A newsletter for pork producers

PigBytes

Issue 25 April 2015

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No time to swill around

Jade Weatherly (Bendigo Pig Group)

If you are a regular reader of PigBytes then you would know that swill feeding is illegal in Australia.

Swill feeding is the feeding of food wastes which contain meat, meat products or any food that has come into contact with meat.

Foot and mouth disease (FMD) could be introduced into the Australia through the practice of swill feeding which would have devastating effects on our valuable livestock industries.

Did you know there are many other exotic diseases which could be introduced into Australia through feeding swill, such as African Swine Fever, Classical Swine Fever, Aujeszky's Disease, Swine Vesicular Disease and Transmissible Gastroenteritis?

The feeding of food scraps is not a good option for pigs, as the nutritional value is variable and can often be in poor condition.

Waste from the human food chain is often past its use-by date by the time it gets to the pig and fruit and vegetables deteriorate rapidly if not kept under cold storage.

This could make your pigs sick with diseases such as Salmonellosis which is transmissible to humans.

The feeding of vegetables and bread is allowed under swill feeding laws. However feeding these alone will not meet the nutritional requirements of pigs and leads to suboptimal growth rates, and poor health. Lactating sows fed low-calcium diets are at high risk of bone loss.

So what should you feed your pigs? There are many commercial feedstuffs readily available which have been scientifically formulated to provide your pigs with a nutritionally balanced diet.

Alternatively, you can make your own feed with the help of a nutritionist. Unfortunately, pigs of different ages are not a 'one-size-fits-all' with weaners, growers and breeders all having different requirements.

Diets should be targeted for the specific age/weight of pig. For example, weaners require a highly digestible and palatable diet to ensure their growth rates are not compromised.

A lactating sow has high energy and protein requirements to feed her piglets. So, if the sow is not fed properly she will not be able to feed her piglets properly, which could lead to increased piglet disease and deaths.

When considering making your own diet be aware that pigs do not process whole grain with the majority passing straight through the pig.

Grains need to be milled to decrease their particle size. The smaller the particle size the better the digestibility of the diet, which improves feed conversion. An average of 700 micron particle size is recommended. Too fine a grind can lead to stomach ulcers if there is no fibre in the diet.

Note that mash diets can easily be blown away by wind in outdoor systems. The result is a large amount of feed wastage. This is where a pelleted

diet is an advantage as this will reduce the amount of feed wastage.

It is important to know what proportion of feed is being consumed and what is wasted. Feed is your largest cost in pork production.

So what can you to do with all those food scraps from the kitchen table? Make compost! Just make sure your pigs cannot access the compost. Your plants will thank you and that way your household food scraps are not going to waste.

Does your piggery have the required approvals?

Jayce Morgan

At the recent Victorian Pig Fair Janine Price from Australian Pork Limited (APL) referred to a growing trend of compliance issues with environmental and planning regulations. So how do you avoid problems?

What sort of operation do you have in mind? You need to consider the number of animals, how they will be managed and what infrastructure you will need.

Site selection is critical to success both in terms of current plans and possible future expansion. Consider noise, odour and the visual amenity – sight, smell and sound. Most complaints arise from one or a combination of these and odour ranks at the top of the list.

Pigs are capable of considerable environmental damage and you need to consider mitigation strategies such as contouring or dams to contain effluent runoff, paddock rotation and cropping to minimise land degradation and soil nutrient accumulation.

Planning requirements will vary according to land zoning which will be listed on a rate notice. For example reference to the Local Environment Plan (LEP) in Corowa NSW shows that for the land zoned 'RU1 primary production' intensive livestock production is permitted with consent. This means you have to talk to council and may need to do a Development Application (DA).

Indoor and outdoor pigs can be classified as intensive livestock agriculture. Proper research and acquisition of the appropriate approvals can save a lot of heartache.

Council LEPs can be easily found by doing an internet search.

The State Environmental Planning Policy No 30 – Intensive Agriculture or SEPP 30 as it is commonly referred to outlines the regulations for piggery developments. Important to note is the requirement for a DA (development application) for piggeries with 200 or more pigs or 20 or more sows.

LEPs and SEPPs can also be located at the NSW Department of Planning and Environment Hub page

NSW DPI has also produced a guide for preparation of a development application for intensive agriculture.

Australian Pork Limited (APL) also has a useful section of their website with environmental information for indoor and outdoor piggeries and a series of fact sheets and guidelines to help with the planning process.

Pork producers in other states should consult with their respective departments of primary industries for the relevant regulations for their state.

