Feed cannot be wasted on pig farms
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In a time of record feed prices, it is essential that feed wastage be minimized. It is estimated that 10% of feed delivered is wasted on the average farm. On a 250 sow unit this can be more than 150 tonnes of feed per year (whole farm – farrow to finish - feed consumption at 6.3 tonnes per sow per year). Feed is wasted along the entire feed line from field to rectum! This article details some of the areas where this wastage occurs at the farm level and focuses on simple management practices to reduce this waste. Reducing feed wastage by half would amount to a reduction in cost of 8-9 AU$c/kg deadweight - Au$6.30 per pig sold (70kg dead weight – head off –Western Australia norm). This could be the difference between profit and loss on many farms.

(Calculation: 7.5 tonnes x Au$377 average feed price divided by (250x20x70kg) dead weight)

Where is feed wasted?

Feed distribution system and storage
Feed bin management
Avoid unnecessary waste while cleaning feed bins. Leaving spilt feed under the bin only encourages rodents and vermin to the farm – which then consume their own share of feed. Routinely and regularly check the outside, inside of feed bins and their distribution systems.

Feed bin filling
When the feed bin is being filled, avoid all wasted and split feed. Once the feed had been delivered, ensure that the feed bins are properly re-sealed.

Feed outage
Manage and understand feed movement within a feed bin and ensure that feed outages do not occur. If a pig is without feed for 24 hours, a gastric ulcer may occur. This results in poor feed digestion and leakage of blood – which has to be replaced – a chronic feed wastage. Pigs going without feed for more than 6 hours is extremely common on pig farms – to the point it is a normal occurrence at least once in every batch of pigs produced.

Feed spillage under a feed bin  Feed being split during delivery  These pigs ran out of feed – 8 pigs died suddenly associated with gangrene of the stomach because of the outage. *Clostridium septicum* isolated.
Feed storage
Creep feed should not be exposed to temperature extremes if it gets hot it might go stale. A typical example of this is “storing” creep feed within the hot nursery, making the feeding easier for the stockperson.

Feed barrows
If feed is moved around the farm in barrows, ensure that the barrow is kept out of the rain and is covered at all times. Do not overfill feed barrows as this often leads to spillage of feed while moving the barrow around the farm.

Wastage associated with medications in the feed
Place medicated feed into the correct bin. Ensure that all feed bins are numbered and the driver places the correct feed in the correct feed bin. This will avoid having to empty a feed bin or having to live with unintended and expensive medication withdrawal times.

Palatability
All feed which enters the farm should be tasted by the stockperson in charge of the area and the manager to ensure that feed palatability standards are being met. This should include wet feed ingredients.
Do not allow medication to make the feed unpalatable. If there is any concern regarding palatability consider the use of talins to mask the taste. Discuss this with your veterinarian if you have any concerns.

| Do not store creep feed at high temperatures | Do not allow feed barrows to waste feed | Number all feed bins and regularly check |

Feeder Setup
Adequate feed space
To allow all the pigs to grow evenly it is essential to provide sufficient feeder space for all the pigs in the pen. This is particularly important in the first three days post-weaning.
Table 1 Feed space availability in a trough feeder:

<table>
<thead>
<tr>
<th>Weight of pig (kg)</th>
<th>Trough/hopper length (mm)/pig</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Restrict fed</td>
</tr>
<tr>
<td>5</td>
<td>100</td>
</tr>
<tr>
<td>10</td>
<td>130</td>
</tr>
<tr>
<td>15</td>
<td>150</td>
</tr>
<tr>
<td>35</td>
<td>200</td>
</tr>
<tr>
<td>60</td>
<td>240</td>
</tr>
<tr>
<td>90</td>
<td>280</td>
</tr>
<tr>
<td>120</td>
<td>300</td>
</tr>
<tr>
<td>Sow</td>
<td>400</td>
</tr>
</tbody>
</table>

Note that the newly weaned pig requires 3x longer feed space than is required a week later. This is because newly weaned pigs feed as a group and do not understand the concept of ad lib feeders.

**Feed distribution**
Ensure that the feed is distributed evenly along a feeder to minimize aggression and fighting at the feed space. This will also minimize uneven growth within a group of pigs. Do not place the feeder on a sloped floor.

