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The Case Against Evening-Up Litters Until Weaning

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Summary and Implications

A literature review on the effect of fostering or moving individual piglets from one litter to another after they are 24 to 48 hours of age was conducted. Late fostering disrupts nursing, increases fighting, and impairs the growth rate of adopted piglets and their littermates. Pig body weight at weaning was reduced 13 to 24% in extensively fostered litters vs. those where no piglets were fostered after 48 hours of age. No evidence was found that late fostering improves preweaning survival. For the greater good of all piglets, producers are encouraged to resist the urge to even-up litters or foster individual piglets after they are 24 hours old. Piglets that fall behind or grow slower than littermates after the initial fostering is done should be transferred to nurse sows where an entirely new litter(s) of older pigs is made. Milk replacers can also play a role in providing slower-growing or starving piglets more milk.

Introduction

Fostering or moving piglets from one litter to another is commonly practiced in swine operations to adjust litter size so that all piglets have good access to sow milk during lactation. Proper fostering reduces preweaning mortality and probably the number of substandard pigs at weaning. Many farrowing managers and employees know all fostering should be completed before the piglets are 24 to 48 hours old for best results. However, in some operations, moving individual piglets between litters or "evening-up" continues until weaning. Some farrowing house personnel hate to see one litter with 10 pigs and the one next to it with seven. Also, some believe that a piglet in one litter that is falling behind littermates would be better off living in another litter of more similar-sized piglets, especially if there are fewer piglets in the recipient litter. Basically the goal is to have all litters in the farrowing area uniform or looking like "peas in a pod." This paper will review the literature on fostering to clarify the issue for people who continue to even-up litters until weaning. Also, options for accommodating fall-outs or piglets that grow slower than littermates before weaning will be presented.

Research Summary

Michigan State University researchers conducted a study with 80 litters on a farm where extensive transfer of pigs between litters was being done on a daily basis until weaning. In 40 litters the usual practice of continuous fostering until weaning was continued. In another 40 litters fostering was limited to the first two days of life.

The effect of extensive fostering on pig body weight and standard deviation of body weight at weaning and preweaning mortality is presented in Table1. As expected, extensive fostering resulted in a lower average within-litter standard deviation of pig body weight at weaning (i.e., pigs were more uniform in size within litter); however, it also reduced pig weaning weight by 2.2 lb or 20%. Mortality was not significantly different between treatment groups, although it was numerically higher in the continuous fostering treatment. This research demonstrated that continuous fostering results in more uniform litters at weaning, but at the expense of growth rate and possibility survival.

In half of the 32 litters Canadian researchers studied, two piglets were exchanged between pairs of litters at 6 $\pm$ 1 day of age. Thus, there were three types of piglets in the study; adopted (piglets that were exchanged), resident (piglets that were not exchanged but were littermates to the adopted piglets), and control (no fostering). Piglets were weighed at birth, fostering, weaning (day 18 $\pm$ 1) and weekly during the next month.

The effect of fostering on pig body weight during the course of the trial is shown in Figure 1. There was no significant difference in body weight between piglet types at birth or just before fostering. However, at every time period after fostering, the average body weight of piglets in the fostered litters (those containing adopted and resident piglets) was significantly

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Table1. Effect of limited vs. continuous fostering on pig performance during lactation.[a]

Item	Limited fostering[b]	Continuous fostering
Average within-litter standard deviation of body weight at weaning[c]	2.0	0.7
Weaning weight, lb[c]	11.6	9.4
Mortality, %	8.0	8.8

[a]Straw et al., 1998.
[b]First two days of life only.
[c]P<0.008.

