new Primefact written by Gary Levot, Principal Research Scientist, Animal Biosecurity and Surveillance is now available on the NSW DPI website.

Topics include:

- Major pests
- Minor or occasional pests
- Principles of fly control
- Biological control
- Use of insecticides

<http://www.dpi.nsw.gov.au/agriculture/livestock/health/general/controlling-flies>

Seaweed for pigs – a boost to immunity

Jayce Morgan

Organic and biological farming systems practitioners have often used and promoted seaweed products both as fertiliser and animal supplement.

Seaweed has been identified as a good source of vitamins, minerals and trace elements of organic origin. The dry matter of kelp contains about 30% minerals.

More recently the search for alternatives to antibiotic use in livestock feeds has focussed research attention on alternative products such as seaweeds and herbs for their immune enhancing potential.

A recent article in 'All About Feed' magazine (Vol 21 Issue 5) suggests that seaweed as well as being a nutritional supplement, may also have a role in stimulation of the immune system and may be useful in enhancing the effectiveness of vaccination programs.

Seaweeds contain sugars in the form of polysaccharides, some of which – sulphated polysaccharides do not occur in terrestrial (land) plants.

'Sulphated polysaccharides, which are widespread in seaweed, have been observed to possess anti-infectious (anti-viral, anti-bacterial, anti-tumoral), antioxidant and anti-thrombotic activities. They also act as immune modulating, stimulating the immune response or in controlling the activity of immune cells in order to mitigate negative effects such as inflammation.' (AAF magazine)

A review by Allen *et al.* 2001 reported that pigs that had been exposed to and were symptomatic for PRRS, when supplemented with a seaweed extract (Tasco from brown seaweed *Ascophyllum nodosum*) exhibited significantly higher ($P < 0.05$) body weight and improved ($P < 0.05$) feed intake and feed conversion during the 5 week weaner period compared to the control group.

An Irish study (O'Doherty *et al.* 2010) supplemented the diets of newly weaned pigs with Lactose and/or seaweed extract (laminarin and fucoidan) and found an improved digestibility of dietary components, decreased counts of *E. coli* in the faeces and improved performance of pigs after weaning.

A Japanese study examined the combination of seaweed and licorice extracts on the immune performance of pigs and reported that "the replacement of antibiotics by naturally derived dietary additives might be feasible for immune system enhancement." (Katayama *et al.* 2011)

The French company Olmix has created an activated clay mycotoxin binder from montmorillonite and seaweed extracts.

It should be remembered that these experiments and products are using seaweed extracts not the 'whole' seaweed. Responses to a 'whole' seaweed diet supplement may be less tangible.

As a vitamin mineral supplement seaweed can be added at 2% by weight of the mix but it is odorous and pigs unused to the smell may refuse to eat.

Most farmers that provide seaweed supplement to their livestock do so as a free choice offering – the pigs eat it when they need it.

The most important point to remember is that there are no magic cure-alls. Health and resilience in the face of disease challenge result from good nutrition, good housing and good management. Discuss with your veterinarian or nutritionist if you decide to trial seaweed supplements.

Further reading:

All About Feed volume 21 Issue 5, 'Seaweed: A new option for immune stimulation'
<http://www.allaboutfeed.net/Nutrition/Research/2013/9/Seaweed-A-new-option-for-immune-stimulation-1363529W/>

EUREKA Project E! 3025 MONALISA
www.eurekanetwork.org

'The use of seaweed extracts in piglet diets' John O'Doherty http://www.pig333.com/nutrition/the-use-of-seaweed-extract-in-piglet-diets_5386/

O'Doherty JV, *et al.* "The effects of lactose inclusion and seaweed extract derived from *Laminaria* spp. on

performance, digestibility of diet components and microbial populations in newly weaned pigs" *Animal Feed Science and Technology* 157 (2010) pages 173-180

Allen VG *et al.* 2001 "Tasco: Influence of a brown seaweed on antioxidants in forages and livestock – A review" *Journal of Animal Science* 79: E21-E31

Katayama M *et al.* 2011 "Effect of dietary addition of seaweed and licorice on the immune performance of pigs" *Animal Science Journal* 82 pages 274-281

Survey of food outlets and Swill feeding in Victoria

George Downing (Principal Veterinary Officer Animal Plant and Chemical Operations Victoria DEPI)

The feeding of "swill" (including meat, meat products and food that has been in contact with meat) to pigs is illegal. This is because swill may contain viruses from overseas (including Foot and Mouth Disease Virus) that could then infect pigs and spread to other livestock species.