Polyarthritis in bacon pigs

Trish Holyoake

Polyarthritis is the term given to infections in multiple joints of an animal. Polyarthritis in bacon pigs can be a significant economic problem resulting in trimming, downgrading and condemnation in severe cases.

Figure 1: This pig has a wound which would allow infection to develop if not treated. At the abattoir it is probable the hind leg would be condemned but it is possible the whole hindquarter could be condemned.

Source: Jayce Morgan

Pigs that are unable to walk and bear weight on all four legs are not fit-to-load. Producers must decide whether to retain them and treat (often requiring extended time on-farm before pigs are free from medication withholding periods) or euthanize them.

Common causes of infectious arthritis include Erysipelas, *Arcanobacterium pyogenes*,

Haemophilus parasuis (Glassers Disease), *Strep suis, Staph aureus* and *Mycoplasma hyosynoviae*.

Laboratory testing is required to confirm the diagnosis. Whole legs from euthanized untreated, typical animals early in the course of the disease are the best candidates to submit to your veterinarian and/or trusted veterinary diagnostic laboratory.

Post mortem investigations undertaken on-farm may be problematic due to the risk of contamination during the difficult process of opening joints.

We recommend that samples from legs include swabs, joint fluid and synovial membrane for culture and synovial membrane and (affected) articular cartilage for histopathology. *Mycoplasma hyosynoviae* produces a less purulent (less pus) infection and when this is suspected, dry swabs and synovial membrane should be submitted for PCR testing.

Diagnosis is the key to treating affected pigs and preventing new cases. Pigs reared on sows vaccinated against erysipelas pre-farrowing are generally protected by maternally-derived antibodies for up to 8 weeks.

However, pigs are susceptible after this time, particularly if environmental contamination is high (eg contaminated bedding) and/or if they are stressed (sudden changes in temperature, movement, over-crowding).

Where conditions cannot be fixed, there are commercial vaccines available against erysipelas but vaccinating growers is a tough ask for most stockpersons – particularly if pigs are housed semi-intensively or outdoors.

Strategic medication in-feed or in-water may be more practical in these cases. Seek veterinary advice specific to your farm on this.

There are commercial vaccines against Glassers Disease, but the vaccine may not work on your farm if the type you have is different to the vaccine serotypes. As this is primarily a respiratory disease, attention to the air quality, ventilation and temperature control for pigs is important.

A. pyogenes commonly lives in the nose and genital tract of many species, including pigs. Infections occur usually when there is some damage to the skin (eg. from tail biting), allowing for soft tissue abscesses to develop, which may spread to nearby joints.

Affected animals require antibiotic treatment (tetracycline and penicillin-based antibiotics usually work). There is no vaccine against *A. pyogenes*. Prevention requires management of the environment and husbandry to reduce or abolish the various conditions that predispose the development of *A. pyogenes* lesions.

This may include reduced mixing of animals, controlling any vices that damage skin (eg. tail biting) and improving injection techniques. Wet bedding should be replaced regularly with dry bedding where pigs are reared on deep litter.

If you are getting penalties or down-grades for arthritis from pigs at abattoir it is time to talk to your vet!

Poor quality pig carcases – what's the cause

Jayce Morgan

I received a distress call from a pig farmer a few months ago relating to poor quality pig carcases. Too little eye muscle and too much fat – what could be done?

Figure 2: Carcase cross section showing a lot of fat and not much muscle.

Source: Jayce Morgan courtesy of the farmer.

Carcase quality is affected by many things including:

- Genetics
- Nutrition
- Health
- Gender of the pig

The food or nutrients a pig eats get partitioned to the various needs of the pig. For example part of the nutrients will go to body maintenance which is really just about keeping everything in the body working correctly.

The remaining nutrients will then be distributed to whatever is the next most important whether it be growth, reproduction or fat accumulation.

If a pig is ill or carrying a subclinical ailment then a large proportion of the nutrients will be directed to the immune response at the expense of everything else. You might notice the pigs stop growing, losing weight or aborting pregnancy depending on which pigs are affected, the type of illness and its severity.

Muscle development begins in the womb so a good carcase can be said to begin with management of the gilt or dry sow, a balanced diet and correct vitamins and minerals.

Genetics will determine the growth potential of the pig. Commercial lines of pigs have been selected for growth and lean meat yield for at least the last 30 years. With careful management they are very efficient converters of feed to meat.

Traditional breeds of pigs have generally not been selected for fast growth and lean carcases. It is more difficult to produce a good carcase with some breeds and they tend to become very fat very easily.

