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Feed Budgets

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Tracking feed usage is an important part of record keeping. Feed costs typically are 2/3 or more of the total cost of producing pigs, so even a small change in feed costs can affect profitability. Without accurate feed records, it is impossible to evaluate diet changes that result in a lower cost diet but may affect pig growth. Section 300 of this handbook discusses pig nutrition in detail and leaflet number 370 provides example pig diets. For the following examples, diets will be summarized and feeding phases will be simplified (Table 1).

Table 1. Reference diets for pigs[1].

	Growing pig body weights			Sow diets	
	30-80	80-160	>160	Gestation	Lactation
% Corn	65	77	85	86	69
% Soybean meal	32	21	13	10	28
% Base mix	3	2	2	4	3
Phase Name	**1**	**2**	**3**	**G**	**L**

[1] Adapted from Life Cycle Swine Nutrition, 1996.

Production assumptions

Litters farrowed	2/sow/yr	Lactating sow feed	16 lb/d
Lactation length	42 d	Sow weight change	0
Weaned pigs per sow	18/yr	Feed:Gain, phase 1	2:1
Weaning weight	40 lb/pig	Feed:Gain, phase 2	2.5:1
Market weight	270 lb/pig	Feed:Gain, phase 3	3.5:1
Gestating sow feed	5 lb/d		

Feed Budget to Produce 18 weaned pigs

Gestation Feed

$365\ days/yr - (2\ lactations \times 42\ days/lactation) = 281\ days$

$281\ days \times 5\ lb/day =$ **1405 lb gestation diet**

$1405\ lb\ gestation\ diet \times 86\%\ corn = 1208\ lb\ corn$

$1405\ lb\ gestation\ diet \times 10\%\ SBM = 141\ lb\ SBM$

$1405\ lb\ gestation\ diet \times 4\%\ base\ mix = 56\ lb\ base\ mix$

Lactation Feed

$2\ lactations/yr \times 42\ days/lactation = 84\ days$

$84\ days \times 16\ lb/day =$ **1344 lb lactation diet**

$1344\ lb\ lactation\ diet \times 69\%\ corn = 928\ lb\ corn$

$1344\ lb\ lactation\ diet \times 28\%\ SBM = 376\ lb\ SBM$

$1344\ lb\ lactation\ diet \times 3\%\ base\ mix = 40\ lb\ base\ mix$

Table 2. Feed to produce 18 weaned pigs.

	Gestation	Lactation	Total	Per Pig
Corn, lb	1208	928	2136	119
Soybean meal, lb	141	376	517	29
Base mix, lb	56	40	96	5
Total, lb	1405	1344	2749	153

Each pig weighs 40 pounds, thus the whole herd feed conversion for producing weaned pigs in this example is:

$153\ lb\ feed \div 40\ lb\ gain = 3.85$

Feed budget to raise 1 pig from 40 lb to 270 lb

Phase 1

$80\ lb\ end\ wt - 40\ lb\ start\ wt = 40\ lb\ gain$

$40\ lb\ gain \times \frac{2\ lb\ feed}{1\ lb\ gain} =$ **80 lb Phase 1 feed**

$80\ lb\ Phase\ 1\ feed \times 65\%\ corn = 52\ lb\ corn$

$80\ lb\ Phase\ 1\ feed \times 32\%\ SBM = 26\ lb\ SBM$

$80\ lb\ Phase\ 1\ feed \times 3\%\ base\ mix = 2\ lb\ base\ mix$

Phase 2

$160\ lb\ end\ wt - 80\ lb\ start\ wt = 80\ lb\ gain$

$80\ lb\ gain \times \frac{2.5\ lb\ feed}{1\ lb\ gain} =$ **200 lb Phase 2 feed**

$200\ lb\ Phase\ 2\ feed \times 77\%\ corn = 154\ lb\ corn$

$200\ lb\ Phase\ 2\ feed \times 21\%\ SBM = 42\ lb\ SBM$

$200\ lb\ Phase\ 2\ feed \times 2\%\ base\ mix = 4\ lb\ base\ mix$

Phase 3

$$270\ lb\ end\ wt - 160\ lb\ start\ wt = 110\ lb\ gain$$

$$110\ lb\ gain \times \frac{3.5\ lb\ feed}{1\ lb\ gain} = \textbf{385 lb Phase 3 feed}$$

$$385\ lb\ Phase\ 3\ feed \times 85\%\ corn = 327\ lb\ corn$$

$$385\ lb\ Phase\ 3\ feed \times 13\%\ SBM = 50\ lb\ SBM$$

$$385\ lb\ Phase\ 3\ feed \times 2\%\ base\ mix = 8\ lb\ base\ mix$$

Table 3. Feed to feed 1 pig from 40 lbs to 270 lbs.

	P1	P2	P3	Total
Corn, lb	52	154	327	533
Soybean meal, lb	26	42	50	118
Base mix, lb	2	4	8	14
Total, lb	80	200	385	665

Thus the feed conversion ratio for 230 lb of gain in this example is:

$$665\ lb\ of\ feed \div 230\ lb\ gain = 2.89$$

Feed budget for 1 pig farrow-to-finish

This can be calculated by combining the feed budget for weaned pigs and growing pigs.

Table 4. Feed budget for 1 pig farrow-to-finish.

	Sow Feed	Pig Feed	Total
Corn, lb	119	533	652
Soybean meal, lb	29	118	147
Base mix, lb	5	14	19
Total, lb	153	665	818

In this example we assumed a 270 lb weight gain, thus the feed conversion ratio for the entire farrow-to-finish operation is:

$$818\ lb\ feed \div 270\ lb\ gain = 3.03$$

The above examples show how feed budgets can be generated and feed conversion calculated. It should be noted that the above are idealized examples. Actual production records show that feed conversion for the best niche herds is closer to 3.3 and others are considerably greater.

Additional Resources

Iowa Pork Industry Center.
109 Kildee Hall. Iowa State University, Ames, IA, 50011. 515-294-4103.
in Iowa: 1-800-808-7675
http://www.ipic.iastate.edu/about.html

Iowa State University Extension. 1996.
Life Cycle Swine Nutrition. PM-489.
Iowa State University. Ames.