**Feeder in wrong position in the pen**
When siting the feeder consider the ability of the pig to reach it. Feeders placed in cold corners will often become fouled with urine and faeces as the pigs use the area as a toilet. Feeders placed too close to a divider or other obstacle, a drinker for example may have feed spaces which are inaccessible. Note pigs should not have to jump up to gain access to the feeder. This is typically seen when young pigs have to cope with raised feeders.

**Feeders placed so that they cannot be easily examined**
All feeder should be placed so that the stockperson can easily examine the feeder for leakage, overflowing of feed or soiling.

**Feed and drinker position**
Pigs like to drink shortly after feeding. If the drinkers are more than 2 metres from the feeder, pigs will walk between the feeder and drinker and carry food in their mouths.
This feed will be dropped (and wasted) on the floor and bedding. Ensure that the pigs do not have to cross the sleeping area to get from the feeder to the drinker.

**Covering feeders**

Uncovered feeders contribute up to 30% of the dust in the air. The feeder is exposed to rodents and possibly birds, which can both eat the feed and soil the remaining feed. All feeders should be covered. If the stockperson needs to examine the feed level, ensure that the feeder has a see through area where this can be assessed.

<table>
<thead>
<tr>
<th>Poor feed distribution. Ensure that the downpipe is properly placed</th>
<th>Feeder in the wrong place in the pen and being used as a toilet area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distance between the feeder and drinkers is too great resulting in feed being split</td>
<td>Pigs will carry feed in their mouth, on their whiskers and this will drop off on the way to water</td>
</tr>
</tbody>
</table>

**Management**

**Use the right feed at the right time**

It is essential that pigs progressively move to the cheaper diets as soon as possible while maximizing their growth potential. Keeping pigs on the expensive early diets for longer than warranted, increases costs. On several farms, the pigs are kept on expensive weaner diets too long to compensate for the poor feed intake and growth in the first week post-weaning. Carry out regular feed budget audits to ensure that the farm is feeding appropriate levels of feed intake.
Use correct feed
It is essential to adopt a suitable diet. In times of high prices it is tempting to simplify and cheapen the feed, but growth and health could be affected. Note if the pig’s growth slows down this cannot be allowed to affect pig flow and all-in/all-out systems. Poorly formulated diets are more likely to result in diarrhoea, resulting in raw feed ingredients ending up on the floor.

Feed preparation
Feed which is incorrectly prepared – ground or rolled, can result in increased waste. Whole grains cannot be digested by the pig and are passed out whole and undigested – and are therefore wasted.

Feed available when pigs enter a house
It is essential that pigs are fed the correct diet immediately when they enter the house. Requiring the pigs to eat up the last of the last group of pig’s feed is not acceptable. Such feed may contain the incorrect ingredients or medications, or if it has been left for more than a couple of days has become soiled with moulds, rodent faeces or urine.

Pigs cannot digest whole maize grains (arrow 1) – they pass through the pig thus wasting the original feed. Note also the cotton seed (arrow 2) – these may carry the toxin gossypol.

Final finishing feed left to be eaten by the next group of 30 kg pigs. Note the feeders are not covered.
Feeding routines
Creep feeding in the farrowing house
If the farm practises 3 week weaning, creep feeding needs to be carefully justified. It must be demonstrated that the effort and waste involved in creep feeding enhances weaning weights and post-weaning feed intakes. With 4 week weaning, creep feeding can be beneficial. However, it must be practised so that expensive creep feed is not wasted and soiled. Creep feed should be fed at least 3x daily – little and often.

Adult pig feeding
The feeding routines practised in the farrowing, breeding and gestation areas can result in enormous feed wastage. In the farrowing area attempting to get the sows to eat too fast can result in loss of appetite in the lactating sow. The pig then fails to clean out the feed trough, resulting in mould development and in the worst cases, fly infestation of the feed. Note the feed problems can result in water availability problems affecting milk supply to the piglets. In the breeding area, when sows are in oestrus they often will not eat and this results in feed remaining in the feed troughs and being wasted. In gestation areas feeding routines can be extremely careless resulting in large amounts of feed being wasted on the floor. Combined with poor cleaning routines this feed becomes soiled. Overfeeding of the gestating sow is extremely common on pig farms. This extra feed is wasted, does not benefit the growing piglets and reduces subsequent feed intake during lactation.

