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Antibiotics have been used as feed additives for the past 30 years. The greatest response in improved performance occurs during the early growth period, that is, from weaning to about 75 or 100 pounds. Several antibiotics have been approved as feed additives during recent years. It has been suggested that it may be beneficial to occasionally change antibiotics that are fed, although very little research has been conducted in this area.

The objectives of this study were to evaluate the use of antibiotics and antibiotic sequences for enhancing pig performance.

Experimental Procedure

Two groups of 36 pigs of an average weight of approximately 75 pounds were each allotted four pigs per pen to three treatments each replicated three times. One group of pigs had received the feed additive ASP-250 at a level of 250 grams per ton from weaning at 4 weeks to 75 pounds, while the other group was not fed antibiotics during this period. The pigs were housed in a completely enclosed building with fully slatted floors with feed and water provided ad libitum. Pens provided 8 square feet of space per pig.

The composition of the 14% crude protein corn-soybean meal supplemented diet is shown in table 1. The treatments were as follows:

Previous Treatment	Experimental Treatment
No antibiotic	1. No antibiotic 2. 25 grams Tylan per ton 3. 2 grams Flavomycin per ton
ASP-250 (250 g/ton)	1. No antibiotic 2. 25 grams Tylan per ton 3. 2 grams Flavomycin per ton

The experiment was terminated when the pigs reached an average weight of 215 pounds.

Results

A summary of the average daily gain and feed efficiency data are presented in tables 2 and 3, respectively. Data are presented to show the performance of pigs in the three treatment groups on the basis of previous antibiotic treatment in addition to the overall performance means.

TABLE 1. COMPOSITION OF EXPERIMENTAL DIET

Ingredient	Percent
Ground corn	82.0
Soybean meal, 44%	15.6
Dicalcium phosphate	1.2
Ground limestone	.7
Trace mineral salt	.3
Premix[a]	.2

[a] Supplied per lb. of diet: Vitamin A, 1500 IU; vitamin D, 150 IU; vitamin E, 2.5 IU; vitamin K, 1 mg; riboflavin, 1.25 mg; pantothenic acid, 5 mg; niacin, 8 mg; choline, 25 mg; vitamin B_{12}, 5 mcg and selenium, .04 milligram.

TABLE 2. AVERAGE DAILY GAIN OF PIGS FED TYLAN AND FLAVOMYCIN DURING THE GROWING-FINISHING PERIOD[a]

Previous treatment[b]	Growing-finishing treatments			
	Control	Tylan	Flavo-mycin	Mean
		75-155 Pounds		
Control	1.59	1.55	1.57	1.57
ASP-250	1.43	1.60	1.48	1.50
Mean	1.51	1.58	1.53	
		155-215 Pounds		
Control	1.66	1.69	1.70	1.68
ASP-250	1.68	1.45	1.51	1.55
Mean	1.67	1.57	1.61	
		75-215 Pounds		
Control	1.62	1.60	1.60	1.61[c]
ASP-250	1.54	1.53	1.49	1.52
Mean	1.58	1.57	1.55	

[a] Three replicates of four pigs each per treatment.

[b] Average daily gain, weaning to 75 pounds, was .73 and .92 pound for pigs fed control and ASP-250, respectively.

[c] Significantly faster than pigs fed ASP-250 to 75 pounds ($P<.05$).

TABLE 3. FEED/GAIN OF PIGS FED TYLAN AND FLAVOMYCIN DURING THE GROWING-FINISHING PERIOD[a]

Previous treatment[b]	Growing-finishing treatments			
	Control	Tylan	Flavo-mycin	Mean
		75-155 Pounds		
Control	3.16	3.48	3.25	3.30
ASP-250	3.87	3.14	3.33	3.45
Mean	3.52	3.31	3.29	
		155-215 Pounds		
Control	3.60	3.57	3.73	3.63
ASP-250	3.81	3.61	3.70	3.71
Mean	3.71	3.59	3.72	
		75-215 Pounds		
Control	3.35	3.52	3.46	3.44
ASP-250	3.82	3.34	3.46	3.54
Mean	3.59	3.43	3.46	

[a] Three replicates of four pigs each per treatment.
[b] Feed/gain, weaning to 75 pounds, was 2.90 and 2.68 for pigs fed control and ASP-250, respectively.

Differences in average daily gains among treatments were small during all periods. From 75 to 155 pounds, the pigs fed Tylan or Flavomycin gained slightly faster than pigs that did not have an antibiotic in their diet. Gains were 1.51, 1.58 and 1.53 pounds per day for pigs fed the control, Tylan and Flavomycin diets, respectively. However, during the latter finishing period, 155 to 215 pounds, pigs fed the control diet gained faster than those fed either antibiotic so that for the overall period, 75 to 215 pounds, gains were similar among treatments. It is interesting to note that pigs that had not received antibiotics during the period prior to 75 pounds gained faster ($P<.05$) from 75 to 215 pounds than those pigs that received ASP-250 to a weight of 75 pounds. This increased gain was consistent in all three treatments. Since the average daily gain to 75 pounds was 26% faster when pigs were fed ASP-250, it is possible that the pigs that did not receive antibiotics to 75 pounds showed a compensatory performance during the growing-finishing period.

Feed per gain data, presented in table 3, show an overall improvement in feed efficiency of about 4% when antibiotics were included in the diet. Pigs fed ASP-250 prior to 75 pounds showed a considerable increase in feed required per pound of gain when fed the diet without antibiotic from 75 to 215 pounds. As was true for average daily gains, less feed/gain was required by pigs that were fed the control diet to 75 pounds compared to pigs fed diets containing ASP-250 during that time.

Summary

Seventy-two pigs, averaging 75 pounds initially, were used in an experiment to evaluate the effect of feeding the antibiotics Tylan and Flavomycin in growing-finishing diets at levels of 25 and 2 grams per ton, respectively.

Feeding diets containing either of these antibiotics to pigs from 75 to 215 pounds live weight did not affect the rate of gain but did result in about 4% improvement in feed/gain. Performance was slightly better during the 75- to 215-pound period if pigs had not received antibiotics from weaning to 75 pounds. Daily gains were increased 6% and feed/gain approximately 3%.