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Basic pig husbandry – the weaner

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Introduction

Weaning is a stressful experience for young piglets, affecting them both socially and physiologically. In many piggeries weaning is more stressful than it should be, with severe growth checks and even deaths.

These deaths and growth checks have a large impact on grower herd performance, resulting in reduced profitability. However, high standards of management can dramatically reduce post-weaning losses and improve growth rates by moderating the stress of weaning.

The shorter the suckling period, the more sophisticated the housing, feeding and management skills required to raise the piglets.

Types of weaning

Weaning is usually undertaken in one of the three following categories:

- Conventional weaning: 3–5 weeks of age.
- Early weaning: 10 days of age to 3 weeks.
- Specialised weaning: segregated early weaning (SEW) and medicated early weaning (MEW).

Conventional weaning: 5–10 kg liveweight (LW)

At this age, pigs are of a size and age to fend for themselves under average farm conditions. It must be remembered that age of weaning is an integral part of the breeding program and to reduce weaning age will involve changes in the mating and farrowing programs.

The sow's milk production has fallen dramatically by 5 weeks, therefore it is uneconomic to feed the piglets via the sow's milk beyond this stage.

However, in order to maintain piglet growth rates, they must receive additional feed. Fortunately, by this age and weight, pigs are becoming accustomed to dry feed and can better adjust to temperature changes and stress. However, a high standard of hygiene must still be maintained.

Where a suitable environment can be maintained and producers have the expertise, they can progressively reduce the weaning age to a point where they feel they can still gain the necessary benefit of the pigs undergoing an earlier weaning.

Early weaning: 4–5 kg LW

At 2–3 weeks of age, piglets have reached a stage when their digestive system is able to handle the more complex carbohydrates. At this age the piglet's heat regulatory system is also beginning to function efficiently, being able to adjust to reasonable surroundings.

During the period 21–28 days, it is not uncommon to have piglets scour due to the various immunological and physiological changes which occur. The severity of the scouring will depend on the causal organism, hygiene level, nutrition and the producer's livestock handling skills.

The use of specialised weaner facilities has helped considerably in the success of early weaning.

Specialised weaning

Segregated early weaning (SEW)

This is weaning pigs at an 'early' age, usually less than 18 days old and removing them from the breeding herd immediately after weaning as a means of eliminating, or at least reducing, the disease load in pigs entering weaner facilities.

Medicated early weaning (MEW)

This technique is used to obtain pigs free from some of the pathogens endemic in the herd. Sows are dosed with high levels of antibiotics when they enter the farrowing house until their piglets are weaned. The piglets are weaned at 5 days of age and moved to an isolated early-weaning unit. Piglets are dosed from birth until about 10 days of age, with similar drugs to those given to the sows.

Problems associated with weaning

Problems can take various forms:

- the development of stressful behaviours, e.g. cannibalism;
- bad toilet habits;
- depressed growth rates;
- scouring.

A critical factor is the amount of creep feed consumed prior to weaning. Apart from getting piglets familiar to dry feed, feeding creep diets accelerates the maturity of the digestive system. The use of sugar and flavourings can be advantageous.

Social environment

After developing a dominance or 'pecking' order within the litter, piglets are often placed into a less than ideal environment at weaning time. Litters are often regrouped according to size and sex and moved to new and strange surroundings where they spend the next few days establishing a new peck order and adjusting to the new environment.

This has the effect of reducing feed intake and imposing a nutritional stress on the piglet at a very crucial stage in its development.

Feed source

At weaning the piglet has to adjust to a solid diet as opposed to the liquid diet provided by the sow. Even if the piglets were consuming creep feed, they no longer have the choice of both diets and their digestive enzymes will take several days to adjust.

This imposes an initial burden on the digestive system, and its effect will depend on the quality of feed and environment provided for the weaners. If pre-weaning feed consumption is low and post-weaning feed management is poor there is the risk of an antigenic reaction to the feed

Digestive enzymes

As previously stated, the baby pig's digestive system is geared to handle a milk-based diet (see 'Creep feeding' in Primefact 71 *Basic pig husbandry — the litter*). As the piglet matures so does its enzyme system. Therefore, pigs weaned at 28 days of age are more capable of handling non-milk carbohydrate and protein than pigs weaned at 14 days of age.

