

NUTRITION—SWINE

A Preliminary Report on the Effect of Increased Feed Intake During Late Gestation

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Story in Brief

The effects of increasing the feed intake of sows during late gestation were studied in a trial utilizing 34 Yorkshire sows and 29 Yorkshire gilts. Treatments were a normal level of feed intake (4 lb/head/day) throughout gestation and a high level of feed intake (7 lb/head/day) from 90 days of gestation to farrowing.

Based on this preliminary analysis, treatment did not significantly affect sow weight, litter size and survivability, pig weights and pig performance. Additional replications will give more precise comparisons.

Introduction

A low survival rate of baby pigs from birth to weaning is a major problem in the swine industry. Estimates of survivability range from 70 to 80 percent. One of the major factors that has been shown to influence survival in baby pigs is birth weight. Past research indicates heavier birth weight in pigs results in increased survival to weaning. Early studies demonstrate that most of the weight, protein, calcium and phosphorus is deposited in the fetuses during the last 21 days of pregnancy. Since birth weight may be related to energy intake of the sow during gestation, the level of nutrient intake during the last trimester of pregnancy should have an influence on the weight and composition of the newborn pig, thus having a major effect on the pig's chances for survival.

This study is being conducted to determine the effects that the nutrition of the sow during late gestation has on litter size, birth weight and survival of pigs and on subsequent performance of pigs. The purpose of this report is to present preliminary results obtained over the first half of this trial.

Materials and Methods

A feeding study was conducted with 34 Yorkshire sows and 29 Yorkshire gilts to determine the effect on subsequent productivity of increasing the level of nutrition during late gestation. Prior to breeding, gilts and sows were fed a standard 14-percent crude protein corn-soybean meal ration. The specific feeding regime for each treatment through the entire gestation period is explained in Table 1. After farrowing, all sows were allowed to consume the 14-percent protein diet on an *ad libitum* basis throughout lactation. Creep feed was provided to pigs at 3 weeks of age and continued until weaning at 6 weeks of age. After weaning all sows were returned to the prebreeding level of feed intake (4.0 lb/head/day) and rebred, when possible, on the first estrus.

Table 1. Feed intake for each treatment (lb)

	Treatment			
	1		2	
	Gilts	Sows	Gilts	Sows
Prior to breeding	5 ^a	4 ^a	5 ^a	4 ^a
After breeding (day 1-90)	4 ^a	4 ^a	4 ^a	4 ^a
90 days (gestation to farrowing)	4 ^a	4 ^a	7 ^a	7 ^a

^aFeed increased 1 additional pound during the months of December to February.

Table 2. Least squares means of sow weights for each treatment

	Treatment	
	Normal intake (lb)	High intake (lb)
Breeding	394.4	371.2
90 days gestation	431.9	431.7
110 days gestation	452.5	458.5
Farrowing	425.8	429.5
21 days lactation	405.4	397.9
42 days (weaning)	415.8	400.9

Gilts and sows were kept in dirt lots throughout the breeding and early gestation period. Pens were equipped with individual feeding stalls and nipple waterers. Gilts and sows were fed once daily in the morning. Shelter was provided in each lot with foggers for cooling during periods of high temperature and straw for bedding during periods of cold temperature. At approximately 110 days of gestation, gilts and sows were moved to a farrowing unit and kept in farrowing crates until 21 days after farrowing. Heat lamps were provided to supply supplemental heat to pigs. At 21 days post-farrowing, sows and litters were moved to nursery pens where pigs were allowed access to creep feed and water *ad libitum*. Nursery pens were on concrete floors with shelter provided for both sow and pigs. At 42 days post-farrowing pigs were weaned and the sows returned to dirt lots. Measurements made included: 1) backfat probe of gilts and sows at breeding and at 90 days of gestation; 2) gilt and sow weight at breeding, 90 days and 110 days of gestation as well as within 24 hours of farrowing, on day 21 of lactation and at weaning; 3) individual pig weight at birth (live and dead pigs), 21 days and at weaning; 4) total and live pigs at birth, 21 days and at weaning; 5) feed consumption of sows from parturition to day 21; 6) consumption of creep feed by the baby pigs from 3 weeks until weaning; and 7) the number of days to first estrus after weaning.

Results and Discussion

At this time there are no statistically significant effects that can be attributed to the treatments applied for any of the traits analyzed. It appears, however, that sows on the higher level of total feed intake during late gestation may be heavier at 110 days of gestation (Table 2). Although the number of live pigs per litter at birth appears to be higher for sows on the normal level of intake, this difference is not apparent at 42 days (Table 3). Pigs from sows on the high level of feed intake appear heavier at birth; however, this difference also seems to disappear by 42 days of age (Table 4).

Table 3. Average litter size and survival rate

Treatment	Number of live pigs			Survival rate		
	Birth	21 days lactation	42 days (weaning)	Birth ¹	21 days lactation	42 days ³ (weaning)
Normal intake	9.5	7.6	7.1	90.8	80.9	76.4
High intake	8.7	7.5	7.1	88.8	86.9	82.2

¹Number of pigs born alive ÷ total pigs born.

²Number of pigs alive at 21 days ÷ number of pigs born alive.

³Number of pigs alive at 42 days ÷ number of pigs born alive.

Table 4. Least square means of pig weights for each treatment

	Treatment	
	Normal intake (lb)	High intake (lb)
Birth	2.8	3.0
21 days	11.2	11.4
42 days (weaning)	22.5	22.5

This is a preliminary report on a study that is approximately one-half complete; therefore, additional replications of this study will provide more precise measurement of the effect of increased feed intake during late gestation.

Effects of Fat Supplementation on Performance of Creep-Fed Pigs

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Story in Brief

The effects of fat supplementation on the performance of creep-fed pigs from 3 to 6 weeks of age and on post-weaning performance from 6 to 10 weeks of age were studied in a trial utilizing 60 litters consisting of 425 Yorkshire pigs. The treatments were a non-supplemented 18 percent corn-soybean meal control diet and the control diet plus 5 percent choice white grease. Ration adjustments were made to maintain a constant ratio of energy to other nutrients. Treatment did not significantly affect survival rate or feed intake over the entire experiment but did significantly ($P < .05$) affect weight. In general, pigs on fat-supplemented rations attained heavier weights at 10 weeks of age. However, this general trend was not consistent for each season in which the litters were farrowed and for each parity of the dam. Based on the results of this experiment, it appears that adding 5 percent choice white grease to creep rations and to rations for pigs during the post-weaning period may be beneficial. However, with results not being consistent across seasons and parity groups, one should carefully consider the economical feasibility of adding choice white grease to creep rations since fat does increase ration cost.