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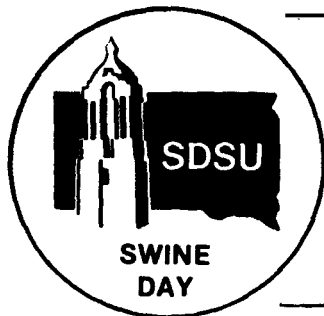
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The Effect of an Organic Iron Compound on Conception Rate in Gilts

Richard C. Wahlstrom and George W. Libal

SWINE 80-3

Iron is an essential mineral element for swine. Supplemental iron is added to most swine diets to insure adequate levels of this mineral for optimum production. Research has shown that amino acid-iron chelates in the diet increase the level of iron in the milk but not sufficiently to meet the pigs' iron needs. Other reports, unconfirmed in the literature, have indicated certain iron products can improve conception rate in gilts.

The objective of this study was to study the effect of an organic iron, containing mostly iron choline citrate and ferrous fumarate as iron sources, when added to swine diets from 30 days before breeding to the time gilts were slaughtered, approximately 35 days post-breeding.

Experimental Procedure

Forty-four crossbred gilts were allotted into two groups at approximately 8 months of age. Group 1 received the control diet and group 2 received this diet plus 5 pounds of the iron supplement "Swinacol" per ton of feed. This level of supplementation added 187.5 ppm of iron to the control diet. The trace mineralized salt also supplied 16.5 ppm of elemental iron to the control diet. Diets were fed at the rate of 5 pounds per day. The composition of the diet is shown in table 1.

TABLE 1. COMPOSITION OF CONTROL DIET (%)

Ingredient	Percent
Ground corn	77.5
Alfalfa meal	10.0
Soybean meal, 44%	9.0
Dicalcium phosphate	2.3
Limestone	.5
Trace mineral salt ^a	.5
Vitamin premix ^b	.2

^a Contains .8% zinc.

^b Supplied per pound of diet: vitamin A, 2000 IU; vitamin D, 200 IU; vitamin E, 2.5 mg; riboflavin, 1.25 mg; pantothenic acid, 5 mg; niacin, 8 mg; choline, 25 mg and vitamin B₁₂, 5 micrograms.

These diets were fed for 30 days prior to the start of the breeding season which was for a 21-day period. Gilts were heat checked each day and gilts that were in heat were bred and left with the boar for 24 hours. They remained on the respective treatments until slaughtered at between 29 and 49 days (average 35 days) post-breeding. Reproductive tracts were removed and the ovaries were examined to determine the number of corpora lutea and the number of embryos present in the uterus were counted.

Results

A summary of the reproductive performance as measured by conception rate, corpora lutea and live embryos at approximately 35 days is shown in table 2.

TABLE 2. EFFECT OF ORGANIC IRON (SWINACOL) ON CONCEPTION RATE, OVULATION AND EMBRYO SURVIVAL

Parameter	Control	Swinacol
No. gilts bred	22	22
No. gilts conceived	16	12
Percent gilts conceived	72.7	54.5
Avg number of corpora lutea	13.0	13.7
Avg number of embryos (35 days)	10.5	10.9
Embryos/CL, %	80.8	79.9

Sixteen of the 22 control gilts were pregnant compared to only 12 of 22 gilts that received Swinacol. Percentage conception was 72.7% for the control group and 54.5% for the iron treatment. Since this is a relatively small number of animals per treatment (22), it is not suggested that the iron treatment was detrimental. However, one can assume that the organic iron was of no benefit in increasing conception rate of gilts. Number of CL and embryos per gilt were quite similar but favored the gilts receiving the supplemental iron. However, embryos as a percent of CL were 79.9% for gilts receiving Swinacol and 80.8% for the control gilts.

Summary

Forty-four gilts about 8 months in age were divided into two groups. One group received the control diet for 30 days prebreeding and about 35 days post-breeding, while group 2 was fed the same diet plus 5 pounds of an organic iron product ("Swinacol") per ton of feed. There were no significant differences in conception rate, numbers of CL or embryos at approximately 35 days post-breeding between the two groups.