Immunological system

The newborn piglet has no protective immunity at birth and it relies on the intake of colostrum for the transfer of passive immunity from the sow. This immunity lasts for 10–14 days, but the piglet's own system does not start to develop until it is 21–28 days of age.

Therefore, piglets weaned at 14–28 days are at risk because their ability to resist a disease challenge is at its lowest. Contact with disease-causing organisms or changes in the normal gut 'bug' population can have dire consequences. Fortunately there are effective vaccines available for pre and post-weaning, so discuss their use with your veterinary practitioner.

Feeding interval

When fed only twice per day a pig will eat large quantities of feed in a short space of time, which results in a large mass of semi-digested food emptying from the stomach into the small intestine. This causes a heavy loading on the digestive and absorption ability of the gut.

Food may pass too quickly along the digestive tract to be absorbed and this supplies a nutrient source for micro-organisms lower down the intestinal tract.

However, when the same amount of feed is consumed in smaller quantities at more frequent intervals the stomach empties intermittently. This is gentler on the digestive system and allows the enzymes a longer time in which to act. This allows the pH of the stomach to remain stable to allow for adequate protein digestion.

Stomach pH

While the degree of acidity varies along the digestive tract, the pH of the stomach is very acid (generally pH 2–3). This low pH is due to hydrochloric acid secretion which is necessary for the function of protein-digesting enzymes, but more importantly as far as the young piglet is concerned prevents the multiplication of ingested bacteria.

When the pig is fed, the pH rises towards the pH of the food, the stomach secretes hydrochloric acid and the pH again falls towards pH 2–3.

If the food is eaten in large quantities at infrequent intervals, the stomach pH tends to remain higher for longer periods. This allows the bacteria to multiply and pass on through the stomach to the intestines. This causes an increase in bacteria to occur, and if undigested protein is available, *E. coli* can thrive and cause scouring and deaths.

Pre-weaning management

- Offer fresh pig starter daily from an early age (4–5 days). This will reduce the effect of a diet change at weaning and promote maturity of the enzyme system.
- If weaning around 24–28 days aim to achieve total intakes of up to 600 g of creep feed prior to weaning.
- Slowly reduce temperatures of thermostatically controlled heaters down to 24ºC to 26ºC prior to weaning.
- Make sure there is adequate water available for the suckers.
- All marking operations of identification, castration and docking should be carried out prior to weaning, to keep stress to a minimum.
- Use of antibiotic feed supplements for weaners can be of benefit just prior to and after weaning.
- Do not make any feed changes. If forced to make any feed changes, make them over a period of 4–7 days.
- While mixing litters at weaning may be necessary an alternative is to allow litters to mix prior to weaning.

Weaning procedure

Where possible, always remove the sow out of sight, sound and smell from the suckers. However, where good facilities can be provided, such as specialised weaner accommodation, the piglets can be transferred immediately. It is important not to chase piglets around the farrowing pen and increasing their level of stress. If possible two people should stand at either end of the pen to catch the piglets. If you have to do it on your own then use a crook to catch the piglets or use boards to create a blind alley in the creep area to help trap the piglets.

Piglets should be caught gently under the chest with both hands and placed into the barrow or trolley. These containers should be as comfortable as possible, with shavings or rice hulls on the floor. They should also have a lid, especially in cooler weather. Avoid the temptation to overload these carriers to reduce the number of trips.

Move the piglets as quickly and quietly as possible to their new quarters and take extra care when you handle and grade them into their groups. Where there are sufficient numbers, piglets can be sorted into groups by sex as well as by size.

It is often forgotten that weaning, particularly early weaning, imposes a stress on the sow as well, so unless handled carefully, the following problems can arise:

- a high number of sows failing to conceive after first service;
- depression in sow productivity in future litters;
- failing to return quickly to oestrus after weaning.

The so-called weaning ‘stress’ or checks due to weaning can be overcome by careful attention to the care and management of pigs at weaning. The earlier the age or the less the weight at weaning, the more attention to detail is required to prevent such checks.

However, the efforts of livestock handlers at this crucial time will be amply rewarded.

