A newsletter for
pork producers

PigBytes

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In this issue

Farm vehicle biosecurity for the small holder

Regina Fogarty

Hygienic movement of people and pigs on and off site is an important consideration for farms of all sizes in managing biosecurity. As the Australian pig industry is still grappling with the issue of truck biosecurity in the light of the threat of African Swine Fever, this article looks at those issues from the perspective of smaller farms.

In Europe and North America both Porcine Epidemic Diarrhoea and African Swine Fever have prompted the development of high-tech truck hygiene facilities that clean and then "bake" the trucks to disinfect. Here, Australian Pork Limited has commissioned a project to look at ensuring there are effective truck washing facilities at the major abattoirs. The project will produce guidelines; however, they are not likely to be targeted at the needs of smaller scale producers.

The most important step in hygiene for all exotic and endemic diseases, whether on farm or the vehicles used to transport pigs, lies in removing all organic material in the form of faeces, urine, saliva, snot and bedding. Disease agents are likely to be concentrated in these materials and they will tend to survive for longer periods if encased in organic materials.

The first step is scraping muck out, and then washing to remove all organic matter from all surfaces and drying. Most disease agents will not survive on a clean dry surface. Using disinfectants or heating by leaving the vehicle out in the sun will add to the process, but cleaning is the key first step. Heating and disinfectants will not work in the presence of organic materials. If you are choosing between cleaning with a detergent or applying a disinfectant – go with the detergent.

Some vehicles are not easy to clean, or the construction materials do not respond well to wash outs with water, for example some horse floats. Avoid them, washing is critical. If you can get the vehicle tray clean with soapy water and a high-pressure hose - that will do, although small and quite effective pressure washers are now quite cheap and worth investing in. They make the job quicker and you can use less water than through a lower pressure high volume hose.

You can get domestic pressure washers for around $130 that have a foaming lance for application of a foam detergent. Detergent cleans surfaces better than straight water. Truck wash is suitable. Clean all the surfaces that your next load of pigs will have contact with, for example loading ramps, bars, internal and external walls and the under surface if it is contaminated with mud or other materials.

Figure 1: Trailer with pigs for the sale. It is important to clean thoroughly between journeys with pigs.

Source: Jayce Morgan

Best practice is to clean your truck/trailer off site. For example, the abattoirs or Council saleyards often offer a truck wash facility. If you bring the truck/trailer back to the farm, park it and wash it out on land away from where livestock have access, so you can properly clean and not contaminate them with the material you scrape or wash off or wash water.

Apply disinfectants to **CLEAN DRY** surfaces and allow disinfectants to dry on. There is a wide range of disinfectants specifically registered for ASF including Virkon S, Terminator Broad Spectrum Disinfectant, GEA Ag CHLOR Dairy Sanitiser and Hy-CHLOR AQUATIC PREMIUM CALCIUM HYPOCHLORITE.

Hygiene in the car or truck cabin is also an important consideration. Have a pair of boots that you only use off farm in a tub in the boot or trailer.

Both the boots and the tub will need special attention and regular washing and disinfection. Gum boots are ideal because they are easy to clean.

Use deep dish floor mats in the car and specifically clean and dry these after each trip to a potentially contaminated site.

You could also consider putting on plastic cover boots prior to getting out of the car so that you can walk to where you have stowed your tub ie car boot or trailer, get your gumboots out and put them on. Then when you are ready to drive off, go back to the boot tub, take off and stow the boots, put on your cover boots and then walk back to the car/truck door and take off the cover boots as you get in. This may seem complicated but is very commonly a requirement on visitors to larger farms to maintain biosecurity.

The used cover boots as well as any disposable gloves or disposable overalls you may use to complete the biosecurity program should be put into a waste bin/bag and disposed of well away from your farm and your animals.

Always remember to wash your hands with soap and water before and after you touch or handle your animals. Handwashing, disposable gloves and disposable overalls could all be added to the biosecurity program to make sure you do not contaminate the inside of any vehicle you are taking to a potentially contaminated site off-farm.

Records – they're important!

Jayce Morgan

The threat of African swine fever (ASF) is real and there have been repeated articles in various media to encourage development of biosecurity plans and to keep good records – visitors, pig movements, feed supplies, veterinary interactions, pig breeding, health and mortalities.

Despite all this there are still some who "keep it in their head". It is truly amazing if you can "keep it in your head," but what happens if you are not around, or something 'unexpected' happens and you need evidence – jogging the memory under stressful situations does not always work.

At the very least you should keep a farm diary and record visitors, feed deliveries, pig husbandry activities, pig mortalities, veterinary interactions and worker health issues.

A mobile phone could be utilised to create a picture/ photograph diary, but it would be essential to keep a copy on the farm computer as well for access during emergencies.