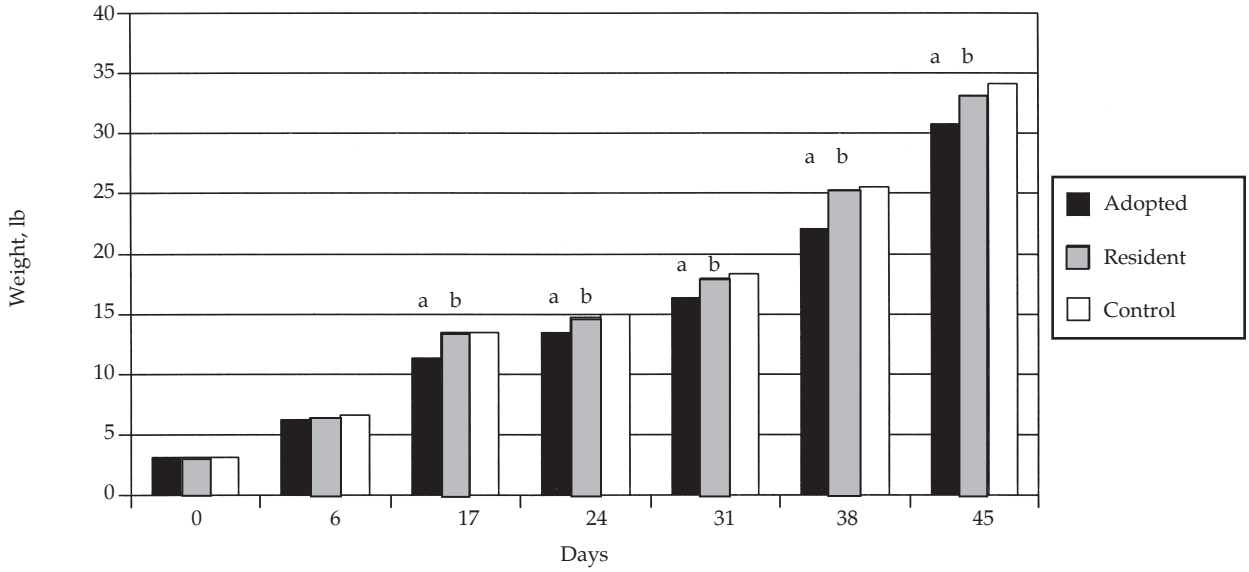

Figure 1. Effect of fostering on day 6 ± 1 of lactation on piglet body weight before and after weaning (day 18 ± 1). [a]Body weight between fostered (adopted + resident) and control litters differed (P < 0.05); [b]Body weight between adopted and resident piglets differed (P < 0.05). Adapted from Giroux et al., 2000.

reduced. Within the fostered litters the body weight of adopted piglets was significantly reduced compared to that of the resident piglets at each period. In conclusion, fostering had a marked effect on the growth rate of adopted piglets such that they gained only 76% of the weight of those in stable litters. While supporting the results of the Michigan State study, this research further demonstrated that adopted piglets may continue to be smaller after weaning.

In another Canadian study the behavior and growth of 13 control and 14 fostered litters was compared. Once every three days (from day one to 16 of lactation), all piglets were weighed and three piglets were switched between two fostered litters. Thus, there were three types of piglets in the study: adopted (piglets that were exchanged), resident (piglets that were not exchanged but were littermates to the adopted piglets), and control (no fostering). Behavior was observed for two hours after weighing and (or) fostering and during one nursing period 24 hours later.

Fights were significantly more frequent in the fostered vs. control litters during and between nursings at all fostering periods except on day one. Most of the fights occurred between resident and fostered piglets except on day 1. While nursing, piglets in fostered litters fought significantly more than those in control litters at 24 hours after fostering except on day one and 16. Failed nursings and snaps by the sow toward piglets were significantly more frequent in fostered vs. control litters. Moreover, sows rearing fostered litters spent 15 to 30% less time lying on their sides at day four, seven, 13 and 16 (P < 0.05). Adopted piglets weighed 13% less than controls at weaning (P < 0.01); resident piglets were significantly heavier than adopted piglets, but smaller (P = 0.1) than controls.

This study provided insight into why continuous or late fostering reduces piglet weight gain. The presence of alien piglets in the litter disrupts nursing and therefore milk intake, not only as a result of fighting between piglets, but the sow is less accommodating to the nutritional and comfort needs of her litter. The study also confirmed that fostering is appropriate through the first day of life.

Better Management Options

It's common for one or more piglets in a few litters to fall behind or grow slower than littermates during lactation. These piglets are commonly called fall-outs, fall-backs, or runts. Many fall-outs will flourish once they have the opportunity to receive more milk. Producers can use other sows (i.e., nurse sows) and(or) milk replacers to provide fall-outs more milk.

Nurse sows

Nurse sows can be created and utilized two ways. The preferred method is to identify a well-milking sow(s) to raise fall-outs that are collected from other sows. The procedure involves finding a newly farrowed gilt, i.e., one that finished farrowing six to 12 hours earlier. It is better to use a gilt, because she has smaller teats that are easier for piglets to grasp. Being newly farrowed is an advantage, because she doesn't know that the pigs she is about to receive