Weaning small piglets

There will be occasions when piglets have to be weaned early and there is no chance of fostering. Obviously, the smaller the piglet the higher the standard of environment, hygiene and nutrition required.

Specialised pens or even ‘crèches’ are very useful for this purpose. These pens are generally smaller than average, have controlled heating and provide supplementary liquid in the form of milk replacers or electrolyte/energy replacers. Smaller piglets have lower food intakes and require higher temperatures at weaning. Certainly, this is where the specialised, high-energy, nutrient-dense creep feeds can be used to advantage.

Ideally these specialised pens should be placed where piglets can be easily observed. Piglets are kept in these pens until they are able to proceed to the common weaner accommodation. If there are no specialised pens available and no immediate demands for the farrowing pen, then the piglets are best left in the farrowing pen.

Attention to details is the key in helping to get these piglets through without serious setback.

Weaner quarters

Weaners should be housed in a clean, dry, draught-free environment with minimum temperature fluctuations.

Specialised, environmental controlled weaner sheds which are fully insulated and mechanically control the temperature and air quality 24 hours a day provide minimum temperature fluctuations, resulting in faster growing, healthier and more uniform weaners.

Deep-litter straw-based systems are also popular, with extra warmth provided by insulated hovers and straw-bedded areas.

Weaners on straw with covered hovers

If specialised housing is out of the question, the use of nesting boxes can provide some relief after weaning. These are 2 m × 1 m boxes with a lip 80–100 mm high. Shavings or rice hulls are placed in the bottom and a plywood top is suspended about 300 mm from the floor. If supplementary heating is available, the lid can be lifted further.

There are distinct advantages in having weaner rooms managed on an 'all-in, all-out' basis. Obviously, the whole area can be properly disinfected, and routine maintenance easily carried out. But, more importantly, the environmental requirements can be controlled to suit the age of the pigs.

The exact style and type of housing will in part be determined by cost, personal preference and the number and weight of the weaners to be accommodated. Therefore the following factors are to be treated only as a general guide.

Temperatures

Specific requirements are determined by a whole host of factors, including piglet weight, group size, ventilation rate, floor type, insulation, housing system and external weather conditions.

When first weaned into conventional pens, temperatures should be at 26°C to 28°C for the first week. However, temperatures should be set for the smallest pig in the group. Groups of small or unthrifty weaners will benefit if temperatures are 29°C to 30°C. Ideally, temperatures should then be gradually reduced to around 22°C to 24°C at 4–5 weeks after weaning.

Do not rely on automatic controllers. They should be checked periodically to ensure they are working and to avoid temperature fluctuations. Fluctuations of only a few degrees above or below the settings can have a marked effect on performance. Rely more on observing the appearance or the lying behaviour of the weaners. This is the art of being a good stockperson.

In deep-litter systems, provision of sloped insulated hovers over well-strawed areas provides good conditions. It is advisable to have extra water and feed trays close to the entrances in the first week.

Group size

While other factors such as temperature, ventilation and hygiene are more critical, best results in conventional housing appear to be when group size is less than 20 pigs to a pen. Groups of 125–250 are common in deep-litter-based systems.

The larger the group, the more pressure there is on the slightly less viable pigs.

Weaners should be grouped according to size

Stocking rate

Most housing systems are designed on the premise that pen size will just be adequate prior to the pigs being transferred to the next stage.

Pens are often well understocked when piglets first enter them. This gives you the opportunity to double-up for a short period if pen space is at a premium. You can then pick out the smaller pigs or slow growers when you come back to split them up.

Recommended minimum space allowances for pigs (m^2/pig)		
	Area per pig (m^2)	
Pig weight (kg)	Conventional	Deep litter
5	0.09	0.16
10	0.16	0.25
15	0.21	0.33
20	0.25	0.39
25	0.29	0.46
30	0.33	0.51
35	0.37	0.57

Feeding weaners

Prior to weaning at 3 or 4 weeks of age, piglets are commonly achieving 300–350 g of daily gain. Following weaning, this plummets to about only 100 g/day. A quick, sustained recovery depends on the quality of their feed, the environment and the skill of their attendant.