One way to assess if you are keeping enough of the right sort of records is to study forms used by biosecurity staff to investigate EADs. One of these forms on the NSW DPI website is the Animal Biosecurity- Pig Field Investigation Questionnaire.

Information required for an outbreak includes:

- Contact details – name address phone
- Primary contact responsible for the animals
- Farm map with entry/exit to farm and location of neighbouring livestock
- All stock details under surveillance – type (weaner grower sows etc), total numbers, # inspected, #affected, # dead and # sampled
- Clinical signs of disease and health records for several months prior to disease outbreak
- Date when clinical signs are first observed
- How quickly did the situation develop? Was it a slow build-up or rapid almost overnight?
- Husbandry history – parasite treatments, vaccination history, nutrition and housing?
- What was the first response to the outbreak – when did you know something was wrong and what did you do?
- Other animals on farm (eg cattle, sheep) and proximity to the pigs?
- Biosecurity plan – entry/exit protocols, biosecurity practices between different sections of the farm, people movements and behaviours, PPE – boots clothing and cleaning – who's responsible and what's the routine?
- Vehicle movements on and off farm for last 30 days minimum

- Visitors in contact with livestock including pigs – veterinarians, other farmers
- Visitors for utilities such as power, water etc – meter readers
- Other farm businesses and visitors – tractor mechanics, refrigeration technicians,
- All pig movements on and off farm
- Semen and other husbandry supplies
- Stock feeds, additives, and by-products
- Use of prohibited pig feed audit
- Water source and testing records, water treatments
- Animal products that leave the farm – compost/manures, semen, supplies to farmers markets or other niches – customer details. Distribution chains, knackeries
- Waste and garbage – what, where from, where to?
- Effluent management
- Feral animal incursions, small animal vermin (rodents), management protocols for this and activity for last 6 months at least
- All people movements including staff – travel overseas or interstate?
- Crops or hay – use of effluent – sales

That's quite a list. The quicker you can provide such information the quicker things progress. The more accurate the information you can provide the quicker traceback activities can be finalised.

Different people are comfortable with different types of records – photos, pen and paper, computer records – find the one that suits you and keep those records.

Use of a farm diary is fine but it creates a major jigsaw puzzle if not transcribed to more manageable files.

If you need suggestions for record templates – there are useful examples on the APIQ website – Example records for piggery management manual

A story of adventure and veterinary epidemiology

Prof. Grant Rawlin and Dr Dianne Phillips

"We had one village left to sample to finish up on the island – there was no road, so we went by outrigger canoe."

In Agriculture Victoria we have been working up a series of point-of-care (POC) tests that will be rolling out to our veterinary officers to use as a triage tool when investigating emergency animal diseases.

This POC technology is Loop mediated Isothermic Amplification, or LAMP for short. It is a field friendly system for detecting target nucleic acid from clinical samples. Just like qPCR … but not. How different? For starters it uses 5 or 6 primers for the reaction and not 2, and the reaction does not need temperature cycling or lengthy extractions – it operates at a single temperature – so the machinery is a bit simpler and much quicker.

Will it replace the lab and qPCR? – no, it is not as sensitive as a decent qPCR – but if you are in the field or only have a primitive lab, it works very well indeed.

The first LAMP assay we worked up a few years ago for the animal side of things was Footrot (*Best et al* https://doi.org/10.1371/journal.pone.0204310), then we took on Foot and Mouth (Bath *et al* *https://onlinelibrary.wiley.com/doi/abs/10.1111/tbed.13589*). Working on Footrot was straight forward in Australia, but we had to take the FMD LAMP to Thailand and then Bhutan to trial it. What fun that was, but that is a story for another time. This one is about African Swine Fever.

On the strength of the previous work, the Department of Agriculture in Canberra had given us some money to work up some new tests – the first being African Swine Fever virus.

It was early October 2019 and the test we had based on published work seemed to be working after only a few months – on the 'fake' bits of DNA we had available anyway. It was good enough for us to be planning a testing trip to Vietnam early the next year so we could work on lots of real ASF samples.

However, a call came through from Canberra innocently asking how the ASF LAMP project was coming along? I told them the progress was pretty good and we were close to taking it off overseas for proper testing …but, then…

"Last week there was an outbreak of African Swine Fever near Dili, the capital of Timor Leste, diagnosed in samples sent to Geelong. They do not have PCR capability in their lab in Dili and cannot diagnose ASF – we thought your LAMP machine might be useful up there. Can you do the testing up there and help them out at the same time? What do you think?"

We landed in Dili, Timor Leste on the 27th of October carrying 60 kg of excess luggage and with

the official letters from the CVOs of Australia and Timor Leste in my pocket. The team was made up of Prof. Grant Rawlin, (Vet Pathologist), Dr Peter Mee (molecular scientist) and Dr Dianne Phillips (Field vet and epidemiologist).

