

Director's Digest



J. D. SHRODER

Technical Director

2250 E. DEVON AVENUE
DES PLAINES, ILLINOIS 60018
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Calculating the Economics of Fat in Sow Feeds

The results of many years of research leave no doubt that fat additions for sow feeds will result in increased profits for swine producers. The following should give renderers a tool to use in demonstrating to potential customers the dollar returns to be gained.

The addition of 10-15% fat from about a week prior to farrowing to 14-28 days after farrowing has been shown to increase pig survival by .3-.5 pig per litter. Most research results show that 10% fat addition is adequate, so subsequent calculations will be made assuming 10% fat in sow feed. In carrying out these calculations, certain additional assumptions of feed intake, feed cost, selling prices, etc. must be made. It should be noted that the economics will change with market conditions.

1. Cost inputs

- a. Fat = 14¢/lb.
- b. Corn = 2.80/bu. or 5¢/lb.
- c. Soybean Meal = \$200.00/ton or 10¢/lb.

2. Calculations to adjust feed for 10% fat addition (per ton)

- a. Add 200 lbs. fat, add 40 lbs. soybean meal, subtract 240 lbs. corn (note: these proportions apply to any level of fat addition)
 - b. Cost adjustment: $(200 \text{ lbs. fat} \times 14¢/\text{lb.}) + (40 \text{ lbs. soybean meal} \times 10¢/\text{lb.}) - (240 \text{ lbs. corn} \times 5¢/\text{lb.}) = \$28.00 + \$4.00 - \$12.00 = \$20.00$
 - c. Cost of feed (fat added) = \$20.00 over regular feed (1¢/lb.)
- #### 3. Calculations for sow reproductive cycle and feed consumption:
- a. Sow reproductive cycle:
 - 1) Gestation - 114 days
 - 2) Lactation - 28 days
 - 3) Re-breeding (after weaning) = 7 days
 - 4) Total time per litter = 149 days
 - 5) Litters per year $(365 \div 149) = 2.4$
 - 6) Average conception rate = 80%
 - b. Feed consumed (sows with litters):
 - 1) Pre-farrowing: 7 days, 5 lbs. of feed/day = 35 lbs. x 2.4 litters = 84 lbs.
 - 2) Lactation (fat in feed for 3 weeks): 21 days, 12 lbs. of feed per day = 252 lbs. x 2.4 litters = 514 lbs.
 - 3) Total feed to which fat will be added (per sow per year) = 598 lbs.

- c. Added cost per sow per year = 598 lbs. of feed x 1¢/lb. (\$20.00/ton) = \$5.98
4. Determining income per sow from additional pigs
- a. Assumptions:
- 1) Additional .3-.5 pig/litter x 2.4 litters (100% conception) = .72 to 1.2 pigs per sow per year
 - 2) Actual increased pigs (80% conception on total herd basis): .72-1.2 x .80 = .57-.96 pig per sow per year.
 - 3) Feeder pigs worth \$50.00 each
- b. Calculation of additional income:
- 1) .57 to .96 pig x \$50.00 = \$28.50 to \$48.00 per sow per year (total herd basis)
 - 2) \$28.50 to \$48.00 - \$5.98 (additional feed cost) = \$22.42 to \$42.02 (additional income per sow)

A point that has not been widely publicized is the effect of extra pigs, which are essentially "free" pigs, on the overall profitability of a swine operation. This factor would apply for a farrow-to-finish operation where the producer feeds out pigs from his sow herd as opposed to buying feeder pigs. The additional profitability can be calculated as follows:

1. Assumptions:
- a. The national weaned pig average is 7.5 pigs per litter.
 - b. Average annual national production per sow (total herd basis) is 7.5 pigs x 2.4 litters x 80% conception = 14.4 pigs/year
 - c. These 14.4 pigs will cover all non-feed overhead, i.e. charges for facilities, labor, operating costs,

- d. Non-feed overhead is \$25.00 per pig
2. Calculations:
- a. Overhead reduced by .57 to .96 ÷ 14.4 or 4 to 6.5%
 - b. In dollars, overhead reduced by \$25.00 x 4 to 6.5% = \$1.00 to \$1.60 per hog
 - c. \$1.00 to \$1.60 per hog = \$14.97 to \$16.28 (14.4 + .57 x \$1.00 or 14.4 + .96 x \$1.60) additional profit per sow per year (total herd basis)

SUMMARY

1. Feeder pig producers can realize additional income per sow of \$22.42 to \$42.02 per year (total herd basis) by adding 10% fat to sow feeds 7 days prior to farrowing and for 21 days during lactation.
2. Farrow-to-finish operations will realize this additional profit plus an added \$14.97 to \$16.28 per sow because of the reduction in operating expenses brought about by additional pigs or a total of \$37.39 to \$58.30 per sow.
3. In addition to the advantages summarized above, adding fat to sow feeds provides cheap insurance against inadequate energy intake due to stress during the nursing period, such as high temperatures, inactivity, reduced feed palatability, poor ventilation & sub-clinical diseases. These factors, resulting in reduced feed intake, might be the cause of subsequent problems with sows coming into estrus after weaning; a problem which can be overcome by adding fat to sow feeds.