Pig nutrition: get the mix right

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Introduction

Feeding pigs requires more thought than just selecting feed ingredients. A pig’s nutritional needs change over time as it grows, matures, breeds and lactates. There are also seasonal and environmental effects that affect the feed use efficiency of the pig.

Properly fed pigs have better health, welfare, reproductive performance and profitability.

Feed and water delivery and accessibility can also have positive or negative effects in a nutrition program. Feed is often greater than 50% of the cost-of-production so most managers search for the most cost effective ingredients.

Match feed to need

The primary aim of any nutrition program is to meet the pig’s nutritional needs which change over time as the young pig matures or the sow progresses from gestation to lactation. Herd size will determine how many different diets a farmer might use. Large herds may have different diets for each group of pigs for example dry sow, lac sow, weaner, grower, and finisher. Small herds should focus on the groups most at risk from poor diets which include lactating gilts and sows, and weaner pigs.

When lactating animals are not fed to requirements their milk components are sourced from the sows own body tissues and you witness the sows losing weight. Weight loss is not restricted to their fat reserves it can include muscle tissue and bone minerals. The result of poor sow diets can include low piglet weights at weaning, sows not returning to service at weaning, poor litter size for subsequent litters and early culling of sows for health or breeding issues. Lactating sows should also be fed to appetite especially if they have large litters – 10 or more suckling piglets.

Weaner pigs are in a high growth phase and need good quality nutrients to add muscle and bone as they grow. Depending on their age at weaning they are also transitioning from milk to solid feeds. Offering ‘creep’ feed, while they are still suckling, will help them adjust to solid feed but the feed needs to be easy to digest, easy to access and palatable. As the pigs grow
the diet specifications can be reduced so that the growing pigs get what they need and don’t waste feed or run to fat.

Commercial feed can be quite expensive but it is formulated for the pig’s needs. If you choose to mix your own feed it is a good idea to work with a pig nutritionist as they can give you a recipe for the mix according to the available ingredients. Diet formulations should be reviewed on a regular basis or as major ingredients change. Admixes or Premixes can also be purchased and added to feed to ensure pigs get all the vitamins, minerals and amino acids they need.

A good reference for pork producers is the Australian Pork Limited Producers’ Guide to Pig Production & Nutrition 2017. Contact Australian Pork Limited.

Other points to consider when matching feed to need:

- Pigs outdoors will need up to 15% more feed allowance due to exercise and variable temperatures
- Housing and season can affect the amount of feed needed by pigs – pigs eat more when cold. Hot weather can reduce feed intake – lactating sows can be most affected so consider change of feeding time or increase feed quality specifications
- Pigs are monogastric omnivores and can eat a wide range of feedstuffs. However feed that is high in fibre or moisture content will not be suitable for young growing pigs due to their small gut capacity. Adult pigs can manage higher fibre diets but it takes time for them to adjust to these diets.
- There are strict Swill feeding regulations in Australia. By-product feeds from the human feed supply chain can be attractive on a price basis but not all products are within regulations. Products containing meat or that have been in contact with meat are illegal. Examples include restaurant waste, household waste, and bakery waste that contains meat such as pies and pizzas. For more information read the Swill Feeding Primefact. If in doubt ask at your Local Land Services office.

Benefits of using a nutrition consultant

The role of the nutrition consultant is to provide advice and formulate pig rations according to your ingredients list. Some companies offer this service when you buy their products; but often it is on a fee for service basis. If you are a serious pork producer their services are a worthwhile investment.

Most animal diets are formulated around the protein and energy concentration. Pig diets need to be a bit more specialised because pigs need specific amino acids in their diet and lysine is the most important of these. Pig diets are formulated on the basis of the ratio of grams of lysine relative to the number of mega-joules of digestible energy (lysine g: MJ DE).

Cereal grains such as wheat, barley and sorghum supply most of the energy and some of the protein but all are low in lysine. Protein supplements are used strategically to balance the amino acid requirements and increase the lysine availability of the diet. Protein supplements
include soybean meal, canola meal, lupins, peas, rendered meals such as meat meal, and milk or whey powder.

Working with a nutrition consultant will ensure you can find the most cost effective solution. The wean-to-sale (finisher weights) period accounts for roughly 76% of the total herd feed usage.