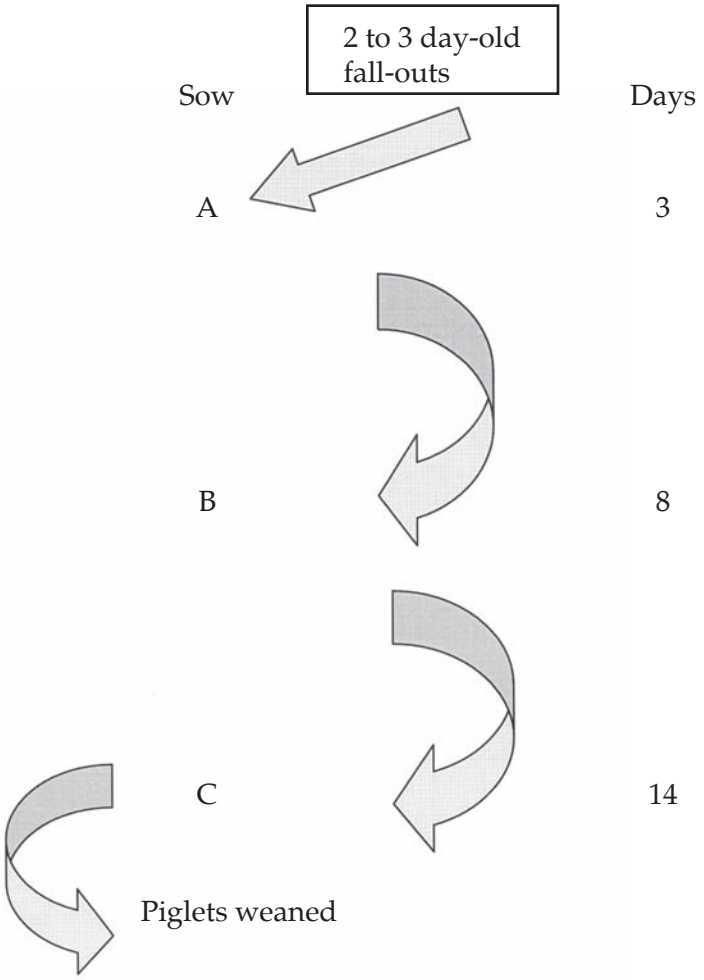

Figure 2. Example of bump weaning.

aren't her pigs. Identify eight to 10 fall-out pigs that are five to seven days of age and move them to the freed-up gilt. This moves them to a younger age group, but they are likely just starving and not sick. To be sure fall-outs are just starving and not sick, check their littermates to see if they are healthy. Also, observe if the fall-outs are being crowded out at the udder or are nursing a lower-producing teat (usually located at the rear of the udder). You do not want to move sick piglets, because that spreads disease around. The difficulty with this method is having enough spare sow capacity to take care of the gilt's original litter. It is important to wait six to 12 hours after the gilt has finished farrowing before her piglets are fostered to other sows to ensure all her piglets receive a good dose of colostrum. Remember to foster the gilt's piglets to other sows that are nursing similar-aged piglets.

The other procedure, commonly called "bump weaning," involves moving fall-outs to a later lactation, good milking sow until they reach the normal weaning age for the farm (Figure 2). For example, assume there are three good-milking sows: sow A has lactated for three days, sow B has lactated for eight days and sow C has lactated for 14 days (five to seven days before she will be weaned). Sow C's piglets are weaned and Sow B's piglets are moved to Sow C. Sow A's piglets are moved to Sow B. Sow A is given 2 to 3 day-old fall-outs collected from several litters. The main disadvantage with this procedure is that too often one or two adopted piglets per litter get injured by vicious sows. Ultimately, however, the detriment to the bumped pigs is probably outweighed by the benefit to the fall-outs (which were likely to die without some milk). For these reasons, bump weaning should be used as a last resort instead of a routine procedure. Bump weaning ensures that no piglets will be weaned later than the age limit set for the farm and that entire rooms of sows and litters can be weaned at the same time. Note that pigs are always moved forward and not backward in the system. Also, the key to making bump weaning work is to identify candidate pigs early in lactation (2 to 3 days of age) rather than later.

Milk replacers

Milk replacers offer another way for fall-outs to obtain more milk. Milk can be provided free choice in plastic milk feeders or baby bottles. Or you can place the fall-out in a plastic bin containing a feeder while it drinks. This method ensures the fall-out is not competing for milk and you can be sure it drinks. Initially the fall-out must be trained to drink from a bottle, but after a few feedings it catches on and takes advantage of the additional milk without competition. Fall-outs can also consume milk from a pan or bowl; some will need to be trained, however. To train fall-outs to drink from a bowl, place their snout in the milk for a few seconds every hour until they appear to have learned to drink on their own. Use bowls or pans that attach to or are held down to the floor so they cannot be knocked over.

Some producers place a deck or pen containing a milk feeder in each farrowing room (one deck per 12 crates, for example) to manage fall-outs. The best milking sow that has lactated for about 10 days is

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identified. Her pigs are removed and placed in the deck and fed milk replacer. Eight to 10 fall-outs are collected from various litters in the room and placed on the newly weaned sow.

Conclusion

Fostering piglets after they are 24 hours old disrupts nursing, increases fighting, and significantly impairs the growth rate of adopted piglets and their littermates. Also, no evidence was found that late fostering improves preweaning survival. Therefore, for the greater good of all piglets, resist the urge to even-up litters or foster individual piglets after they are 24 hours old. Piglets that fall behind or grow slower than littermates after the initial fostering is done should be transferred to nurse sows where an entirely new litter(s) of older pigs is made. Milk replacers can also play a role in providing fall-outs more milk.

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