Feeder empty as the pigs leave the farm
Do not dispose of feed remaining in the feeder by pressure washing the feed down the slats. Management of the feeder in the finishing pen is an essential component of finishing.

Hospital pen feeders
The feeders in the hospital pen are often overfull and over running for only one or two pigs. This can result in tremendous wastage. Adjust feed in the hospital pen feeders according to the needs to the pigs.

Weekend feeding
It is extremely lazy to overfill feeders – especially in the newly weaned pens, with feed just to avoid having to feed at the weekend. We all want an easy a life, but this laziness can result in wasted and soiled feed.
Feed wasted between groups | Hospital pen feeder wasting feed and not providing good food to the compromised pigs | Feeders filled up for the weekend, but this can increase feed wastage

### Feeder management

#### Holes in the feeder

It is imperative that all feeders are examined regularly – at least between batches. Where a feeder is found to have a hole, fix or replace the feeder. Holes that occur over slats cost enormous amounts of money, where chronic feed leakage occurs without trace. Note holes can occur in down-pipes and feed systems – sometimes out of sight.

Any feeder with a hole should be thrown away or immediately repaired | Feed under slats

### Feed quantity available

The adjustment of feeders should be done every day. This is one of the most important jobs for grow/finish stockpeople. It is not acceptable that feeders are allowed to over run just to ensure pigs have “sufficient” feed. Feed efficiency can be maximized when the pigs have to work for their feed. Placing less feed in the feeder by lowering the downpipe into the feeder will reduce feed wastage and dust production – although the feed auger may need to run more often. All stockpeople should understand in detail how the feeder works and how to adjust the feed availability. A feeder, which is overrunning will also tend to allow the feed to become powder. This can result in feed intake refusal, increased dust contamination of the room, limited feed space and increased respiratory problems in the pigs.

Too little feed | Feeder working correctly | Feeder over running

All feeders on the farm should have information sheets clearly describing how the feeder should be running.
Three different feeder design all providing too much feed, resulting in feed wastage

<table>
<thead>
<tr>
<th>Very powdery feed being fed</th>
<th>Analysis of the feed in the feed bin – very little powder</th>
<th>Analysis of the feed in the feeder – a lot of powder very few pellets</th>
</tr>
</thead>
</table>

It is essential to ensure that the pigs actually get to eat the feed in the format designed

**Ignoring overrunning feeders**

If stockpeople are in too much rush, they may miss a feeder which is overrunning. A personal example: the downpipe fell out of the feeder and the auger tried to fill the slurry pit over the weekend. The result: 30 tonnes of wasted feed as well as the time taken to dig out the slurry pit by a young stockperson – who would never make that mistake again! Obviously large quantities of feed can be wasted within hours. Feeders and feed systems should be equipped with suitable alarms to prevent this occurrence.

**Water in the feeder**

Any feeder with an additional waterer should receive careful management. Ensure that the water does not leak and fill the feeder, restricting feed access. Likewise, ensure that feed does not build up and limit water availability. Drinkers in feeders should be considered as feed intake enhancers not as a specific water supply.

This feeder sprung a leak resulting in 3 tonnes of feed being spilt

Excessive water in the feeder can result in feed waste and obstruction to feed intakes
Soiling of the feed

**Feeder incorrectly placed**
As discussed above ensure the feeder does not look like a toilet area to the pig.

**Effects of the weather and the feeder**
The feed must not be spoiled by the effect of the weather – in particular during rain storms. This is to include feed barrows and bagged feed areas.

**Floor feeding / feed as bedding**
Floor feeding, for whatever reason should be avoided. Feed is an extremely expensive bedding material. While it is not uncommon post-weaning to feed on the floor mat – the provision of a simple inexpensive trough will not only reduce waste but also provide the stockperson with detail of feed consumption per pig rather than just usage per group.

It is particularly surprising the number of farms where feed is spread on the floor merely to indicate to the pigs where their “sleeping area” is located. Review pen layout and provide a draught free sleeping area to all pigs.

