

Swine

Influence of Feeding Sequence During Pregnancy On Reproductive Performance of Sows

L. Keith Caldwell, I. T. Omtvedt and R. R. Wilson

Story in Brief

Two trials were conducted at the Fort Reno Experiment Station to determine the effects of feeding sequence during gestation on the reproductive performance of sows. In trial I, 60 sows were allotted at the time of breeding to one of three treatments: 1. Hand-fed everyday; 2. Hand-fed three times a week (Monday, Wednesday and Friday); and 3. Access to self-feeders for 3 hours three times a week (Monday, Wednesday and Friday). In trial II, 27 sows were assigned at the time of breeding to either the daily hand-feeding or three times a week hand-feeding regime. Sows in both trials were bred during February and March for summer litters. All sows were fed a 16 percent milo-wheat-soybean ration.

The self-fed sows gained significantly more weight during gestation (166.8 lb. compared to 80.7 lb. for the every-day feeding and 70.9 lbs. for those hand-fed three times a week). Sow condition score at farrowing was also significantly higher for the self-fed sows. Birth weights were heavier for pigs farrowed by self-fed sows but differences in litter size were not significant. However, there was a tendency for litter size to be larger for every-day feeding (11.6 pigs/litter) and smaller for self-feeding (10.5 pigs/litter). Differences between sows hand-fed daily and those hand-fed three times a week were not significant in either trial, but productivity tended to consistently favor those that were daily-fed.

Introduction

Keeping labor requirements to a minimum and sow productivity at a maximum is of great economic importance. As a means of reducing labor input, many swine producers have gone to some type of interval feeding system for their sows during gestation. However, the influence of feeding

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sequence on reproductive performance is not fully understood. The advantages of interval feeding from a labor standpoint are readily apparent but more work is needed before it can be recommended from a reproductive efficiency standpoint. This study was initiated to determine the effects of interval feeding on sow condition, farrowing results and 21-day pig performance.

Materials and Methods

A total of 60 Duroc-Beltville No. 1 crossbred sows were used in trial I. All sows had raised one litter before being allotted to this study. Two weeks prior to breeding, all sows were fed 6 lb. of a 16 percent protein ration daily until they were bred. At the time of breeding, sows were allotted to one of three treatments: 1. Hand-fed every day; 2. Hand-fed every Monday, Wednesday and Friday; or 3. Given access to a self-feeder for 3 hours every Monday, Wednesday and Friday. Two gestation lots were used for each treatment with 10 sows per lot. The sows consumed an average of 4.3 lb., 4.4 lb. and 8.4 lb. of feed per head per day during gestation on treatments 1, 2 and 3, respectively. The sows remained on their respective treatments until 109 days postbreeding. The breeding season started on February 15, and all sows were bred within a six-week period.

Information was obtained on gestation gain, sow scores, farrowing results and 21-day pig performance.

In trial II, 27 second-litter Hampshire sows were utilized. All sows were fed the same ration and were managed and allotted to treatment in the same manner as in trial I, but treatment 3 was eliminated. The breeding season for this trial also started on February 15, and continued for six weeks.

Sow gestation gain, sow condition score at farrowing and litter production were evaluated in both trials.

Results and Discussion

The results for trial I are summarized in Table I. The self-fed group consumed an average of 8.4 lbs. ration per day during gestation which was nearly twice as much as for the two limited-fed groups. The self-fed sows had significantly higher gestation gains, sow condition scores and pig birth weights. Even though there was not a significant difference in litter size at farrowing, there was a tendency for the fatter sows to farrow fewer pigs. This factor, plus the extra feed costs resulting from the additional feed consumed by the self-fed sows, makes this system economically unfeasible. It should also be pointed out that the self-fed sows were under

Table 1. Comparison of Every Day Feeding, Three Times A Week Feeding and Self-Feeding in Trial I

Treatment	No. Sows	Feed Per Day lb.	Sow Gestation Gain lb.	Sow Farrowing Condition Score ⁵	Farrowing Data			21-Day Data				
					Live Pigs/Litter	Pig Weight lb.	Litter Weight lb.	Survival first 24 hrs.	No. Pigs/Litter	Pig Weight lb.	Litter Weight lb.	% Survival
Hand Fed Daily	20	4.3	80.7 ¹	4.6 ²	11.6	2.90 ³	34.5	99.3	10.4	12.4	128	91.2
Hand Fed 3 times/week	19 ⁴	4.4	70.9 ¹	4.8 ⁴	11.0	2.83 ¹	32.3	97.9	9.6	11.3	114	83.4
Self Fed 3 times/week	18 ⁴	8.4	166.8 ²	6.7 ⁵	10.5	3.22 ³	35.0	99.5	8.8	13.0	111	85.8

^{1,2} Values with different superscripts within a column significantly different ($P < .05$).

³ One sow failed to breed.

⁴ Two extremely fat sows died from heat exhaustion in farrowing house prior to farrowing.

⁵ 9 denotes excessively fat and 1 denotes extremely thin with 5 being average.

Table 2. Comparison of Every Day Feeding and Three Times A Week Feeding in Trials I and II

Trial	Feeding Sequence	No. Sows	Average Sow Gestation Gain ¹ lb.	Sow Condition Score Farrowing ²	Farrowing Data			
					No. Live Pigs Litter	Pig Weight lb.	Litter Weight lb.	% Survival first 24 hrs.
I	Daily	20	80.7	4.6	11.6	2.9	34.5	99.3
	3 times/week	19	70.9	4.8	11.0	2.8	32.3	97.9
II	Daily	14	56.9	5.9	9.4	2.9	27.6	84.2
	3 times/week	13	45.9	6.0	8.0	3.0	25.7	88.8
Overall	Daily	34	70.9	5.2	10.7	2.9	31.6	93.0
	3 times/week	32	60.8	5.3	9.8	2.9	29.6	94.2

¹ 109 day weight minus breeding weight.

² 9 denotes excessively fat and 1 denotes extremely thin with 5 being average.

³ Differences between trials significant for all variables measured except pig birth weight.

greater stress when confined to the farrowing crates prior to farrowing and two sows in treatment 3 died prior to farrowing.

The results of daily hand feeding compared to hand feeding 3-times weekly are given in Table 2. Although there were no significant differences between the treatments, there was a trend for the daily fed sows to farrow more live pigs (11.1 pigs/litter) than the three times a week fed sows (10.2 pigs/litter). The differences between trials were significant, but the relative differences between treatments within each trial were similar.

These results suggest that no drastic reduction in productivity occurs when sows were fed only three times a week instead of daily. However, it was economically unfeasible to self-feed sows a high energy ration even when access to feeders was limited to 3 hours three days a week.

Effects of Levels of Protein and Lysine Supplementation To Wheat Rations For Growing-Finishing Swine

W. G. Luce, I. T. Omtvedt and R. R. Wilson

Story in Brief

Two hundred eighty-eight pigs were fed during the winter of 1970-71 at the Fort Reno Livestock Research Station to evaluate different levels of protein and lysine supplementation to wheat rations as compared to a basal milo ration. The pigs were self-fed in confinement from an average weight of 56.0 pounds to 219.8 pounds.

The supplementation of L-lysine, or additional soybean meal, to increase the lysine level of wheat rations to 0.6 percent, or higher, improved average daily gains. A level of 0.6 percent lysine was as effective as 0.7 percent as measured by rate of gain for pigs fed wheat rations.

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