Changes in the stomach occur within 6 hours of weaning. The pH of the gut contents rises, making it more favourable for rapid growth of some organisms, especially the *E. coli* bacteria. Overeating, especially in the first few days, helps destabilise the intestinal flora.

These changes are followed by a regression of the villi in the small intestine, affecting the efficient absorption of nutrients. While it takes about 10–14 days to recover, the extent and duration of the damage depends a lot on quality of the diet.

Good feeding practice

- Continue to feed the same high quality creep diet for 10–14 days after weaning.
- Feed little and often. Feed at least twice daily and match the feed consumed with a gradual increase in feed offered. A target should be 150 g/day in the first week, rising to around 250–300 g/day in the second week.
- For the first week, offer feed in flat trays or terracotta dishes as well as in the feeder.
- If scouring occurs, feed can be cut back, but record when and by how much.
- Change to a new diet gradually over 4–5 days. Carefully reseal bags or place the feed in a sealed container. Store this feed outside the weaner room.

The use of flavourings or sweeteners could be considered if consumption of high quality diets is still low. A careful check of the water supply could solve many problems.

Water supply

Producers tend to underestimate the importance of a clean water supply for young pigs.

Upgrading the water quality in the farrowing and weaner areas has resulted in dramatic improvements in young pig performance.

- Test the water for salt levels and bacterial contamination.
- Check flow rates, with 1 litre per 3 minutes as the rule. Piglets up to 20 kg liveweight may average around 2 litres/day consumption.
- Provide at least one drinker for every five to six piglets.
- Use cube drinkers or similar vessels to provide extra water over at least the first week. Change the water at least twice a day.
- Electrolytes can be extremely useful during this period. Large units should consider using an auxiliary system for water medication.
- If possible, have similar drinker types in the farrowing and 1st stage weaner pens. Check drinker heights — they should be at shoulder height which will make them between 200 and 300 mm off the floor.
- Make sure header tanks are covered, and flush out the whole water system every few months.
- Check water temperatures and consider warming the water to 16°C to 18°C. Piglets can waste 5%–7% of their heat energy in getting very cold water up to body heat.

Health and hygiene

Weaners are highly susceptible to any disease challenge. Therefore, you have to maintain the highest level of hygiene possible. As mentioned earlier, the ‘all-in, all-out’ system is ideal but may not be practical for some small pig units.

What will assist is paying particular attention to the cleaning and disinfection of pens. This will be enhanced if piglets born within 2 weeks, and preferably 1 week, of each other are weaned into the same air space.

Avoid holding back poor doers which might infect incoming pigs. It is better to set aside a hospital pen to accommodate any sick animals so they can be treated and closely observed. The hospital pen should be close to the central working area and may need supplementary heating. Certainly do not try to maintain a higher temperature by underventilating these pens.

Extra partitions in these pens will help protect those pigs that are immobile or extremely ill.

You should discuss your health program in detail with your veterinary practitioner. They may recommend vaccine, drug or electrolyte therapy to overcome specific problems.

While drugs, particularly antibiotics, have a valuable role to play in pig production, they are no substitute for good hygiene and management practices.

The secret of success is to identify any sick animals as early as possible and treat them immediately. This will only be achieved if the weaners are inspected regularly, at least morning, midday and late afternoon.

Further information

A wide range of information sources exists for those interested in the pig industry.

Australian Pork Limited (APL) is the national representative non-profit organisation for Australian pig producers. It combines marketing, export development, research, innovation and strategic policy development to help develop a viable and sustainable industry. Resources and contacts are listed on their website: http://www.australianpork.com.au/
or they can be contacted on 1800 789 099.

Specific APL publications with more detailed information are as follows:

- *Weaning to sale kit*
- *Segregated early weaning manual*
- *The good health manual kit*
- *Principles of vaccination*

The Queensland Department of Primary Industries & Fisheries has an extensive range of fact sheets and resources available on their website: http://www.dpi.qld.gov.au/pigs/

A number of pig-specific magazines and newspapers exist, including:

- *Australian Pork Newspaper*, (07) 3286 1833
- *Pig Industry News*, (08) 8372 5222
- *Pork Journal*, (02) 9798 3078
- *The Pork Producer*, (07) 4690 9253

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