

Successful farrowing room management requires expertise in individual animal care, proper environmental and population management and team dedication. Weaning the highest quality pigs greatly increases post-weaning success by minimizing factors that reduce health, growth and efficiency. It requires round-the-clock care and attention, but the payoff is much greater than free Slurpees.

## Part two: Determinants of lactation success in primiparous sows

If you ever play ag trivia with your friends, the question is bound to arise as to what dictates the gilt remaining in the herd or being culled. Thanks to Nathalie Trottier, Associate Professor in Michigan State University's Department of Animal Science, you now have the answer: the outcome of the first lactation. Culling of gilts following a poor first lactation represents an economic drain for producers; conversely, preparing

the gilt for a successful first lactation will benefit lactation performance in subsequent parities and thus your bottom line.

According to Trottier, there are several determinants of a successful first lactation.

### Maximizing feed intake during lactation

A number of factors impact the gilt's voluntary feed intake during lactation. For example, the over-conditioned gilt has a lower voluntary daily feed intake, especially during the first week of lactation. In many mammals, hyperphagia and building fat storage during the gestation period is an essential evolutionary mechanism associated with a reduction in appetite near parturition and several days postpartum that leads to prioritizing nursing over eating. In confinement systems, however, the over-conditioned gilt coupled with limited mobility during gestation is far more susceptible to dystocia (difficult and extended length of farrowing) associated with lower feed intake in lactation and higher rates of piglet mortality at birth and in early lactation.

Setting body condition goals for gilts entering the breeding herd and monitoring body condition during the gestation period will optimize feed intake for lactation. The most effective monitoring method is to weigh or tape them and to measure backfat thickness during gestation. Feed intake in gestation should be restricted to meet the amino acid and energy demand associated with products of conception and mammary tissue growth, and to maintain a body condition score. In production settings where gilts are housed in gestation stalls it is advisable to feed several times a day to encourage them to stand up.

### Increase fiber intake during gestation

In addition to restricting caloric intake during gestation, a greater concentration of crude fiber in the diet offers several benefits. Apart from increasing gut fill and controlling satiety during gestation, increasing crude fiber from 3.8 per cent to 7 per cent decreases the rate of constipation by up to 75 per cent. Increasing bowel movement is important in gilts because long transit of fecal matter through the large intestine is associated with an increased risk for bacterial endotoxin production. It has been suggested that circulating endotoxins may interfere with the secretion of prolactin, the hormone needed to initiate and maintain lactation in swine.

### Increase feeding frequency during lactation

Feeding gilts three to four times per day during lactation with smaller quantities of feed will stimulate feed intake and encourage gilts to stand up compared to feeding twice per day. Frequent feedings also decrease feed spoilage. If economics allow, replace hand-fed feeders with ad lib or self-feeders.

Thus teat injury may prevent nursing of an otherwise well-developed, functional gland. These injuries can be reduced with proper flooring, hind hoof claw trimming and delayed teeth clipping.

### Stimulating mammary cellular activity and growth

The mammary glands begin growing at an increasing rate around mid-gestation (approximately day 60). At the end of gestation, mammary tissue contains just over 600 grams of protein, nearly half as much as the protein content of a 12 piglet litter at birth.

### Maximizing mammary gland use

Research suggests that glands which are suckled in a first lactation have enhanced productivity in the next lactation compared with glands that are not suckled. This suggests a sound biological reason for adding one or two piglets to an existing litter to maximize the use of functional glands by cross-fostering from another gilt or sow.

### Dealing with contamination

One factor that impacts lactation in gilts more than in sows is ergot contamination of grains like barley, rye, wheat and oats used in lactation diets in some regions. There are different ergot alkaloid compounds depending on the grain, but they all inhibit prolactin secretion which depresses milk yield.

There may be a lot involved in producing a successful first lactation, but there's also much to be gained: happier hogs, a better bottom line and an edge in the next round of ag trivia. ■

### Increase length of lactation period

As weaning age has increased, sows naturally have a longer lactation period which tends to optimize socialization and positive behavioral development. Extending the lactation period contributes to increasing stomach volume and helps restore body fat and protein lost during lactation.

### Maximizing mammary gland use

Milk secretion pattern and the dam and progeny interaction is unique to the sow. Each mammary gland and teat cistern is relatively small, and glands must be emptied every 50-70 minutes by the piglets to optimize milk production. Fortunately, piglets are programmed to nurse every hour following transition from colostrum to milk. Nursing of all of the available functional glands is crucial to stimulate mammary growth during the first lactation.

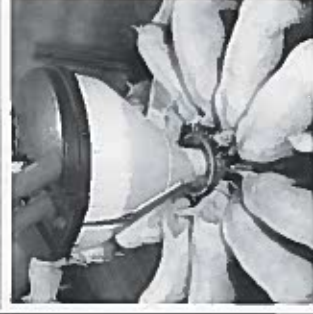
### Selecting for udder conformation

Dairy producers have long recognized the importance of udder conformation for milk yield. In pigs, the current thinking is that the sow udder should be equipped with 14 or 16 equidistant, well-defined, functional teats with no inverted nipples.

### Preventing teat injury

Unlike other livestock species, for pigs each gland will eventually belong to a single piglet. Consequently, for each malfunctioning teat, one piglet is left out since they tend to nurse one particular gland. Within 72 hours of farrowing, un-suckled glands are noticeably reduced in size and by mid-lactation, glands involute completely.

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