



# Cross-Fostering Practices Explained

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## TAKE HOME MESSAGE:

If done correctly and thoughtfully, cross-fostering can be a great management practice to improve well being of piglets in the farrowing house.

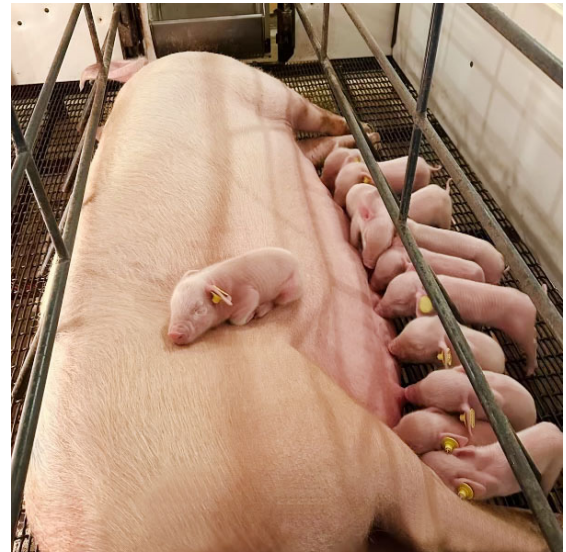
## What is cross-fostering?

Cross-fostering is a management technique practiced in 98% of commercial pig farms today. It is used to increase piglet survival, providing piglets of all sizes a fair chance at colostrum consumption at the sow's udder. The definition of cross-fostering is the transference of piglets to equalize litter size according to birth weight. Data has shown cross-fostering is most successful for the piglet when performed no sooner than 12 hours and no later than 24-48 hours after birth. This allows piglets to drink some colostrum from their biological dam, providing maximal immune protection before transferring to another sow.

## Why do commercial farms cross-foster?

The main reason to cross-foster is the average litter size is 14-17 piglets and the average number of functional teats on younger sows (parities 1-5) is approximately 14. Typically, older sows (parities 5+) have less functional teats due to old age and trauma that occurred in past litters. Therefore, we are producing more piglets than the sows have functional teats to feed. Genetic selection for increased litter sizes has been quite successful over the past 10-15 years. However, the amount of colostrum produced by sows has not increased proportionately to the number of additional piglets. When a sow nurses more piglets than she has teats, each piglet in the litter is thought to consume ~42g less of colostrum.

By using cross-fostering, you can balance out litter sizes to ensure each piglet has a teat to nurse. Another common reason to cross-foster is when there is an abundance of small, weak, light birthweight piglets in a litter with larger, heavier birth weight piglets. In this case, the lighter weight piglets will not be able to fight for teat access against their larger litter mates. Those smaller/larger piglets can be cross-fostered to another sow to make litters with uniform birth weights. Other reasons to perform cross-fostering are if the gilt or sow is savaging their piglets or if a sow or gilt dies during or after farrowing.



## When should I cross-foster?

Most commonly, cross-fostering is only performed once in the first day or two after farrowing, but some farms continue to move piglets throughout lactation to balance out litters based on body weight and fall behinds. Cross-fostering after week one can lead to increased aggression between biological and adopted piglets and an increase in disease transfer. This aggression results from a teat order being established among the nursing piglets within the first few days of life where they "imprint" on a specific teat and return to that teat to nurse at every nursing event.

Once teat order is established, it is extremely hard for new piglets to join in and get an opportunity to nurse. Typically scours, or piglet diarrhea, occurs between days 2-3 of life. The best method to prevent the spread of scours between crates is to limit piglet movements after this time. This is another reason it is crucial to limit cross-fostering to those first 24 to 48 hours postpartum.

## Whats the best approach?

No one single cross-fostering strategy has been proven, through research, to work for every production system. There are many research trials that have been conducted to evaluate the best methods and timing of cross-fostering to increase piglet growth and survival. We will discuss a few key trials in this summary. One study created litters that were made up of 100% biological siblings, half biological/half adopted siblings, or 100% adopted siblings (n=13 litters/treatment, all parity 5 sows, 11 piglets/litter) and evaluated sow and piglet aggression at the udder and pre-weaning growth rates for medium to heavy weight piglets only. All cross-fostering to create these litters was performed within 24 hours of birth and no additional piglet movements were made after 24 hours. The study found the occurrence of aggression from sows towards their adopted piglets was low (5.1%) and only occurred on the day of cross-fostering. Adopted piglets in the half and half group missed out on more nursing events compared to the biological piglets, only during the first 24 hours of life. This suggests piglets and sows quickly adapted to the cross-fostering when it was performed early. This study also showed no differences in treatment groups piglet body weight throughout lactation or at weaning. However, it is important to note this study only used medium-heavy weight piglets, from later parity sows, with a very low overall mortality rate of 2.8%. While it was necessary to control for these factors, to evaluate just the effects of cross-fostering, it limits the ability to extrapolate these findings to all litters.

Another study focused on birthweight and performed cross-fostering to reduce body weight variation within litters.

This study created litters of uniform heavy weight and uniform light weight piglets and evaluated preweaning growth and mortality. In this study, 15% of piglets were low birth weight, 45% were average birth weight, and 40% were heavier birthweight. Cross-fostering to create uniform birthweight litters was advantageous for the light weight litters for growth and mortality. However, the growth rates of the heavyweight piglets were negatively impacted by being reared with all heavyweight siblings. This makes some sense as in heterogenous litters, the heavyweight piglets are able to outcompete the lightweight piglets for access the udder, so they ultimately consume more milk. When the heavyweight piglets have to compete with other heavyweights, they do not win as many teat disputes and therefore, consume less milk, negatively affecting growth. Management decisions have to be made to consider whether cross-fostering based on body weight to provide advantages to the 15% of lightweight piglets is worth the reduction in preweaning growth and survival of the heavyweight piglets.



## What does this all mean?

These studies demonstrate that cross-fostering should be performed early when considering piglet and sow nursing behaviors to prevent teat disputes and savaging of piglets. When performed in the first 24 hours, cross-fostered piglets can be a mix of biological and adopted or all adopted without affecting behavior during nursing,

growth performance and survival rate. The second study showed although keeping the smaller pigs together increased their survival, keeping the heavier pigs together decreased their preweaning growth and survival. Whenever larger pigs are added to a litter, they will out compete lighter weight piglets for access to teats, and ultimately consume more milk. Therefore, each farm must consider the optimal cross-fostering strategies for their operation. Many farms today cross-foster around 24 hours to set the litter size to the sow's teat count. Some farms utilize nurse sows where all of the very small, weak piglets are placed in a litter together leaving the medium and large piglets intermixed within remaining litters. After the litters are set, they only remove piglets that are weak (i.e. fall behinds) if needed. In this scenario, the body weight distribution of piglets within litters remains more variable than when heavyweights are also cross-fostered together in litters, allowing for more uniform growth. There are many remaining questions to answer about the best procedures for cross-fostering on commercial farms, and there may not be a single practice that is best on all operations.

#### REVIEWER

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