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The Influence of Energy During Estrus on Ovulation Rate

George W. Libal and Richard C. Wahlstrom

It has been shown that "flushing" gilts by increasing the level of feed for 10 to 14 days before estrus and breeding will cause additional ovum to be shed resulting in larger potential litter size. It is recommended that gilts be removed from the flushing diet immediately after breeding because a high energy diet the first week after breeding results in higher embryonic death losses and thus smaller litters. This flushing period adds to the feed costs of gestation and the movement of gilts on and off higher feed levels requires additional labor.

Recently, English workers have reported that when sows or gilts that were being limit fed (3 to 4 lb. per day) were allowed a double quantity of feed only on the first feed following breeding the number of ovum shed was increased. When sows were allowed to complete gestation, litter size was larger by approximately 2 pigs. The experiment reported herein was an attempt to duplicate the English work and evaluate this method of "flushing" under South Dakota conditions.

Experimental Procedures

Fifty head of crossbred gilts were placed on 4 lb. per head per day of a 14% protein corn-soybean meal diet at six months of age. Heat checks were conducted every morning starting when the gilts were 9 to 10 months of age. When found in standing estrus, gilts were bred during the afternoon of that day. The gilts were randomly assigned to one of two post-breeding treatments. Treatment A, the control diet, was a continuation of 4 lb. of feed per day. Treatment B was 8 lb. of feed the first day after breeding and then 4 lb. every day following. Gilts were heat checked at the end of three weeks and those that were pregnant were slaughtered on the 25th to 30th day of gestation. Reproductive tracts were collected and ovulation sites and live embryos were counted. Apparent embryo survival rate to 25 days was calculated.

Results

The results of the two post-breeding treatments are shown in table 1. Seventeen gilts were pregnant on the control treatment of 4 lb. of feed the day after breeding and 21 pregnant gilts composed the treatment group of 8 lb. of feed the first day after breeding. Only small differences were observed in ovulation rate, number of live embryos at 25 days of gestation and embryo survival rate. Number of ovulation sites were 13.7 and 14.1, number of live embryos were 9.9 and 10.7 and embryo survival rate was 73.4% and 76.1% for the control and 8 lb. treatments, respectively.

The results of this experiment would indicate only a slight advantage for the 8 lb. treatment, and no conclusion can be drawn that would support the English work.

Summary

Fifty head of crossbred gilts were assigned to two post-breeding treatment groups. They were a control group receiving 4 lb. of feed per day before and after breeding and a treatment group receiving 4 lb. of feed per day before breeding, 8 lb. of feed the first day after breeding and 4 lb. every day thereafter. The gilts were slaughtered on the 25th to 30th day of gestation. Ovulation sites, number of live embryos and percent embryo survival rate to 25 days of gestation were measured. Only a slight advantage was shown for the 8 lb. treatment in all three criteria. This study showed no conclusive evidence that would indicate doubling the feed intake the day after breeding would increase ovulation rate and subsequent litter size.

Table 1. Post-Breeding Treatment

	<u>Treatment A</u> 4 lb. first day after breeding	<u>Treatment B</u> 8 lb. first day after breeding
No. of gilts pregnant	17	21
Avg. gilt weight (lb.)	320	325
Avg. no. of ovulation sites	13.7	14.1
Avg. no. of live embryos	9.9	10.7
Apparent embryo survival rate	73.4%	76.1%