

PIG WELFARE: WHEN TO WEAN?

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Neville Gregory discusses the pros and cons of different approaches to weaning, taking into account welfare, health and profitability considerations

WHAT is the optimum age for weaning pigs? Would it be helpful if the official welfare recommendations on weaning were relaxed, to allow better control of viral diseases, such as porcine reproductive and respiratory syndrome (PRRS)?

What advice should veterinarians give to pig producers to balance profitability, herd health and pig welfare?

This article presents some points that provide a structure for advice; the principles also apply to other species.

Official standards

The recommended minimum weaning age for pigs in the UK is 28 days (DEFRA, 2003). The only exceptions allowing earlier weaning are orphaned, sick and surplus piglets requiring special attention, and segregated early weaning (SEW) systems, where the minimum weaning age is 21 days.

Twenty-one-day weaning is allowed as a herd health measure, and can be useful in the event of an outbreak of a virally transmitted respiratory disease that does not have a suitable vaccine. The 28-day recommendation is based on an EU directive, and the UK exception allowing SEW at 21 days is one interpretation of the less-prescriptive EU directive.

Optimising herd health

From the herd health perspective, weaning at 21 to 28 days is arguably the worst choice. It coincides with the “immunity gap” – when piglet colostral antibodies are depleted and the piglet has yet to develop its own immune responses. In addition, weaning before 35 days of age can cause stress-induced immune suppression, certainly more so than weaning at 35 days.

The logical approach would be to either wean later than 28 days, once the piglet has developed its own immune responses, or wean before 21 days, into a low-pathogen environment while it still has passive immunity from its mother.

Early weaning into a clean environment is the basis for SEW. The intention is to avoid the effects of stress-induced immune suppression associated with the weaning process, and to reduce the risk of disease transfer from the sow to the piglets.

In SEW, weaning is “segregated”, where a litter is kept separate from other litters and from the breeding herd, to reduce disease risk. Placing a piglet in a new environment with piglets from other litters would exacerbate disease risk.

Optimising profitability

From the profitability perspective, BPEX – a company that represents pig levy payers (www.bpex.org.uk) – has suggested that, under some circumstances, profit can be maximised by weaning later than 28 days. The points it makes apply to healthy herds and are as follows.

- Weaning age needs to be considered in terms of overall herd profitability, rather than profit per sow or profit per finishing pig, and a key determinant is the ratio of pig prices to feed costs. With early weaning systems, ration costs for slaughter pigs can be high because they require expensive creep feeds and weaner rations, but as lactation is shorter, feed costs for the sows will usually be lower.
- Gross margin per piglet may be lowest when weaning at 21 days. However, according to Mike Varley of BPEX, gross margin per sow can be highest with weaning at 35 days.
- Labour costs can also be higher in early weaning systems. However, housing costs may be lower because of the reduced capital outlay in furnishing the farrowing shed with crates, even though dry sow shed costs could be higher. The situation in herds with a health problem will be different.

Striking a balance with pig welfare

From the pig welfare perspective, early weaning is associated with more separation distress in

piglets. Sucking on a teat has a calming effect on the neonate, especially when it is rewarded with milk let down.

In many species, udder contact appeases an alarm response, but this is not a strong feature in farmed piglets, as they usually hide in the creep area, instead of running to the udder. Similarly, in other species, absence of sucking during a time of need can prolong a period of disturbed behaviour.

However, sucking in piglets is a well-coordinated interaction with the whole litter, and is not a common part of providing group reassurance during a disturbing experience. Instead, the key disadvantage with early weaning in piglets is the development of abnormal behaviour patterns, which seem to be a sign of deprivation of maternal presence or care. These signs include a higher frequency of distress calls, mutual belly nosing and belly sucking, a more protracted period in adapting to solid feed and excessive drinking.

Belly nosing other piglets is similar to udder massaging, and is a sign of frustrated sucking motivation. Alternative sucking substrates sometimes include penmates' tails, which can lead to tail injuries.

In domesticated pigs that are not farmed but spend their time ranging in woodland, the sow weans the piglets (or the young stop feeding from the sow), at anywhere between nine and 20 weeks following farrowing.

With enforced weaning by the dam, in most species there is begging by the young and corresponding deflection or aggression by the mother. This is less obvious in pigs kept in a varied, free-range situation. Instead, the sow initiates fewer nursing bouts, and sucking attempts become unrewarding – if not tedious – for the young pigs.

