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EFFECT OF VIRGINIAMYCIN ON GROWTH AND CARCASS CHARACTERISTICS OF BARROWS AND GILTS

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Antibiotics have been used as additives to swine diets for approximately 30 years. Various antibiotics have been shown to improve growth performance and efficiency of feed utilization. In addition, antibiotics have reduced low order infection. Since different organisms are sensitive to different antibiotics, the antibiotic of choice may vary depending on the organisms present. The effect of antibiotics on carcass characteristics has been less conclusive.

This experiment was conducted to determine the effect of the antibiotic, virginiamycin, on performance and carcass characteristics of barrows and gilts fed separately.

Experimental Procedure

Forty-eight barrows and 40 gilts weighing an average of 52 lb were evenly distributed by weight within sex groups and allotted by litter to 22 pens (12 pens of barrows and 10 pens of gilts). There were six replications of barrows and five replications of gilts allotted to the two treatments. Within each replication, treatment groups were composed of littermate pigs. Pigs had access to self-feeders in pens providing approximately 8 square feet per pig in a totally slotted floor confinement building. Pigs were removed from the experiment by pen at average pen weights of approximately 220 lb. All of the barrows and two replicates of gilts were slaughtered in the University abattoir, and the following carcass data were obtained: carcass weight, carcass length, 10th rib and average backfat, loin eye area, and lb of muscle per 160 lb of carcass.

Pigs were fed either a corn-soybean meal basal diet (control) or the control diet containing 10 g of virginiamycin per ton of feed. Diets contained 16% protein to average weights of 123 lb and 14% protein from 123 lb to final weights. Composition of the diets is shown in table 1.

Table 1. Composition of Diets (%)

Ingredient	Grower 16% protein	Finisher 14% protein
Ground corn	77.1	82.6
Soybean meal, 44%	20.5	15.0
Dicalcium phosphate	1.2	1.4
Ground limestone	.8	.6
Salt	.3	.3
Trace mineral premix[a]	.05	.05
Vitamin premix[b]	.05	.05

[a] Supplied the following minerals in ppm: zinc, 100; iron, 75; copper, 7.5; manganese, 25; iodine, .175; and selenium .1.

[b] Supplied per pound: vitamin A, 1500 IU; vitamin D, 150 IU; vitamin E, 5 IU; vitamin K, 1 mg; riboflavin, 1.5 mg; pantothenic acid, 6 mg; niacin, 8 mg and vitamin B_{12}, 6 mcg.

Results

The effect of virginiamycin on performance and carcass characteristics of barrows and gilts is shown in table 2. During the growing period, average daily gain was greater ($P<.01$) for pigs fed virginiamycin. The increased rate of gain appeared to be a result of increased feed intake as there was no differences in feed efficiency. There were no significant differences in rate of gain, feed intake or feed efficiency during the finishing period or for the overall feeding period between pigs fed the diets with or without virginiamycin. There were no differences in carcass measurements of pigs fed the control diet versus pigs fed the diet containing virginiamycin.

Barrows gained faster ($P<.01$) than gilts during the finishing and overall periods. The barrows also consumed more feed daily during all periods; however, this difference was significant only for the overall period. There were no differences in feed efficiency due to sex. Gilts had larger ($P<.07$) loin eyes than barrows. They also had slightly less backfat and more pounds of muscle per 160 lb of carcass than did barrows; however, these differences were not statistically significant.

Table 2. Effect of Virginiamycin on Performance of Barrows and Gilts[a]

	Barrows		Gilts	
	Control	Virginiamycin	Control	Virginiamycin
Grower period (52 to 123 lb)				
Avg daily gain, lb[b]	1.48	1.53	1.41	1.50
Avg daily feed, lb	4.23	4.48	4.14	4.35
Feed/gain	2.86	2.86	2.95	2.89
Finisher period (123 to 220 lb)				
Avg daily gain, lb[c]	1.86	1.86	1.67	1.65
Avg daily feed, lb	6.93	7.15	6.14	6.49
Feed/gain	3.69	3.86	3.66	3.93
Overall (52 to 220 lb)				
Avg daily gain, lb[c,d]	1.67	1.71	1.55	1.58
Avg daily feed, lb[d]	5.61	5.83	5.20	5.50
Feed/gain	3.34	3.43	3.36	3.48
Carcass data				
Wt, lb	146.2	148.6	154.5	147.4
Length, in	31.8	32.1	33.0	32.6
Tenth rib fat, in	.95	1.03	.83	.81
Avg backfat, in	1.01	1.04	.98	.98
Loin eye area, sq in	4.31	4.33	4.98	4.88
Lb muscle/160 lb carcass	86.8	86.0	90.4	90.0

[a] Six lots of four barrows and five lots of four gilts per treatment.

[b] Antibiotic effect ($P<.01$).

[c] Sex effect ($P<.01$).

[d] Sex effect ($P<.05$).

Summary

Forty-eight barrows and 40 gilts averaging about 52 pounds were used to study the effect of 10 g of virginiamycin per ton of feed on performance of barrows and gilts.

The addition of virginiamycin improved daily gain during the growing period but had no effect on gain in the finishing or overall periods. There was no effect on feed efficiency in any growth period. Barrows gained faster than gilts during the finishing and overall periods and had smaller loin eye areas.