Some producers mix the commercial and traditional breeds by cross breeding. This results in a bit of hybrid vigour with better carcases and faster growing piglets.

Nutrition is extremely important in the pig. The young piglet relies on its mother's milk so the sow needs the right nutrition and plenty of water to have a good milk supply.

At about 3 weeks of age most piglets need more nutrients than the mother's milk can provide so creep feeding is advised.

Creep feed is feed that is of high nutritive value and provided in a way that only the piglets can access the feed.

It may be provided wet or dry and is to tempt piglets to begin solid food whilst still on their mother. This creep feed should be provided even if you do not wean your piglets until 6 or 8 weeks of age. Gradually increase the amount as they eat more.

Some piglets will begin to eat the sows feed. Make sure there is enough for all.

The young piglet has the greatest need for high quality feed which includes the essential amino acids in particular lysine.

When the amino acids are deficient in the diet muscle growth is limited and the excess carbohydrates are deposited as fat.

If you mix your own feed buy the appropriate vitamin/mineral premix or admix that contain the correct amino acid component. Consult a nutrition expert for diet formulations. Purchase of properly formulated pig pellets is also a good idea.

The gender of the pig can impact the fatness of the carcase. Boars mature later than gilts so tend to have the leanest carcases gilts the fattest carcases and barrows (castrate males) are similar to gilts. But the quality of the diet is important.

Age of the pig will also affect the amount of carcase fat. As the pig grows towards its mature body size it tends to lay down more fat and less muscle particularly if the diet is not right.

If a pig consumes nutrients in excess of what it requires the excess can be converted to fat.

Pigs that suffer a growth check due to disease can display rapid catch-up growth. This can result in fatter carcases depending on the age at which this occurs.

Organic Pork opportunity

Jayce Morgan

The Australian Organic Market Report 2014 reported that demand for organic pork remains unsatisfied.

New technology for curing products suitable for organic certification suggests future opportunities for this sector. There remains a growing interest from the major retailers in organic cured products such as ham, bacon and pork.

According to the report, ABS data from 2011 recorded 7 operators across NSW, Queensland and WA. NSW had the most certified organic land under pigs with 309 ha (ABS 2012) but there were no new entrants since then.

Organic pork was valued at $3.64 million with an annual growth of 9% to 2014.

Most sales of organic pork are via direct marketing through retailers, direct to consumer and farmers markets.

High production costs due to free range requirements and high feed costs for certified organic pig feed mean there are constraints for further development in organic pork.

Australian Certified Organic in partnership with the Agri-Business Development Institute (ABDI) offers an Onboarding Program to educate and support new and existing organic operators about the industry.

Contact Kellie Lewis Australian Organic Ltd Phone 1300 331 309 or visit the website: www.austorganic.com

Farm chemical catch-up

NSW DPI Farm Chemicals Team

Surplus Farm Chemical disposal

Did you know that there is a protocol for disposal of farm chemicals surplus to your requirements?

Buying or selling chemicals at farm auctions or clearing sales is not recommended and may be illegal for the following reasons – the product:

- may not be what is on the label or may not be in the original container.
- may no longer be safe for its intended use
- may be expired and out of date
- may no longer be registered
- may have no labels or labels that cannot be read
- may contravene sections of the Agriculture and Veterinary Chemicals Code Act 1994
- may contravene State and Territory legislation such as WH&S, Stock Medicines or Pesticides Acts.

Not all Livestock and Property Agents are registered to sell chemicals.

The Australian Pesticides and Veterinary Medicines Authority (APVMA) together with Australian Livestock and Property Agents Association Limited (ALPA), AgSafe, ChemClear and drumMuster have produced a Surplus Agricultural and Veterinary Chemical Decision Protocol for guidance with chemical disposal.

Grain Storage Chemicals

Did you know that some Dichlorvos products have been deregistered for use in pest control in grain storage?

Dichlorvos is not allowed for grain protection since 2nd March 2015. Products banned include:

- DIVAP 1140 insecticide
- BARMAC Dichlorvos 1140
- BARMAC Dichlorvos 500

If you would like more information please read the Dichlorvos Final Review Report (126 pages); or the Australian Pesticides and Veterinary Medicines Authority Gazette No APVMA 2, 27th January 2015 page 22 for details of the Dichlorvos cancellation.

The Grains Research and Development Corporation (GRDC) have information on their website for use of phosphine in stored grain products.

They also have a Stored Grain National Information Hotline

Phone 1800 weevil (1800 933 845)

Grain Storage Safety

GRDC also have a video about safety around grain storage which may be useful for training purposes.

