

# Swine Feed Efficiency: Influence of Sow Feed on Whole Farm Efficiency

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## Introduction

Feeding the sow herd has direct and indirect influences on whole herd feed efficiency. Direct effects on sow herd feed efficiency should be analyzed by phase. Within each phase, sow weight gain (> 6:1 F/G), gilt developing gain (<4:1 F/G), and nursing pig gain (<3.5:1 F/G) have very different feed efficiency ratios and value of gain. Indirect influences on whole herd feed efficiency are dependent on the quality of the weaned pig. A larger and healthier weaned pig will have lower morbidity, mortality and faster growth rate influencing wean to finish feed efficiency.

The direct influence of sow herd feed efficiency should be analyzed by phase of production (gestation, lactation, and gilt development), but also account for parity differences and record standards (such as calculation of pigs/sow/year or when to enter the replacement gilt into the record system).

## Sow Feed Requirements

The range in feed per sow per year is generally between 2100 and 2500 lb; however, feed/sow/year is a poor measure of feed use. The amount of feed required per pig produced is more important than feed/sow/year totals (Table 1).

The goal for lb of feed/pig weaned is about 80 lb. A 20 lb per pig savings here will improve whole herd conversion by about 0.07 depending on sow weight gain and market weight. Because sow feed is less than 15% of total feed use, savings on a whole herd basis from productivity is small, but can be significant.

## Where Can Feed be Saved?

Don't save feed by reducing the sow condition below reproductive optimum condition; rather focus on saving feed in gestation on fat sows. Over-conditioned sows must be identified, because feed efficiency is poorest with these sows. Any extra lb gained in sow gestation will require 7 or 8 more lb of feed. Maintenance requirements

between herds could be different because of environment or genotype. Therefore annual sow and gilt developer weight gain should be analyzed separately and benchmarked .

Feed should not be saved by reducing lactation feed intake. Maximizing lactation feed intake is essential for litter weight gain and survivability and for subsequent reproductive performance. Herd health, high replacement rates and other problems such as poor farrowing rate, high death loss, or excess pre-wean mortality will impact breeding herd feeding levels and productivity on a per pig basis. Thus, focus on minimizing these problems to reduce sow feed use per pig.

Table 1. Sow Feed per Pig Weaned per Year, lbs

Feed/Sow/Year, lb	Pigs per Sow per Year			
	22	24	26	28
2,000	90.9	83.3	76.9	
2,100	95.5	87.5	80.8	75.0
2,200	100.0	91.7	84.6	78.6
2,300	104.5	95.8	88.5	82.1
2,400	109.1	100.0	92.3	85.7
2,500	113.6	104.2	96.2	89.3
2,600	118.2	108.3	100.0	92.9

## Other Measures of Sow Feed Use

Sow feed per pig weaned is a good indicator of efficient feed usage, but again more information is necessary to understand feed use in the sow herd more clearly. Table 2 shows an example; sow feed/pig weaned is constant at 81 lb/pig, yet the ratio of lb sow feed/lb of weaned pig varies from 5.79 to 7.36 (27.4% difference in feed efficiency). The target ratio for lb sow feed/lb of weaned pig from farm data systems is approximately 5.5.

Table 2. Influence of Pig Weaning Weight on Efficiency of Sow Feed Use<sup>a</sup>

Pig Weaning Weight, lb	Annual Weaned Pig Weight, lb	Feed per lb of Weaning Weight, lb
11	286	7.36
12	312	6.75
13	338	6.23
14	364	5.70

<sup>a</sup>(Assumption: 26 p/s/y and 81 lb of feed/pig weaned)

An improvement in weaning weight per pig on the same feed input should be a sow herd goal. A sow herd weaning 11 lb pigs would need to increase pigs weaned by 7 pigs to achieve the same annual weight weaned as a farm weaning 14 lb pigs. These data illustrate that efficiency measures of sow feed use extend beyond the pounds of feed required per pig weaned. Value of the weaned pig is the profit driver in a sow herd, as there is not much margin in cull sow weight gain. Management factors such as litter size, birth wt, creep feed, efficiency of milk yield, and health/survivability of the pigs will influence feed efficiency at a constant weaning age. The focus should be for sows that wean heavier litters with less feed.

## Conclusion

Feed efficiency is an important measure for a sow herd. Benchmarking feed efficiency can only be done if gilt entry date and performance assumptions such as pigs/sow/year calculations are standardized. It is critical to know which phase of production impact efficiency and profit the most. Efficiency in lactation phase is a wholly different analysis compared to gilt developer and gestation feed efficiency. Attempting to save feed at the expense of adequate sow condition will likely be detrimental to the overall reproductive performance of the herd. Sow condition scoring is key to saving gestation feed and to maintain adequate condition score for reproductive efficiency. Producing heavier, larger weaned pigs will improve feed conversion in the sow herd and lower feed needs in the finisher. Other factors to consider include lactation feed wastage, genetics, litter size, health, parity segregation, reproductive performance, death loss, environmental temperature and stresses, nutrition, ingredient quality/processing, nutrient concentration and creep feeding.

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