Figure 2: Selecting pigs for blood sampling in Timor Leste.

Source: Prof Grant Rawlin

That first day the task before us was spelt out by Dr Joanita the CVO of Timor Leste. She already had a system of reports coming in from officers around the island reporting sick pigs and dead pigs in various villages. We needed to set up diagnostics to see which of these were actually ASF – what was real and what was background? Where was the disease in the nation?

Peter had the lab working within a day and was pulling out some positives already on LAMP and our portable qPCR machine, while Dianne and I disappeared across the island with Dr Felix, the head of their vet lab, to investigate some reports of deaths – also so we could get an idea of the geography and husbandry.

The geography is tough once you leave the coast. The roads are poor or non-existent in some areas. We saw how most pigs are kept on the island and learnt that these were not the sort of pigs we were used to. European pigs are *Sus scrofula*, based on the European boar, while what we were seeing were *Sus celebrensis timoriensis*, the Timor warty pig.

We learnt that in this mainly subsistence farming society these animals are not just kept for food, they are intrinsically an important part of the cultural practices that link this society together https://www.sciencedirect.com/science/article/pii/S2352771419300886 . The conventional concept of test and slaughter was not going to be well received here at all.

About 70% of families had pigs on their mixed farms, usually between 2 and 4 pigs per family. There were pigs tethered or in small sties in the villages, some wandered the villages freely scavenging for scraps, and there were some wild pigs still in the surrounding jungles that were occasionally hunted.

Figure 3: Timor Warty pig sow and piglets.

Source: Prof Grant Rawlin

We learnt classical swine fever was common and muddying the ASF picture a bit, fortunately we had brought some technology to differentiate that. A bit to process there.

So where was this disease? Out in the field over the next days we tracked several likely outbreaks – Dr Felix and his field teams targeted some for bleeding, and we did some.

We designed a survey to try to figure out where the disease was – not perfect but what we could do with what we had. The bottom line is the ASF outbreaks were and still are patchy but not at all rare – however some of the areas we looked at showed no evidence of the virus. This involved sampling about 40 pigs from each of 47 villages chosen randomly to cover each municipality.

We found about 38% of villages were positive. This survey and testing was started by us and continued for the next months – with local staff picking up the work after some training. We left the LAMP technology with them after our 3 weeks and kept resupplying them with reagents and advice from Australia.

One thing that worried Directora Joanita (the CVO of Timor Leste) was, if ASF acted as the plague it had in China and Vietnam, where would new pigs come from to replenish local stocks. The Timor Warty pig is only present on Timor.

Figure 4: The Timor Warty pig is part of culture so preserving a healthy population on Atauro Island is extremely important.

Source: Prof Grant Rawlin

She asked if we could help select and test a refuge area that could be kept free for future breeding of the species. We looked at some possibilities, rejected one on the main island (fortunately, as it turned positive later) and then decided on Atauro Island a couple of hours boat ride off Dili.

But, was it free of disease as there had been reports of significant pig deaths at one village at the tip of the island? Only one way to find out. Get on a boat with some teams from the Timor Leste Agriculture Department and look.

Over 2 days we tested pigs from 11 settlements on the island. Most were visited riding in a truck crawling over steep tracks – but one on the far tip of the island could only be accessed by canoe. The reports of sick pigs disappeared in that village under questioning and all the testing came back negative when we took the bloods back to Dili the next day.

We concluded that the population on Atauro Island was free from ASF disease. The island has now been quarantined by MAF (on 8/11/2019) to prevent any further movement of pork or pigs to the island. Trade in pigs back to Dili remains as normal.

The future? ASF is still there in Timor Leste. We will be going back thanks to a recently funded program by Australia's Department of Foreign Affairs and Trade to further define the problem and to support the strengthening of the Timor Leste animal health service for the long term.

The program will be establishing LAMP then qPCR as technologies in the local laboratory, as well as instituting ASF control strategies suited to the area as well as establishing a pig refuge breeding centre. Because of our work last year and the close links, we made with the local staff – we can start work even with COVID stopping us flying up in person. I am sure we will be riding in more canoes very soon.

Phone A Vet – A new approach for veterinary advice

Regina Fogarty

Pig keepers may be interested in the new Phone A Vet smartphone app providing a new approach to obtaining veterinary advice.

The app is Australian owned, designed and developed and offers *"convenient and affordable advice from Australian registered veterinarians*". It is *Uber-like* in that you register your details including credit card and pay electronically, all on your smartphone.

There is a fixed price of $24.95 for a 15-minute video consultation at the end of which you are emailed an invoice for tax deductions.