<table>
<thead>
<tr>
<th>Feed exposed to the weather</th>
<th>Floor fed gilts, note the feed wastage</th>
<th>Feed spoiled by a leaking waterline</th>
</tr>
</thead>
</table>

**Mouldy feed**
The feed can become soiled by water running into a feeder – for example from a drip cooling system poorly managed. This wet feed can rapidly become mouldy and fly infested. Feed bins which are not sealed after filling or are sited where condensation can occur in the bin, result in feed wastage through mould. Feed bins placed directly in front of outlet fans are an example of this. Mould not only results in wastage, but a potential health risk if feed is eaten.

**Farrowing and gestation sows**
Adult sow’s feed supplies are particularly prone to soiling through attempts to overfeed by stockpeople.

**Rodent and vermin control**
Birds, mice and rats can consume vast quantities of pig feed. Their faeces and urine contribute to the soiling of even more feed. Feeders should be covered to reduce access to vermin. Buildings should be bird-proofed to reduce access and thereby improve salmonella control.

FCR has been reduced by 0.3 (3.0 to 2.7 – 30-100 kg liveweight) in sheltered pigs purely by covering the feeder! In outdoor units seagulls and birds can swoop down and take several pellets at one time. What is particularly galling is that the sows will often stand to one side while the birds eat!
Birds around weaner arcs

Birds feaces on covered and uncovered feeder – a salmonella risk

An adult rat will eat 15 g a day – with a 1000 rats on the farm this is nearly 5 tonnes per year
A seagull will eat 100 g a day – with a 100 seagulls eating their ration a day this is 3.7 tonnes per year.

**Avoid feeding unnecessary animals**

**Non pregnant sows**
It is essential that all sows 6 weeks post-mating are actually pregnant. A sow which is discovered not pregnant in week 16 of ‘gestation’ has just consumed 175 kg (2.5x7x10) of feed since mating. On many farms, this can be as many as 7% of sows. On a 250 sow unit this is accounts for 3 tonnes of sow feed a year.

**Cull sows**
Once the decision to cull a sow is made, ensure that she is culled as soon as possible. Cull sows are eating 2.5 kg a day.

**Feeding finishing pigs prior to slaughter**
To feed a pig immediately prior to slaughter wastes 2.5 kg per pig sold. In addition, it can make the journey to the slaughterhouse extremely unpleasant for the pigs by inducing vomiting and travel sickness.

**Overweight finishing pigs**
Finishing pigs must be weighed and sold into the slaughterhouse matrix. Outside the box the pig becomes extremely expensive. When they get to 120kg with a P2 of 16 mm not only are they not going to pay for the extra feed they have consumed they are going to result in a penalty at the slaughterhouse, reducing their return.

**Review culling of runt pigs**
Pigs which are born small and or are weaned as a runt their survivability should be carefully reviewed. 90% of pigs born below 800g die before reaching slaughter weight. Small weak born piglets have FCR rate 3.5 to 4.0 instead of 2.4 to 2.6. The feed cost of these animals need careful review.

**Sick pigs**
Review the pigs in the hospital area. Rectal strictures are not uncommon on pig farms. These pigs will often have ravenous appetites but they will not be suitable for marketing. In the hospital area tag all pigs and review after 7 and 14 days post entry. Cull quickly all pigs that are not going to be marketable.

**Ileitis and chronic diseases**
Ileitis is associated with the bacterium *Lawsonia intracellularis*. This disease results in chronic feed waste as it increases the thickness of the gut, resulting in less digested feed being absorbed into the pig. This can result in a loss of growth of 40g a day – which at a FCR of 3 is 120g a day of extra feed eaten.
Partial and full depopulation?
If the disease problems on the farm become chronic, consider a partial or even full depopulation to allow for full cleaning and refurbishment of the farm. A reduction in 0.5 FCR is not uncommon on farms post-partial depopulation. Animals that have to live in a heavy pathogen load environment have to divert nutrients from growth to immunity defence thus wasting feed.

Gastric ulcer
In general, gastric ulceration occurs because the pig fails to eat over a 24 hour period. If the feed is very fine (<700 m) the feed will then aggravate an existing gastric ulcer. Gastric ulcers result in feed wastage by poor feed digestion and chronic anaemia. In addition, the pig is weakened and more prone to secondary infections and bullying by other pigs.

