

Optimal nutrition is a meal-time system



Diet, management and disease alone can profoundly influence follicle health and reproductive performance. Lactation feed intake as well as pattern of intake are two of the most important components of overall reproductive performance because they have so many direct and indirect effects on reproductive tissues.

Causes of reproductive failure are predominantly found in the preceding lactation period.

Total lactation feed intake along with the quantity consumed during each weekly period in a 3-week lactation cycle influences pigs born alive, wean to service intervals, and weaning weights. Multiple regression analysis demonstrates that feed intake during weeks 1 and 2 has the greatest impact on pigs born alive. Feed intake during weeks 2 and 3 has the greatest impact on weaning weights, while week 2 feed intake has the greatest effect on wean to service interval. To maximize reproductive health and performance, feed intake needs to be optimized as much as possible during the entire lactation.

Work published in Europe (Table 1) indicates that to maintain the greatest ovulation rate combined with high embryo survival, sows need to be on a rapid feed incline the first week and not experience digestive upsets that will cause off-feed problems during weeks 2 and 3.

Table 1. Lactation feed intake pattern on post-weaning fertility.

Parameter	Feed Intake ^a		
	Pattern 1	Pattern 2	Pattern 3
Lactation weight loss (lb)	24.2	46.6	54.5
Backfat loss (in)	0.09	0.18	0.21
Ovulation rate (no.)	19.9	15.4	15.4
Embryo survival (%)	87.5	64.4	86.5
WSI (days)	3.7	5.1	5.6

^aPattern 1 = maximum intake entire lactation.

Pattern 2 = maximum intake first 2 weeks and 50% restricted last week.

Pattern 3 = feed restricted 50% first week then maximum feed intake remainder of lactation.

Regression analysis from U.S. herds, European studies (Table 1) and our experience suggests that feed intake the first week is critical to obtaining high numbers of pigs born alive. There are several factors which can dramatically reduce this number. As you are aware, disease, mycotoxins, stress and other management conditions can influence these important reproductive criteria.

Feeding factors which can affect the number of pigs born alive:

- Pattern of feed intake. This can be influenced by the number of times feed is offered per day and how well the feeder is cleaned and maintained. We like to see a minimum of 3 feedings per day – 4 would be better. Feed pattern has been found to be related to LH patterns and amplitudes, follicle recruitment and CL function. The effects of this management will be seen in the following farrowing.
- Total feed eaten the first week of lactation.
- Minimal digestive upsets which helps maintain intake.
- Freshness of feed. Freshness of feed means use of “effective” mold inhibitors when feed is prepared. We use a buffered acid made in Belgium that has a lower pH than other “buffered” acids and is therefore a much more effective mold inhibitor. Mold growth consumes essential fatty acids in the diet which reduces reproductive performance. Mold growth under some conditions can produce mycotoxins also.
- Rapid use of feed (in other words, make the least amount of feed at one time that management can accommodate). Keep feeders clean and free of mold. Feed can mold in a feeder in a very short period of time (2 or 3 hours).
- High fat lactation diets are detrimental to embryo survival.
- Nutrient content of lactation diet has large impact on follicle health.
- Feeding behavior last 3 weeks of gestation. Do not overfeed last two or three weeks before farrowing. This has been found to produce gestational diabetes in modern sow lines which results in several problems including increased stillborns and preweaning mortality.
- Do not overfeed after mating. It has been traditional in the U.S. and Europe to restrict feed for the first 5 days after mating. However, recent work in The Netherlands has found that this period of time should be extended to 10-14 days in modern sows. On our gestation feeding guide page, we suggest 12 days.

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