As part of its regulatory role to prevent swill feeding, the Victorian Department of Environment and Primary Industries (DEPI) animal health field staff visited and surveyed 621 food outlets around Victoria during the first 6 months of this year to determine if food scraps containing swill were being supplied to pig owners.

They focused on outlets that had not been visited in previous surveys. Food outlets indicated that they were supplying food scraps to 71 pig owners although only 69 could be confirmed.

Even though the advice received from the food outlets indicated that most pig producers were feeding green waste or products other than swill, all pig owners were visited.

Four pig owners were confirmed to be swill feeding and evidence is currently being reviewed for prosecution. One food outlet may also be prosecuted.

It is vital that all pig owners are aware of the risks of swill feeding. In addition to providing information on swill feeding regulations to all registered pig owners in Victoria, DEPI are working with the Municipal Association of Victoria and the Department of Health to provide information on swill feeding restrictions to high-risk food outlets with their license renewals.

A total of 30,000 information sheets will be printed and sent out to relevant councils by the beginning of October. If you have any questions about swill feeding, contact the relevant person listed in this newsletter in your state.

Ileitis is still a problem in the industry

Trish Holyoake

Proliferative enteropathy ("ileitis") is an infectious intestinal disease of pigs caused by the bacterium *Lawsonia intracellularis*. It causes growing pigs (6-20 weeks of age) to scour and display ill-thrift, with sudden death and dysentery in older pigs.

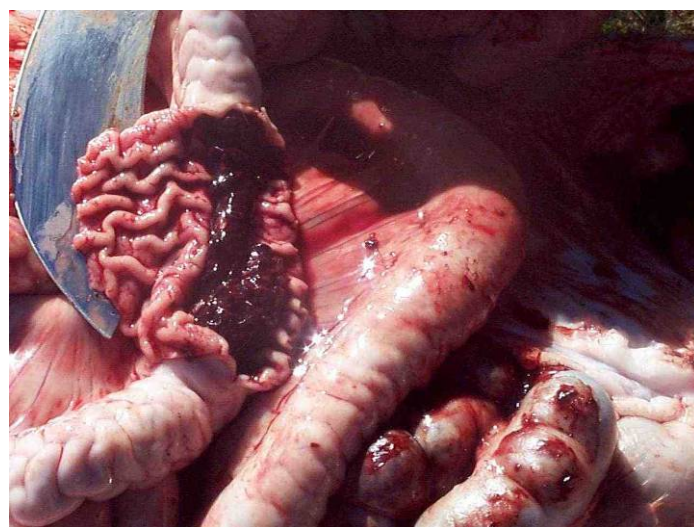
In a recent case in Victoria, ileitis was diagnosed by DEPI's veterinary laboratory at Bundoora by microscopic examination of formalin-fixed intestinal samples in 16-week-old pigs with lethargy and bloody diarrhoea.

Causes of bloody diarrhoea in grower/finisher pigs include ileitis, stomach ulcers and swine dysentery. Submitting a faecal sample from scouring pigs for culture and PCR will assist with a diagnosis of ileitis and swine dysentery, however, the gold standard for diagnosis of these diseases is on post mortem of an untreated, typical pig early in the course of the disease.

The gross pathology present differs greatly in pigs with ileitis (with thickening +/- blood in the small intestine), stomach ulcers (blood in the stomach) and swine dysentery (with lesions only in the large intestine).

Doing routine post mortems on pigs that die on your farm will assist you to become familiar with the diseases usually present on your farm. Your veterinarian can guide you in post mortem technique. Further information on how to do a post mortem is available from Trish Holyoake.

Figure 5: Intestine of pig with bloody diarrhoea due to ileitis. Note the thickened intestinal wall and bloody contents.



