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The Influence of Flushing During Estrus on Ovulation
and Embryo Survival to 30 Days Gestation

Duane E. Wachholz, Richard C. Wahlstrom and Travis D. Rich

Numerous experiments have demonstrated that ovulation rate may be increased by feeding a higher level of energy for several days preceding heat. This response is generally referred to as "flushing." Some producers have made flushing a routine practice. High energy levels, however, if continued after the flushing period or immediately after breeding, are antagonistic to embryo survival.

English workers have reported that doubling the feed from 4 to 8 lb. for one feeding after breeding tended to increase the number of ovulation sites and the number of pigs born. Workers at Kentucky have also found similar results when gilts were fed ad libitum for a 12-hour period following breeding. Previous work done at this station has failed to confirm these reports. The experiment reported here is a further attempt to substantiate this work under South Dakota conditions.

Experimental Procedures

Thirty-seven crossbred gilts were fed ad libitum until they reached 210 lb. of body weight at which time they were placed on an interval feeding regime of 2 hours ad libitum fed three times weekly. Approximately 2 weeks before breeding commenced (10 months of age), gilts were fed 4 lb. of a 14% protein feed daily. Gilts were checked for heat twice daily, bred at the first sign of heat and again 24 hours later. Treatment A gilts, control, were fed 4 lb. of feed and Treatment B gilts, flushed, were fed 8 lb. of feed approximately 12 hours after first service. On the day following breeding, gilts did not have access to any source of feed except that amount fed 12 hours after breeding. On the second day after breeding, all gilts were placed on a 4 lb. per day feeding. Between 24 and 30 days of gestation, all gilts were slaughtered, reproductive tracts removed and checked for pregnancy. Measurements taken were number of corpora lutea (CL), which is an indicator of ovulation rate, and number of live and dead embryos.

Results

Table 1 contains the data obtained in this experiment. Probably due to the double service, conception rate for both treatments was high. Estimates of ovulation rate (Avg. No. CL) were similar for both treatments. Gilts on Treatment A averaged 15.1 corpora lutea and those on Treatment B averaged 14.9. Gilts fed the 8 lb. of feed following breeding, Treatment B, did show a slight advantage in number of live embryos (13.4 vs. 12.5) but also had slightly more dead embryos (0.3 vs. 0.1). Because of the higher number of embryos present, gilts fed the higher energy (8 lb. of feed) had an advantage in implantation rate (92.2 vs. 82.9%) and embryo survival rate (90.0 vs. 82.5%).

These data suggest that ovulation rate is not increased by doubling the feed from 4 to 8 lb. for one feeding after breeding and that only a slight advantage is obtained in implantation and embryo survival rates.

Summary

Thirty-seven crossbred gilts were assigned to two post-breeding treatments-- Treatment A received 4 lb. of feed approximately 12 hours after first service and Treatment B received 8 lb. of feed approximately 12 hours after first service. All gilts then received 4 lb. of a 14% protein feed per day until slaughtered 25 to 30 days after breeding. At this time, number of corpora lutea, number of live embryos, number of dead embryos, implantation rate and percent embryo survival were determined. Data obtained indicate no apparent advantage in ovulation rate when doubling the feed from 4 to 8 lb. for a single feeding 12 hours after breeding. There was a slight advantage in number of live embryos and percent embryonic survival at 25 to 30 days after breeding, however. This study indicates no conclusive evidence in support of doubling the feed 12 hours after the first service.

Table 1. Treatment Data Collected

	<u>Treatment A</u> 4 lb. feed 12 hours after breeding	<u>Treatment B</u> 8 lb. feed 12 hours after breeding
No. of gilts bred	19	18
No. of gilts pregnant	17	18
Avg. no. of ovulation sites	15.1	14.9
Avg. no. of live embryos	12.5	13.4
Avg. no. of dead embryos	0.1	0.3
Implantation rate, %	82.9	92.2
Embryo survival rate, %	82.5	90.0