### Table 1: Guidelines for feed requirements for pigs of all ages

<table>
<thead>
<tr>
<th>Group</th>
<th>Age range (weeks)</th>
<th>Energy MJ DE/kg</th>
<th>Lysine grams:MJ DE</th>
<th>Daily feed intake (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weaner</td>
<td>4-10</td>
<td>14.5-15.0</td>
<td>0.80</td>
<td>0.3-1.5</td>
</tr>
<tr>
<td>Grower</td>
<td>10-17</td>
<td>14.0</td>
<td>0.67</td>
<td>1.7-1.8</td>
</tr>
<tr>
<td>Finisher</td>
<td>17-24</td>
<td>13.2</td>
<td>0.50</td>
<td>2.4</td>
</tr>
<tr>
<td>Dry sow or boar</td>
<td></td>
<td>13.0</td>
<td>0.40</td>
<td>2.5-3.0</td>
</tr>
<tr>
<td>Lactating sow</td>
<td></td>
<td>14.0</td>
<td>0.55</td>
<td>6.0+</td>
</tr>
<tr>
<td>Lactating gilt</td>
<td>1st litter</td>
<td>14.2</td>
<td>0.72</td>
<td>5.0+</td>
</tr>
</tbody>
</table>

Source: Adapted from ‘Producers guide to Pig Nutrition’, Pig Research and Development Corporation, 1998.

Growth rates, carcass data and health issues such as lameness in sows, sow reproductive performance and sow longevity are all diet related. This information should be shared with your consultant and this will guide them to the adjustments needed for your pigs’ diets.

Diets should be reviewed at least seasonally. Pigs tend to eat more in winter and can become over fat; and they tend to eat less in summer and can benefit from a more nutrient dense diet so they get all their requirements.

**Protect your investment – Quality assurance in the feed shed**

- Buy feed from FeedSafe® accredited mills. [Stock Feed Manufacturers Council of Australia](https://www.feedsafe.com.au)
- Test-don’t-guess – use AusScan laboratories for grain sample analysis for pigs. [NSW DPI animal feed test lab](https://www.dpi.nsw.gov.au)
- Keep samples of feed mixes and ingredients for 6 months. Store them vermin free and label well.
- Ask for Vendor Declarations for all ingredients and feed mixes.
- Keep delivery dockets, batch numbers and any other pertinent information about your pig feed. Feed samples and dockets can be a business saver if there is a residue incident or unexplained animal health issues.
- Visually assess all feed deliveries. Look for excess moisture, heat, mould, odour, excessive dust or anything unusual. **Do not feed ‘OFF’ feed to pigs.** Mouldy feed
can contain mycotoxins – poisons produced by the mould which can make pigs sick (vomiting and diarrhoea) or cause their death.

Improve feed efficiency, reduce waste and improve income

- Particle size is the single biggest factor affecting feed use efficiency aside from pig genetics. Optimum particle size is 0.7mm (700 microns)
- Pig genetics – there are eight breeds of pig in Australia but the most efficient breeds in terms of feed use efficiency are the white breeds of Landrace, Large White and their F1 crosses; as well as the Duroc a red breed sometimes used as a terminal sire.
- Consider the use of enzymes such as phytase. These products improve digestibility and the availability of minerals such as phosphorus. Discuss their use with your nutrition consultant.
- Match feed to need and get better growth rates, better pig health, better reproductive rates and better herd feed conversion saving you money.
- Ensure adequate feeder access. Pigs won’t grow or stay healthy if they can’t eat. Separate age groups to prevent bullying of small pigs by older and larger animals.
- Reduce spilt or wasted feed. Check feeders daily. If you can see spilt feed near the feeder then feed waste is at least 10% or more.
- Avoid out-of-feed events or fluctuations in feed availability. This reduces growth rates; pigs take longer to reach market weight and the result can be fatter carcasses.

Water

- Water should be available at all times especially for lactating sows and young pigs. Water close to the feeders will improve the pig’s intake of feed.
- Aim for cool water with a temperature of around 18-20°C. High water temperatures (>30°C) may cause water to be undrinkable when most needed.
- Water pressure is important if you are using nipple drinkers for your pigs. Recommended water pressure is 0.5 litres/minute for piglets and weaners; 1.0 l/min for growers, finishers and dry sows; and 2 l/min for lactating sows.
- Test don’t Guess. Test water quality from bores and dams at least annually.