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THE EFFECT OF FEEDING FREQUENCY AND FEED FLAVORING ON PERFORMANCE OF LACTATING SOWS AND GILTS

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Inadequate feed consumption by sows (below 10 lb/day) in the farrowing house accompanied by large weight losses during lactation is a major problem in the swine industry. Excessive sow weight loss is often associated with poor milking performance and delayed return to estrus after weaning. High temperature in the farrowing house is often to blame for inadequate feed intake. However, even under the most ideal management the problem often exists. The trial reported herein is a part of a regional study (NCR-89, Confinement Management of Swine) to evaluate the effect of feeding frequency and the addition of sugar to the diet on sow feed intake and lactation performance.

Experimental Procedure

Twenty-six crossbred sows were allotted to four experimental management treatments on the basis of parity, post-farrowing weight and location in the farrowing barn. The management treatments were as follows:

1. Control diet - fed 1 time/day
2. Control diet - fed 3 times/day
3. Sugar diet - fed 1 time/day
4. Sugar diet - fed 3 times/day

The experimental diets were corn and soybean meal based containing 14% protein (table 1). The sugar diet contained 2.5% feed grade sugar substituted for corn in the diet. Feeding frequency was either once per day at 8 a.m. or three times a day at 8 a.m., 11:45 a.m. and 4:45 p.m. In both cases sows were to be on full feed. Differences in feed consumption observed were intended to be a function of number of feedings per day or type of diet and not a result of limit feeding. Sow and pig weights were taken at birth, 10 days and 21 days of lactation and feed consumption was recorded daily.

Table 1. Composition of Experimental Diets (%)

| Ingredient | Control | Sugar |
|---------------------------------|---------|-------|
| Ground corn | 70.40 | 67.90 |
| Sugar | --- | 2.50 |
| Soybean meal, 44% | 15.70 | 15.70 |
| Ground beet pulp | 10.00 | 10.00 |
| Dicalcium phosphate | 2.35 | 2.35 |
| Limestone | .55 | .55 |
| Trace mineralized salt, 8% zinc | .50 | .50 |
| Vitamin premix | .50 | .50 |

Results and Discussion

The results of pig performance due to lactation treatments is shown in table 2. Thirteen sows and gilts received each of the diets and 13 sows and gilts were included in each feeding regime. No differences were observed among treatments in number of pigs at birth or in survival after birth. In this trial, gilts farrowed as many pigs as sows and saved significantly more pigs than sows to 10 and 21 days of lactation. Average pig weights were not statistically different at birth, 10 days or 21 days due to treatments or due to parity of sows. Litter weights at 10 days were greater for sows and gilts fed one time daily only when they were fed sugar diets. Although some of the numerical differences still existed, the statistical difference due to feeding frequency was lost by 21 days of lactation. Litter weights at 10 and 21 days were greater for gilts than sows, a reflection of greater pig survivability within the gilt litters.

Sow weight and feed consumption data are shown in table 3. Sows weighed significantly more than gilts at all weigh dates. However, no treatment affects on sow weights were observed. During the first 7 days of lactation, sows and gilts fed 3 times daily consumed significantly more feed regardless of diet than those fed once daily. However, this did not result in differences in sow weight change or pig weights and differences in feed consumption were not observed at 14 or 21 days of lactation.

In this study, no advantage to increased frequency of feeding or addition of sugar to the diet was observed. This may be a result of adequate feed consumption in all treatment groups (<10 lb/day). Different results may have been found if feed consumption levels of the control groups had been lower.

Table 2. Effect of Feeding Frequency and Feed Flavoring on Litter Performance

| Diet Feedings/day | Control One | Control Three | Sugar One | Sugar Three | Parity | |
|-------------------------------|-------------|---------------|-----------|-------------|--------|--------------------|
| | | | | | Sows | Gilts |
| No sows | 3 | 4 | 4 | 3 | | |
| No gilts | 3 | 3 | 3 | 3 | | |
| <u>Avg No Live Pigs</u> | | | | | | |
| Birth | 9.7 | 10.9 | 9.2 | 9.9 | 10.0 | 9.9 |
| 10 days | 8.2 | 9.5 | 8.5 | 8.4 | 7.4 | 9.9 ^a |
| 21 days | 8.0 | 9.4 | 8.4 | 8.2 | 7.3 | 9.7 ^a |
| <u>Avg Pig Weight, kg</u> | | | | | | |
| Birth | 1.55 | 1.55 | 1.70 | 1.60 | 1.63 | 1.58 |
| 10 days | 3.30 | 3.15 | 3.25 | 2.70 | 2.80 | 3.40 |
| 21 days | 5.90 | 5.70 | 6.00 | 5.20 | 5.75 | 5.65 |
| <u>Avg Litter Weights, kg</u> | | | | | | |
| Birth | 15.10 | 17.00 | 15.45 | 15.25 | 15.68 | 15.73 |
| 10 days ^c | 27.30 | 30.60 | 28.45 | 23.00 | 21.58 | 33.10 ^a |
| 21 days | 48.30 | 53.40 | 50.05 | 43.00 | 43.03 | 54.35 ^b |

a

P<.01 difference between sows and gilts.

b

P<.10 difference between sows and gilts.

c

P<.05 heavier litter when sows and gilts were fed 1 time per day only when receiving the sugar diets.

Table 3. Effect of Feeding Frequency and Feed Flavoring on Sow Weight and Feed Consumption

| Diet Feedings/day | Control One | Control Three | Sugar One | Sugar Three | Parity | |
|---------------------------------|----------------|------------------|--------------|----------------|--------|------------------|
| | | | | | Sows | Gilts |
| <u>Sow Weight, lb</u> | | | | | | |
| Birth | 439 | 479 | 433 | 454 | 503 | 400 ^a |
| 10 days | 434 | 468 | 427 | 459 | 501 | 393 ^a |
| 21 days | 424 | 450 | 425 | 446 | 486 | 386 ^a |
| <u>Sow Feed Consumption, lb</u> | | | | | | |
| 7 days ^b | 59 | 80 | 59 | 78 | 67 | 71 |
| 14 days | 141 | 160 | 142 | 146 | 149 | 146 |
| 21 days | 220 | 254 | 228 | 218 | 235 | 224 |
| Per day of lactation | 10.5 | 12.1 | 10.9 | 10.4 | 11.2 | 10.7 |

a
P<.01 difference between sows and gilts.

b
P<.01 higher feed consumption with 3 feedings per day regardless of the diet fed.

Summary

Twenty-six sows and gilts were allotted to treatments consisting of two feeding frequencies (1 or 3 times daily) and two diets (control or control plus 2.5% sugar). Although some differences existed between sows and gilts, no differences in pig numbers or weights were observed due to treatments. Sow weights were unaffected. Feed consumption increased for sows and gilts during the first 7 days of lactation due to feeding 3 times per day. However, no differences were observed by 14 and 21 days of lactation. Feed consumption was considered adequate for all treatment groups.