APVMA information sessions

The Australian Pesticides and Veterinary Medicines Authority (APVMA) are offering a series of information days in Sydney, Canberra and Melbourne during the remainder of 2015 and 2016.

The program includes topics such as permits, using the online submission system, applying for product registrations, and information about the chemical review process, regulation, strategy and developments.

The program also offers the opportunity to meet and talk with APVMA staff and an opportunity to ask questions and raise your issues with them.

The APVMA are now taking registrations for the first of the series of information sessions in Sydney on 1 June 2015. Further information and registration is available at the Industry Information and Education Sessions 2015 and 2016.

These information sessions are targeted for industry groups and anyone else who works with the APVMA on chemical permits, registrations and other issues.

Congenital Tremor in pigs

Matthew Silverstein

Congenital tremor is the term given to an abnormality appearing in piglets at birth associated with the absence or poorly-developed nerve fibre coverings in the spinal cord and brain.

The tremor or shake seen in affected piglets can be over the whole body particularly the limbs and head, or it can be more focused to a particular area.

The condition varies in severity with some piglets showing tremors more frequently than others. It tends to stop when the piglets are sleeping and is more apparent when they are awake and not recumbent (not lying down).

The exact cause of congenital tremors has not been determined but a number of viruses (classical swine fever, unknown virus) and a drug (Trichlorfon) have been implicated. The disease is thought to be inherited in some cases.

The disease can affect a few or the majority of litters, depending on the type and cause. In

severe outbreaks, all piglets in a litter may be affected with a high proportion of these dying. Where pigs survive, tremor severity decreases over time. The tremors have usually disappeared by 4 weeks of age.

Where an infectious cause is involved, litters from gilts tend to be more commonly affected than those of sows as the gilts have not had as much chance to develop immunity to infectious agents.

Treatment of congenital tremors is based on focusing on the underlying cause if identified for this disease.

After ruling out all the known types and their associated causes, the common practice is to utilise feedback strategies to stimulate immunity in gilts prior to their entry into the breeding herd.

This should be undertaken after consultation with your veterinarian.

Regulations around using feedback vary among states. It is important that you get advice from a veterinarian dealing with pigs on a regular basis and who is familiar with the relevant state legislation.

For more information on what can and can't be fed to pigs in your state, talk with your veterinarian or relevant State agency. Contact the Pig Centre in Bendigo for more information in Victoria.

Matthew Silverstein is a veterinarian recently appointed to the Pig Centre. He can be contacted on:

Phone: 03 5430 4428

Email: matthew.silverstein@ecodev.vic.gov.au

In NSW feedback is deemed swill feeding unless you have written instruction from your veterinarian for its use. Contact Amanda Lee for more information.

Phone: 02 4640 6308

Email: amanda.lee@dpi.nsw.gov.au

On farm feed preparation – why is it so important?

Sara Willis

Feed cost accounts for approximately 60% of the total cost of production. However, feed mixing on many farms is often taken for granted as a simple process that requires little attention.

Mixing a uniform feed is a vital and challenging role that can be influenced by a number of factors, including mixing time, particle size, worn or poorly maintained equipment and overfilling.

Mixing time has a significant influence on the uniformity of feed ingredients in the finished feed. Short mixing times may not be a serious problem for older animals consuming large quantities of feed but for young, fast growing animals, the lack of complete mixing could result in an unbalanced intake of essential nutrients.

Even for larger animals, reduced feed efficiency and a reduction in growth rate may occur but go unnoticed. As more diets are fed in a production system, nutrient supply is more closely linked to nutrient requirements so the importance of diet uniformity becomes greater.

A study conducted by Groesbeck et al. (2007) investigated the effects of mixing time on nursery pig performance.

A total of 180 weaner pigs were fed diets in two phases (0 to 14 days and 14 to 28 days). Dietary treatments included diets that were mixed for 0, 30, 60, 120 or 330 seconds per tonne in a horizontal ribbon mixer.

The results (Table 1) show that increasing mixing time increased average daily gain (ADG) and improved feed to gain (F:G) from day 0 to 28 post weaning.

Table 1: Effects of diet mixing time on nursery pig performance from 0 to 28 days post weaning

Mixing time seconds per tonne of feed	0	30	60	120	330
Initial weight (kg)	6.29	6.34	6.29	6.29	6.29
Final weight (kg)	15.56	17.55	17.64	18.28	19.28
ADG (kg/d)	0.33	0.40	0.41	0.43	0.46
ADFI (kg/d)	0.47	0.56	0.53	0.57	0.60
F:G	1.42	1.4	1.29	1.32	1.30

Source: Groesbeck et al. (2007)

Mixing efficiency is generally evaluated by taking at least 10 samples from within a single batch of mixed feed and analysing each sample individually for a micro-ingredient, nutrient or tracer.