Source: Courtesy of Dr Trish Holyoake

Ileitis can be controlled through vaccination (Enterisol® Ileitis) and/or through strategic medication.

Research at EMAI (NSW DPI) has shown that farms where pigs are reared on an all-in/all-out basis with cleaning and disinfection between batches are less likely to have ileitis than farms that rear pigs on a continuous-flow basis and/or have poor hygiene. Rodents are also a potential source of infection, so rodent baiting is important in reducing ileitis.

Medication programs aim to prevent clinical disease, whilst allowing pigs some natural exposure to *L. intracellularis* bacteria to develop their own immunity.

With increasing consumer pressure to reduce and refine medications used in the livestock industry, outbreaks of ileitis may increase. Monitoring faecal shedding of *L. intracellularis* by pigs, together with blood-testing pigs for antibodies will assist in developing herd health programs for ileitis. The Pork CRC is currently funding Dr Alison Collins at EMAI to undertake this research.

Bendigo Pig Gas Workshop – still time to register

Ian Kruger

There are places still available for the PigGas Workshop to be held in Bendigo on 9 October 2013.

Successful workshops have already been held in Young NSW, Toowoomba Qld, Roseworthy SA and Westbury in Tasmania. Producers attending workshops have indicated that for the first time they understand what 'all that carbon stuff' is really about - it now makes sense.

PigGas uses your own piggery data such as diets, feed intakes and pig growth, waste treatment systems, energy use, transport and pig sales data to estimate your piggery greenhouse gas emissions. For the first time, piggery managers have a tool to measure the whole farm carbon footprint. With this information, greenhouse gas emissions can start to be managed and reduced.

The recently elected Australian Government strongly supports the Carbon Farming Initiative. Economic opportunities may change slightly but will not be diminished. New opportunities to participate in the CFI are being developed and will become available over time.

Many producers are coming to the workshops simply to demonstrate that they are fulfilling their role as good environmental stewards. They are

leaving with the added bonus of knowing their piggery's carbon emissions.

This may be advantageous for business and product marketing in the future. Using PigGas can highlight problem areas such as inefficiencies in feed utilization and wastage, possible changes in waste treatment and reuse systems and energy use.

A requirement of these workshops is the ability to use Microsoft Excel. Producers who register for the workshop will be advised by email of the venue and what data to source from farm records to bring along. Each workshop is free of charge with meals provided.

The National PigGas Extension Project is funded by Ian Kruger Consulting, the Australian Government Department of Agriculture, Fisheries and Forestry as part of its Carbon Farming Futures Extension and Outreach Program and Australian Pork Limited.

Register now by contacting Ian Kruger, email iankrugerconsulting@gmail.com or phone 0401 365 488.

Farrowing workshop – getting a good result

Jayce Morgan

Sows' farrowing successfully with minimal piglet mortality is the key to profitability in any pig management system.

A farrowing workshop has been organised following a request from some Forbes based farmers. It will be on Wednesday 23rd October 2013 at Forbes Rugby Club and is free. All food and drink will be provided.

This workshop is designed to be as practical as possible with plenty of time for questions.

Topics will include sow preparation, what is normal in farrowing, when and how to intervene and management of outdoor sows.

A Certificate of Attendance will be provided through Tocal College to all attendees for inclusion in your training portfolios.

The Welfare Code requires that pigs are managed by competent staff and this workshop provides an opportunity to refresh your knowledge, find answers to problems or for training stockpersons new to pig farming.

Speakers include Dr Allan Sharrock (Lachlan Valley Veterinary Clinic), Dr Bernie Gleeson (Country Vet), Kim Roberts (Bundawarra Free Range) and Tim Ahern (Pfizer).

Please register to attend. Contact Jayce Morgan before 18th October 2013. Phone 0428 416 518 or email jayce.morgan@dpi.nsw.gov.au

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<http://www.dpi.nsw.gov.au/newsletters/pigbytes>

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Disclaimer: The information contained in this publication is based on knowledge and understanding at the time of writing (October 2013). However, because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up to date and to check currency of the information with the appropriate officer of the Department of Primary Industries or the user's independent adviser.

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