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George W. Libal
South Dakota State University

Richard C. Wahlstrom

South Dakota State University
Brookings, South Dakota
Department of Animal Science
Agricultural Experiment Station

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The requirements of the lactating sow for dietary energy are dependent on the level of body reserves at farrowing time and the amount and composition of milk produced. It has been reported that voluntary feed consumption and weight change during lactation are influenced by level of feeding and weight gain during gestation. Recent research has indicated that energy utilization during the reproductive cycle is more efficient with a feeding system allowing only moderate gains in gestation and an increased feeding level during lactation. The data reported herein is a summary of five trials, two of which were reported previously (A.S. Series 71-44 and 73-50). The studies were conducted to investigate the effects of restricting daily feed intake of the lactating dam to 1 lb. per pig nursing compared to ad libitum feeding during a 21-day lactation period.

Experimental Procedure

A series of five trials utilized 124 crossbred sows that were allotted by parity, weight, ancestry and previous gestation treatment to two groups at farrowing. One group was fed ad libitum and the other group received 1 lb. of feed per day for each nursing pig for a 21-day lactation period. Gestation diets differed between trials. However, in all trials sows were fed the equivalent of approximately 4 lb. of feed, 6.2 Kcal of Digestible Energy (DE), during the gestation period. All sows were farrowed in individual crates or farrowing pens in the same farrowing house and similar conditions of management were imposed on both groups.

The lactation diet utilized in these trials is shown in table 1. A 16% protein corn-soybean meal diet containing 10% beet pulp and calculated to contain 1.38 Mcal of DE was fed twice daily to provide the two feeding levels. Both sows and pigs were weighed immediately after farrowing and at 7, 14 and 21 days.

Results and Discussion

Pig performance data are presented in table 2 and sow weight and feed consumption data are summarized in table 3. Although litter size was not equalized among litters, the average number of pigs per litter was similar at birth, 10.6 and 10.7 for ad libitum and restricted-fed sows, respectively. Treatments did not have a significant effect on number of pigs at 7, 14 or 21 days. Percent survival was slightly, but not significantly, greater for pigs on restricted-fed sows, resulting in an average of 0.5 more pigs per litter at 21 days for these sows.

Litter weights were significantly different between treatments at 7 days. At this time restricted-fed sows were nursing an average of 9.3 pigs which were 0.26 lb. heavier than the 8.8 pigs per litter of the ad libitum-fed sows, resulting in a significantly heavier average for litters from restricted-fed sows. However, pigs nursing sows fed ad libitum were significantly heavier at 21 days.

Feed consumption had a significant effect on sow weight. The differences between treatments in sow weight change at 7, 14 and 21 days were each significant. Sows fed ad libitum gained approximately 3.6 lb. during the first 7 days of lactation and then essentially maintained their weight the next 14 days. Restricted sows lost weight each week, losing a total of 25.5 lb. during the 21-day lactation period. Differences between treatments were significant at 14 and 21 days in total feed consumption and at 7, 14 and 21 days for feed consumed per pig nursing. Feed consumption averaged 14.5 lb. and 8.0 lb. per day for ad libitum and restricted sows, respectively, resulting in respective daily energy intakes of 20 and 11 Mcal of DE per day. The ad libitum sows consumed an average of 138 lb. more feed during the 21-day lactation period than did sows restricted to 1 lb. per day per nursing pig.

The results reported herein indicate that restricting feed to sows during a 21-day lactation to a daily level of 1 lb. per pig nursing reduced 21-day pig weights only slightly. The greatest advantage of restricted feeding was the reduction in feed consumed. However, the economic advantage of less feed consumed appears to be offset by the increase in weight loss of sows when compared to those fed ad libitum. Which feeding system a producer would utilize would depend upon an evaluation of the relative cost of feed and sale price of sows at the time of each individual lactation.

Summary

Five trials involving 124 sows were conducted to investigate the effect of lactation energy intake on sow and pig performance. A basal diet calculated to contain 1.38 Mcal of DE per lb. was fed ad libitum or at a level of 1 lb. per pig nursing per day during a 21-day lactation period.

Pig weights at 21 days were significantly greater for pigs nursing sows fed ad libitum. Number of pigs and average litter weights were not significantly affected by lactation treatment. Sows fed ad libitum consumed significantly more feed and were significantly heavier at weaning. Sow weight change was also significantly different between treatments at 7, 14 and 21 days. Ad libitum-fed sows gained 3.1 lb. and restricted sows lost 25.5 lb. during the lactation period.

Table 1. Composition of Lactation Diet

Ingredients	Percent of diet
Ground yellow corn	68.5
Soybean meal (50%)	18.0
Dried beet pulp	10.0
Dicalcium phosphate	2.0
Limestone	0.8
Trace mineralized salt (high zinc)	0.5
Vitamin premix	0.2

Table 2. Effect of Lactation Feeding Level on Production Data of Pigs

	Feeding level	
	Ad libitum	Restricted
	No. of pigs	
Birth	10.6	10.7
7 days	8.8	9.3
14 days	8.4	9.0
21 days	8.2	8.7
	Avg. pig weight, lb.	
Birth	2.94	3.05
7 days	4.74	5.01
14 days	7.85	7.80
21 days[a]	11.20	10.86
	Avg. litter weight, lb.	
Birth	30.34	31.86
7 days[a]	41.49	47.57
14 days	65.88	70.22
21 days	89.50	92.69

[a] Significant difference ($P<.01$) between treatments.

Table 3. Effect of Feeding Level During Lactation on Feed Consumption and Sow Weight Change

	Feeding level	
	Ad libitum[a]	Restricted[b]
	Sow weight, lb.	
After farrowing	476	474
21 days[c]	480	448
	Sow weight change, lb.	
7 days[c]	3.6	-6.3
14 days[c]	1.8	-15.6
21 days[c]	3.1	-25.5
	Total feed consumption, lb.	
7 days	88.8	71.6
14 days[c]	210.5	124.8
21 days[c]	305.1	167.0
	Feed/pig nursing, lb.	
7 days[c]	11.3	6.7
14 days[c]	27.9	14.7
21 days[c]	45.8	21.8

[a] 61 sows.
[b] 63 sows.
[c] Significant difference ($P<.01$) between treatments.