The micro-ingredient, salt is often used because it is cheaper to analyse, common in most feeds and comes from only one source.

Physical characteristics that make salt an attractive ingredient for testing include: it is denser than most feed ingredients, its shape is generally cubic rather than spherical, and is smaller than a lot of other

particles.

If the mixer will uniformly incorporate salt, those ingredients with more typical physical properties (shape and density) should pose no problem during mixing.

The variation of the micro-ingredient, nutrient or tracer within the batch is expressed as the co-efficient of variation (CV).

In commercial feed manufacturing, the standard for uniform mixing is a coefficient (CV) of 10% or less. If the CV is over 10%, the mix time needs to be increased and/or the system inspected for factors that caused the poor ingredient distribution (e.g. overfilling, worn equipment).

The study conducted by Groesbeck et al. (2007) showed that a CV > 12% reduced nursery pig performance.

Collecting representative samples for a mixer performance test will be dependent on the type of mixer (vertical vs horizontal) and design.

Samples should be drawn from pre-designated locations of the mixer (horizontal) or at even intervals during mixer discharge (vertical).

As part of an APL Group Demonstration project some 10 years ago, the author assessed mixer performance for two vertical mixers over a range of mixing times (Figs 1 & 2).

Three samples were taken at each time interval from different locations in the mixer.

Figure 1 shows that the CV did not move into the acceptable range until the feed had been mixed for 10 mins.

For the older mixer in Fig 2, the CV remained over 40% after 15 mins of mixing with virtually no mixing of the feed. This was due to worn equipment in this 27 year old mixer and the coarse particle size due to the wear of the roller mill.

A large particle size variation between grain and micro-ingredients will reduce the likelihood of uniform incorporation of micro-ingredients within a batch.

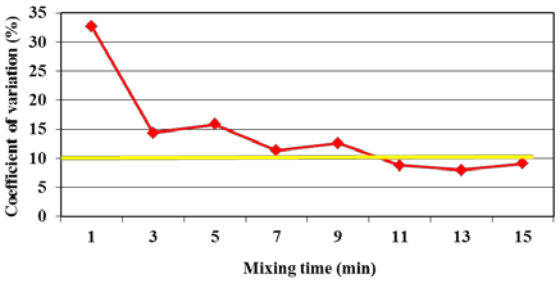
Mixing time must be timed from when the last ingredient is added.

In a vertical mixer (single screw), the mixing of ingredients is limited to the lower and upper ends of the auger. Because the auger can only move a fraction of the amount of feed at any one time about 10 – 15 minutes is necessary to adequately mix the ingredients.

Generally, horizontal mixers will require less time to achieve a uniform mix. A well maintained horizontal mixer will typically need 3 to 5 minutes.

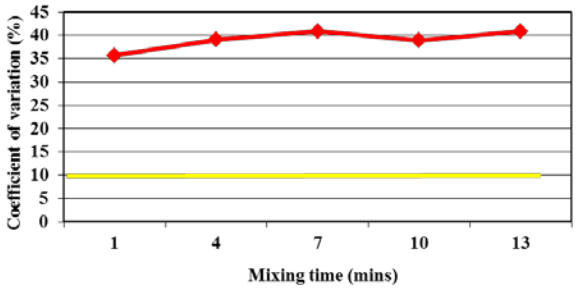
Tests have shown that over-filling mixers greatly increases the amount of time needed for mixing.

Figure 3: Mixing efficiency over time for a vertical mixer (2 tonne mix in 2 tonne mixer, 1 year of use)



Source: Sara Willis

Figure 4: Mixing efficiency for a vertical mixer (Webster mixer – 1.5 tonne mix in 1.5 tonne mixer, 27 years of use)



Source: Sara Willis

Mixing time has a large influence on the uniformity of feed ingredients so it is important to regularly evaluate mixer performance to ensure a uniform mix. A lack of complete mixing will result in reduced feed efficiency and a reduction in growth rates.

Stud pig sale

Jayce Morgan

An inaugural stud pig and prime breeding pig sale is planned to be held at Bedgerabong Showground, Bedgerabong via Forbes NSW on the 12th June at 11 am.

Agents for the sale are VC Reid & Son from Forbes.

Expressions of interest are sought from producers who have:

- Stud boars and
- Stud gilts that are joined and unjoined.

For details of sale conditions or more information then please contact Murray Reid before the 7th May 2015.

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