Avoid feeding for unnecessary activity
Exercise energy.

Wet bedded areas
If the bedding area is very wet and boggy, the pig will struggle to move around the pen. This can be a particular problem in deep straw bedded systems – shelters and hoops and can add 0.2 FCR onto the feed bill.

Misplaced drinkers
As stated already, having the drinkers far from the feeders, increases the cost of travelling to and from the drinker.

Air temperature and comfort
Ensure that you keep the pigs within their thermocomfort zone. If the pigs are housed too cold feed will be consumed to help keep the pig warm. If the pigs are too hot, feed consumption will drop and therefore growth, but in addition, extra effort will be expended to pant to help the pig loose heat. In the farrowing area feed only at the cooler times of the day.

<table>
<thead>
<tr>
<th>Image</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.jpg" alt="Ileitis – variable pigs" /></td>
<td>Ileitis – variable pigs</td>
</tr>
<tr>
<td><img src="image2.jpg" alt="Gastric ulcer (arrow) with chronic bleeding" /></td>
<td>Gastric ulcer (arrow) with chronic bleeding</td>
</tr>
<tr>
<td><img src="image3.jpg" alt="Pig with rectal stricture. Immediate euthanasia is advised." /></td>
<td>Pig with rectal stricture. Immediate euthanasia is advised.</td>
</tr>
<tr>
<td><img src="image4.jpg" alt="Runt pigs should be carefully reviewed at birth" /></td>
<td>Runt pigs should be carefully reviewed at birth</td>
</tr>
<tr>
<td><img src="image5.jpg" alt="Wet bedding making walking difficult for the pig" /></td>
<td>Wet bedding making walking difficult for the pig</td>
</tr>
<tr>
<td><img src="image6.jpg" alt="Hot pigs will not eat and cold pigs will eat just to keep warm" /></td>
<td>Hot pigs will not eat and cold pigs will eat just to keep warm</td>
</tr>
</tbody>
</table>
How much is feed wastage costing you?

The impact of feed wastage

The cost of feed wastage is demonstrated in table 2.

Table 2.

<table>
<thead>
<tr>
<th>Age (weeks)</th>
<th>Gain (g/day)</th>
<th>FCR idealized</th>
<th>Consumption (g/day)</th>
<th>Actual feed usage feed wastage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>215</td>
<td>1</td>
<td>215</td>
<td>219</td>
</tr>
<tr>
<td>6</td>
<td>395</td>
<td>1.2</td>
<td>474</td>
<td>483</td>
</tr>
<tr>
<td>8</td>
<td>630</td>
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<tr>
<td>10</td>
<td>660</td>
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<td>1077</td>
</tr>
<tr>
<td>12</td>
<td>715</td>
<td>1.8</td>
<td>1287</td>
<td>1313</td>
</tr>
<tr>
<td>14</td>
<td>800</td>
<td>2.4</td>
<td>1920</td>
<td>1958</td>
</tr>
<tr>
<td>16</td>
<td>965</td>
<td>2.6</td>
<td>2509</td>
<td>2559</td>
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<tr>
<td>18</td>
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<td>2.9</td>
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<td>2958</td>
</tr>
<tr>
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<td>1100</td>
<td>3</td>
<td>3300</td>
<td>3366</td>
</tr>
<tr>
<td>22</td>
<td>1100</td>
<td>3.2</td>
<td>3520</td>
<td>3590</td>
</tr>
</tbody>
</table>

Adult

<table>
<thead>
<tr>
<th>With a unit farrowing</th>
<th>10 sows per 1 weekly batch</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>6.5 tonnes per sow per year with an average price of $375 per tonne</th>
<th>Per kg deadweight $0.03</th>
<th>Per pig sold $2.34</th>
<th>Per year $11,543</th>
</tr>
</thead>
<tbody>
<tr>
<td>74 kg dwt farrow to finish at</td>
<td>$0.16</td>
<td>$11.68</td>
<td>$57,715</td>
</tr>
</tbody>
</table>

All costs in Australian dollars

To survive today's feed prices, we must minimize feed wastage to minimize cost of production.