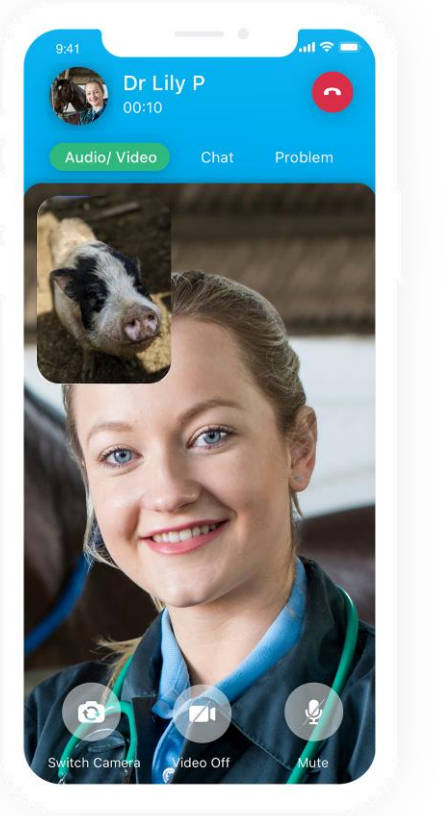
The app's search function allows you to find a veterinarian that supports your species ie pigs. You then enter details of the animal/s, the problem, add any photos or videos that may help the veterinarian, and book a session. Once the video consultation has started, your phone's camera can be "*switched*" allowing the veterinarian to examine the animal and its environment.

The Phone A Vet app has veterinarians covering all species. You can easily find those veterinarians listed as supporting pigs.

Of course, the veterinarian cannot take samples or carry out a treatment via video, but it may be useful for pig keepers wanting advice on possible causes of a condition, whether treatment is likely to be successful, or whether to put an animal down.

This is not an advertisement for the service or an endorsement of it – it just sounds interesting and may be useful for pig keepers. It could be the start of an ongoing professional relationship with a pig friendly veterinarian. Download the App from the App Store or Google play or find out more at www.phoneavet.com.au

Figure 5: Video call screen for the Phone-a-vet app.



Source: Regina Fogarty

New ASF Liaison Officers for APL

Tony Abel APL

Coming to terms with COVID-19 and its associated impact should remind pig producers of disease and biosecurity risks associated with pork production in Australia; in particular African Swine Fever (ASF) or Foot and Mouth Disease (FMD).

These and other emergency diseases pose a real danger to our industry, with around 50% of the world's pigs having died as a result of ASF. COVID-19 reminds us that we need a plan to minimise and manage any disease risk, should they arrive here.

Australian Pork Limited (APL) has teamed with the federal government to fund two Industry Liaison Officers to support emergency disease preparedness. Dr Kirsty Richards in Queensland will focus on assisting larger commercial piggeries, with Tony Abel in Canberra assisting smaller producers with their ASF plans.

It's the Liaison Officer's job to communicate with stakeholders, to understand how well producers are prepared, to help put plans together to keep disease out and to assist industry when problems arise.

APL and other websites provide a lot of information for producers on how they can prepare for an emergency disease outbreak. Understanding where every pig farmer is located and what additional help they need will be the priority, particularly for smaller, occasional pig farmers.

Kirsty and Tony will be reaching out to producers directly and through associated industries in the coming months. However, please free to contact Tony Abel on 0419 978 775 or tony.abel@australianpork.com.au

Australian Pork Young Leaders (APYL) Update

Sara Willis

The Australian Pork Young Leaders (APYL) group continues to grow and develop. It was formed in 2018 as a networking group for young people across the pork production and servicing sectors.

A steering group liaise with Sara Willis, to arrange a program of activities for each meeting. The group started with an initial membership of 25 but has grown to include 50 young people from Queensland, New South Wales, Victoria, Western Australia and the Australian Capital Territory.

The meetings provide opportunities for professional growth and development through the professional development sessions (people management, communication, risk management etc.) as well as creating and strengthening relationships between members.

As has been customary since the first meeting, 4 members (2 from the production and 2 from the servicing sector) from within the APYL group give presentations on their histories, roles, experiences and career goals as well as provide their insights into the industry's current challenges and opportunities.

To date, 25 members have given presentations to their peers. After each meeting, the group are asked to rank the usefulness of the meeting and state any changes they intend to make. The last meeting focussed on leadership styles, leadership versus management, personality types and learning styles.

When surveyed a week after the meeting, 43% indicated they had made a change and 50%

planned to make a change. Members are also asked to rank a series of topics to give the steering committee direction for the next meeting.

The next meeting on September 10 will focus on supply chain management, processing, wholesaling and retailing.

For more information please contact Sara Willis

Sara.willis@daf.qld.gov.au

Figure 6: A pre-COVID meeting of the Australian Pork Young Leaders (APYL) group.

Source: Sara Willis

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