In outdoor farming systems, exploratory rooting and chewing behaviour can start during the first week of life, but biting, chewing and swallowing plant material only occurs during the fourth week. This helps stimulate the teeth ligaments, which might be a prerequisite for satisfactory weaning.

Disease control

A key issue is whether SEW is effective in controlling specific diseases. If it is, then a case can be made for permitting early weaning as part of a well-thought-out disease control plan.

SEW was adopted by a section of the pig industry in North America during the 1990s, as a way of controlling porcine reproductive and respiratory syndrome (PRRS). PRRS is regarded as the world's most economically significant pig disease. It is difficult to control, with unpleasant consequences for the pigs concerned. It can cause mass abortions in breeding sows, as well as sickness expressed as anorexia, lethargy and fever in breeding and finishing pigs.

In weaners, the respiratory infection causes dyspnoea, which can take the form of a thumping breathing pattern.

It was recognised, from early North American experience, that although SEW systems would not eliminate the PRRS virus from a breeding herd on their own, they contributed to overall control. The systems gained popularity because they focused on the critical control point for post-weaning outbreaks. They also reduced the likelihood of the piglet acquiring the viral infection from the sow before it was weaned, and disease freedom was maintained if the piglets were subsequently isolated from the virus.

As pig producers gained experience with SEW, it was adopted as a method for controlling a range of other respiratory and enteric diseases.

It was found that the optimum weaning age varied according to the disease needing to be controlled and, in the case of PRRS, the recommended weaning age was up to 15 days.

Theory and practice

From experience in North America, it was found that by weaning at up to 15 days of age – when the piglets still had colostral antibodies – PRRS could be managed, especially if the weaner batches were reared separately. Introducing piglets to other weaner batches at three to four weeks of age posed a risk because of their low immune status at this age. In practice, it was not always possible to wean into a low-pathogen environment and, as a result, the weaned pigs were prone to contracting gastrointestinal disease when they subsequently reached the immunity gap. This led to the practice of modified, medicated and segregated early weaning systems, in which both the sow and piglets were medicated with feed antibiotics.

These systems were, in part, designed to control opportunistic pathogens, and they were subsequently implicated in contributing to the emergence of some antibiotic-resistant *Escherichia coli* strains. However, antibiotic medication should not be necessary when the primary hazard is an established viral disease such as PRRS.

What are the alternatives?

One viewpoint is that SEW is inhumane because it deprives the piglet of its mother before it is ready for this separation. The other viewpoint is that it can be used as part of a herd PRRS control strategy, with welfare and herd health benefits.

SEW is seen as a less-disruptive alternative to herd depopulation and repopulation, which is currently the main approach for controlling severe PRRS herd outbreaks in Europe. In closed breeding herds, it complements the aim of keeping breeder animals free from exposure to the disease at the stage when the virus is most active in weaners. It is less involved than hysterectomy

of long-term sero-positive sows, which might be an alternative to depopulation and repopulation. However, it is more involved than 21-day weaning plus segregation, which may be a less effective control measure.

The vaccines available in the UK against PRRS virus have some problems (<http://tinyurl.com/y6o7h26>). In Britain, the PRRS virus is adept at evading host defence and mutating at a rapid rate. This not only makes control by vaccines more challenging, but it also complicates a molecular epidemiological assessment of the control measures. In general, the use of PRRS vaccines has declined worldwide.

Where SEW is used, it may be necessary to rear the weaners off-site from the main breeding herd to ensure adequate segregation. It is sometimes recommended that only large piglets from sero-positive mothers are weaned at 15 days into isolated premises, and ideally, they are reared separately from subsequent weaner batches. This approach has been successful in parts of North America.

The advantages and disadvantages in using SEW for controlling PRRS are summarised in [Table 1](#). In the absence of an effective vaccine against the more pathogenic forms of PRRS, should 15-day SEW be allowed as an interim measure until a satisfactory vaccine has become established? In other words, is the 21-day exception too prescriptive?

The author invites you to share your views on this, and on the acceptability of SEW to combat other diseases, by sending your comments as a letter to *Veterinary Times*.

Further reading

- DEFRA (2003). *Code of Recommendations for the Welfare of Livestock – Pigs*, DEFRA Publications, London.