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Effects of Energy Source in Late Gestation
on Pig Survival and Performance

Richard C. Wahlstrom and George W. Libal

Pig weight at birth can be influenced by the amount of feed fed to the sow during the gestation period. An increased energy intake by sows generally results in some increase in pig birth weight. Some recent research has indicated that the source of energy in the diet the last few weeks of gestation, particularly the type of lipid or fat source in the diet, may influence the livability of pigs after birth.

The objective of the experiment reported herein was to determine if the source of energy in the gestation diet during the last 4 weeks of gestation would have an effect on pig survival and performance.

Experimental Procedure

Thirty sows and gilts were allotted on the basis of parity, weight and ancestry into two treatment groups approximately 30 days prior to farrowing. The two dietary treatments were a concentrated high-energy diet containing corn, soybean meal and corn oil and a lower energy diet containing corn, soybean meal and alfalfa meal. The corn oil diet was fed at a rate of 4.5 lb. per day and the alfalfa meal diet fed at 5.6 lb. per day so that total energy intake was essentially equal. The composition of the diets is shown in table 1.

At 110 days of gestation the animals were moved to the farrowing house and placed in individual farrowing crates. The respective gestation treatment diets were fed through the first week of lactation and all sows were full-fed the same lactation diet during the next 2 weeks.

Results

Table 2 summarizes the data obtained in this experiment.

Both treatment groups received approximately the same energy intake during the last month of gestation. Gains during this period averaged slightly greater for the animals fed the higher energy diet, although average gain of sows was greater when fed the low energy diet and the reverse occurred with gilts. However, gains during the lactation period favored the gilts and sows on the high energy gestation treatment. These animals showed a gain at both 7 and 21 days of lactation, while those on the low energy treatment lost weight during the first 7 days of lactation and then essentially maintained their weight the next 2 weeks when both groups were fed the same lactation diet.

Although there was a significant difference in the number of pigs farrowed between treatments, this difference was due to chance as allotment occurred after the sows were nearly 3 months pregnant and there were no differences in number of stillborn pigs between treatments. At 7 days there appeared to be a trend for better survival of pigs from gilts fed the corn oil diet. One might expect somewhat better survival of this group since the pigs from sows and gilts fed the corn oil diet were significantly heavier at birth. These dams also farrowed less pigs per litter and it is known that litter size does affect pig birth weight. However, litter birth weights were slightly heavier for both gilts and sows fed the corn oil diet even though there were less pigs per litter. This would indicate that the dietary treatment may have had some effect on pig birth weights.

Summary

Thirty sows and gilts were fed diets differing in energy source during approximately the last 4 weeks of gestation and the first week of lactation. Both groups received the same lactation diet from 7 to 21 days of lactation.

Animals fed the higher energy diet containing corn oil as a fat source farrowed heavier pigs, which could have been due in part to farrowing less pigs. Litter weights were slightly greater when dams were fed corn oil. Survival rate of pigs at 7 days was 90.2% from gilts fed the corn oil diet and 79.3% when gilts were fed the alfalfa meal diet. There was little difference between treatments in percent survival of pigs farrowed by sows.

Table 1. Composition of Treatment Diets Last 30 Days of Gestation (Percent)

	High energy	Low energy
Ground yellow corn	81.5	68.2
Soybean meal, 48%	10.0	4.0
Corn oil	5.0	--
Dehydrated alfalfa meal, 17%	--	25.0
Dicalcium phosphate	2.0	2.1
Ground limestone	0.8	--
Trace mineral salt	0.5	0.5
Vitamin premix ^a	0.2	0.2

^a Provided per lb. of diet: vitamin A, 1500 IU; vitamin D, 150 IU; vitamin E, 3 IU; riboflavin, 1.25 mg; pantothenic acid, 5 mg; niacin, 8 mg; choline, 25 mg and vitamin B₁₂, 5 micrograms.

Table 2. Effect of Energy Source During Late Gestation on Pig Survival and Performance

	Sows		Gilts	
	High energy	Low energy	High energy	Low energy
Avg. initial wt., lb.	444	448	448	460
Avg. gain, 25 days prefarrowing, lb.	18	24	27	15
Avg. gain, 0-7 days lactation, lb.	2	- 6	4	- 5
Avg. gain, 0-21 days lactation, lb.	12	- 6	15	- 4
Number live pigs				
Birth ^a	8.8	9.8	9.6	10.0
7 days	7.6	8.6	8.6	8.0
21 days	7.0	8.5	8.5	7.7
Percent survival				
7 days	87.3	86.8	90.2	79.3
21 days	81.2	85.4	88.3	76.2
Avg. litter wt., lb.				
Birth	30.4	29.9	32.3	30.9
7 days	31.1	30.9	36.5	36.2
21 days	67.0	90.8	86.1	82.7
Avg. pig wt., lb.				
Birth ^a	3.6	3.0	3.4	3.1
7 days	4.0	3.6	4.3	4.6
21 days	9.5	10.8	10.1	10.9

^aSignificant difference between treatments (P<.05).