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Milk production of the sow during lactation is influenced by feed consumed, condition of the sow, length of lactation and number of pigs she is nursing. Previous work at this station has shown an economic advantage for feeding sows ad libitum vs. limiting feed during lactation if sale weight of the sow is taken into consideration. The experiment reported herein is an attempt to confirm these findings and apply present costs and prices to the data to determine the most economical feeding management during lactation.

Experimental Procedure

Twenty-six sows and gilts were allotted to two lactation treatment groups on the basis of ancestry, age and weight. Three gilts and 10 sows were fed ad libitum for a 21-day lactation period and 2 gilts and 11 sows received 1 pound of feed per day for each nursing pig. The lactation feed was a corn-soybean meal diet containing 10% ground beet pulp and was calculated to contain 16% protein. Litter size, litter weight, average pig weight, sow weight and sow feed consumption were obtained at 7, 14 and 21 days of lactation.

Results

The litter production data are shown in table 1. Initial litter size was equal at birth and remained essentially equal between treatment groups at 21 days. No statistical differences in total litter weight or average pig weight were found, although there was a ½ lb. advantage in average pig weight at 21 days for the ad libitum fed group. Percent survival was slightly higher when sows were limited fed.

Feed consumption and sow weight change data are shown in table 2. Over the 21-day lactation period the sows fed ad libitum remained fairly constant in weight, while sows fed 1 lb. of feed per day per nursing pig lost approximately 24 pounds. This was a statistically significant difference between treatment groups. Sows fed ad libitum consumed significantly more feed daily than the limit fed sows. Ad libitum fed sows consumed twice the daily feed per pig weaned over the 21-day lactation period as sows limit fed. These were statistically significant differences.

Table 3 shows comparisons of returns per sow from the two feeding regimes. Base values used for the calculations were feed, $0.05 per lb.; sows, $0.35 per lb. and pigs (2 x $40 cwt. for butchers), $0.80 per pound. Ad libitum fed sows consumed 137.5 lb. more feed per sow than limit fed sows, resulting in additional feed costs of $6.88. These same sows gained an additional 23.9 lb., resulting in additional sales of $8.37. Litters from ad libitum fed sows averaged 7.1 lb. heavier at 21

days, resulting in a $5.68 advantage in sales over feeding 1 lb. per pig per day. Overall profit per sow was $7.17 greater for the ad libitum fed group.

These calculations are based upon immediate sale of pigs and sows after weaning. If the sows were to remain in the herd, perhaps the difference in sow weight would be less important. These data and calculations confirm previous work at this station showing an economical advantage for ad libitum feeding of sows during lactation.

Summary

Twenty-six sows and gilts were allotted to two lactation treatment groups receiving feed ad libitum or at the rate of 1 lb. per day per nursing pig. Litter size, litter weight, average pig weight and percent survival were statistically unchanged by lactation management. However, average pig weight was about ½ lb. heavier for pigs fed ad libitum and percent survival favored the group fed 1 lb. per day per nursing pig. Sows fed ad libitum lost significantly less weight during lactation. Feed consumption and daily sow feed per pig weaned were significantly higher for those sows fed ad libitum. Using base value prices for feed, wet sows and weaned pigs, there was a considerable economic advantage to the ad libitum method of feeding lactating sows.

Table 1. Litter Production Data

	Sow lactation management	
	Ad libitum	1 lb./pig/day
Birth		
Litter size	12.0	12.0
Litter weight, lb.	34.0	36.2
Avg. pig weight, lb.	3.0	3.1
7 days		
Litter size	9.2	10.5
Litter weight, lb.	44.9	54.4
Avg. pig weight, lb.	4.9	5.2
Percent survival	81.0	89.8
14 days		
Litter size	8.8	10.1
Litter weight, lb.	68.6	74.0
Avg. pig weight, lb.	8.0	7.4
Percent survival	77.9	86.3
21 days		
Litter size	8.2	9.2
Litter weight, lb.	87.7	94.8
Avg. pig weight, lb.	10.8	10.3
Percent survival	74.2	79.2

Table 2. Feed Consumption and Sow Weight Change Data

	Sow lactation feeding management	
	Ad libitum	1 lb./pig/day
Sow weight after farrowing, lb.	468.3	459.3
Sow weight, 21 days lactation, lb.	468.1	435.2
Sow weight change to 21 days, lb.[a]	-0.2	-24.1
Sow feed consumption to 21 days, lb.[b]	329.2	191.7
Daily sow feed consumption, lb.[b]	15.7	9.1
Daily sow feed per pig weaned, lb.[a]	1.91	0.99

[a]Significant ($P<.05$) difference due to treatment.
[b]Significant ($P<.005$) difference due to treatment.

Table 3. Comparisons of Returns Per Sow After 21-Day Lactation Period

Feed costs: 137.5 lb. difference in total feed consumption x \$0.05/lb. = \$6.88 (advantage 1 lb./pig/day)

Sow sales: 23.9 lb. difference in sow weight change x \$0.35/lb. = \$8.37 (advantage ad libitum)

Pig sales: 7.1 lb. difference in litter weight x \$0.80/lb. = \$5.68 (advantage ad libitum)

Profit per sow: (\$8.37 + \$5.68) - \$6.88 = \$7.17 more per sow fed ad libitum