EFFECT OF SWINACOL[a] (FERRIC CHOLINE CITRATE) ON PERFORMANCE OF EARLY WEANED PIGS

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Story in Brief

A three week feeding trial involving 68 pigs was conducted to determine the effect of feeding Swinacol, a commercial product, on the performance of early weaned pigs. The two treatments were a control complex 1.3% lysine starter diet and the control diet with five pounds of Swinacol added per ton of feed. Little differences were noted between the two treatments. The failure of Swinacol to improve performance is probably because the starter diet provided all known minerals and vitamins required for pigs this age plus two growth promotors.

(Key words: Ferric Choline Citrate, Early Weaned Pigs)

Introduction

Number of pigs weaned per sow per year is a highly important economic trait in swine production. Producers have increasingly gone to early weaning (3-4 weeks) in an effort to increase the number of pigs produced per sow per year. A palatable, 1.3% lysine diet that is well fortified with minerals, vitamins and other feed additives is essential for early weaned pigs. The purpose of this trial was conducted to see if "Swinacol", primarily an iron supplement containing ferrous fumerate and ferric choline citrate plus additional minerals and vitamins would improve performance of early weaned pigs fed the standard Oklahoma State University 1.3% lysine starter diet.

Experimental Procedure

A three week feeding trial involving a total of 68 pigs (two replications of 32 and 36 pigs respectively) was conducted to determine the effect of feeding Swinacol, a commercial product, on the performance of early weaned pigs. In both replicates, pigs were weaned and randomly allotted within litter to two treatment groups at an average age of 26 days. The treatments were a control complex 1.3% lysine starter diet (Treatment 1) as shown in Table 1 and the control diet with five pounds of Swinacol added per ton of complete feed (Treatment 2).

Pigs were individually fed in metal cages in an environmentally controlled room. Temperature was maintained at 86 F during the first week of the trial and lowered to 3 F weekly for the duration of the three week trial. Pigs had ad libitum access to feed and water throughout the trial. Feed wastage was measured by placing metal containers under each feeder and making weekly determinations of weight and dry matter content of the waste feed. This results in a more accurate measure of feed intake.

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Table 1. Composition of control diet.

Ingredient	%
Corn, ground	36.08
Soybean meal, 44%	31.50
Whey, dried	30.00
Dicalcium phosphate	.90
Calcium carbonate	.82
Vitamin-trace mineral mix[a]	.40
ASP-250[b]	.25
Copper sulfate	.05
Total	100.00
Calculated composition	
M.E., kcal/lb	1438.00
Crude protein, %	20.60
Lysine, %	1.30
Calcium, %	.90
Phosphorus, %	.70

[a]Supplied 800,000 IU of Vitamin A, 80,000 IU Vitamin D, 3,400 IU Vitamin E, 800 mg riboflavin, 4,000 mg pantothenic acid, 5,400 mg niacin, 4 mg Vitamin B_{12}, 600 mg menadione sodium bisulfate, 50,000 mg choline chloride, 18 g zinc, 18 g iron, 5 g manganese, 36 mg iodine, 2 g copper and 18 mg of selenium per pound of premix.

[b]Supplied 200 g chlorotetracycline, 100 g sulfamethazine and 50 g penicillin per ton of feed.

Pigs were observed daily to determine if feed was being consumed. Pigs not consuming feed for two consecutive days were removed from the experiment. In replicate 1, a total of five pigs were removed with four removed from Treatment 1 (Control) and one pig removed from Treatment 2 (Swinacol). In replicate 2, two pigs were removed from Treatment 1 and one pig removed from Treatment 2.

Results and Discussion

Performance data for the combined replicates is presented in Table 2. Performance in replicate 2 was superior to that observed in replicate 1 resulting in a replicate effect for average daily gain, feed intake and feed efficiency. However, the effect of treatment was consistent across replication resulting in only one significant ($P<.05$) replicate X treatment interaction for average daily feed intake for week 2 of the trial.

Little differences were noted in average daily gain except in week 3 when the pigs on Treatment 1 (Control) gained more ($P<.05$) than the pigs on Treatment 2 (Swinacol). Overall average daily gain for the three week trial were .81 and .75 lb per day for Treatment 1 and 2 respectively.

Table 2. The effect of swinacol on performance of early weaned pigs.

Item	Treatment 1[a] (Control)	Treatment 2[a] (Swinacol)
Avg. daily gain, lb.		
Week 1	.51	.48
Week 2	.55	.56
Week 3[b]	1.38	1.21
Overall (week 1-3)	.81	.75
Avg. daily feed intake, lb		
Week 1	.74	.70
Week 2	1.28	1.16
Week 3	1.70	1.70
Overall (week 1-3)	1.24	1.18
Feed per lb gain, lb		
Week 1	2.12	1.64
Week 2	2.63	2.22
Week 3[b]	1.10	1.39
Overall (week 1-3)	1.56	1.59

[a]Least square means
[b]Significant difference between treatments ($P<.05$)

Little differences were noted in average daily feed intake or feed required per pound of gain except in week 3 when the pigs on Treatment 1 (Control) required less ($P < .05$) feed per pound of gain than pigs on Treatment 2 (Swinacol). Overall average daily feed intake for the three week trial were 1.24 and 1.18 lb and overall feed required per pound of gain were 1.56 and 1.59 lb for treatments 1 and 2 respectively.

The control ration in this study is a palatable, complex starter ration that is well fortified in all known minerals and vitamins that are required for pigs of this age and contains two growth promotors (ASP-250 and copper sulfate). This probably accounts for the failure of Swinacol to further improve performance in this study.