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Evaluation of Various Antibiotics on Growth Rate and Feed Efficiency by Finishing Pigs

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Summary

Two trials involving 300 finishing pigs (120-220 lbs.) were conducted to evaluate Tylan, Stafac, Lincomix, and Flavomycin by growth rate and feed efficiency. In trial I, none of the antibiotics improved growth rate or feed efficiency. In trial II, where pigs were more crowded, feeding an antibiotic slightly, but not significantly, increased daily gain (0 to 8% improvement) and feed efficiency (3 to 9%), with no significant difference among antibiotics. These studies demonstrate that the response or lack of response to feeding low levels of antibiotics during the finishing phase will depend on the level of stress imposed.

Introduction

Antibiotics effectively improve growth rate and feed efficiency in starter diets, but the response decreases as pigs get larger. In last year's Swine Day publication, we reported that feeding low levels of antibiotics to finishing pigs did not improve average daily gain or feed efficiency. These trials continued that study.

Procedures

Two experiments evaluated various antibiotics fed during the finishing phase (120 to 220 pounds). Pigs were randomly allotted, according to weight and sex, to 15 pens representing three replications of five treatments. Pigs were housed on totally slatted floors in a modified open-front building. Each pen contained a self-feeder and an automatic waterer. The basal diet (14% protein, .60% lysine) contained 81.6% sorghum grain, 15% soybean meal, 1.3% dicalcium phosphate, 1.1% limestone, .4% salt, .5% vitamin premix, and .1% trace mineral premix. The diets were fed in meal form. The treatments were:

- 1) Basal diet - nonmedicated (control)
- 2) Basal diet + 20 grams of Tylosin per ton (Tylan)
- 3) Basal diet + 10 grams of Virginamycin per ton (Stafac)
- 4) Basal diet + 20 grams of Lincomycin per ton (Lincomix)
- 5) Basal diet + 2 grams of Bambermycin per ton (Flavomycin)

Trial I was conducted from 9/29 to 12/31, 1978; trial II, from 2/5 to 4/4, 1979.

Results and Discussion

Feeding low levels of antibiotics to finishing pigs in Trial I did not significantly ($P < .05$) improve rate or efficiency of gain (table 10), and there were no significant differences among the various antibiotics.

Trial II evaluated feeding various antibiotics to finishing pigs under conditions more like those on many commercial farms in terms of space per pig. Thirteen pigs were used per pen in Trial II in the same pens that housed seven pigs in Trial I. In Trial II, differences in average daily gain by pigs fed antibiotics and those fed the nonmedicated diet were not significant, nor were differences among antibiotics (table 11). Pigs fed the various antibiotics were 3 to 9% more efficient in feed utilization than pigs fed the nonmedicated basal diet, with no significant differences among the antibiotics.

During the last two years, we have conducted three trials with 450 finishing pigs evaluating feeding of low levels of antibiotics during the finishing period (125 lbs. to 220 lbs.). In none of our experiments were daily gain or feed efficiency improved significantly. In two of the three trials with pigs under minimal stress (7 pigs/pen), antibiotics during the finishing periods could not be justified economically. In the third trial with 13 pigs per pen (7 sq. ft./pig), improvements in feed efficiency more than justified the cost of the additives. In none of the three trials were there any differences among the various antibiotics evaluated.

Table 10. Performance of Finishing Pigs Fed Various Antibiotics (Trial I)^a

Criteria	Antibiotic				
	None (Control)	Tylan 20g/ton	Stafac 10g/ton	Lincomix 20g/ton	Flavomycin 2g/ton
Daily gain ^b , lbs.	1.48	1.35	1.40	1.47	1.50
Daily feed ^b , lbs.	5.89	5.75	5.77	6.16	6.31
Feed:gain ^b	3.98	4.26	4.12	4.19	4.21

^aEach value is the mean of three pens of seven pigs each. Average initial weight was 119 pounds and an average final weight, 214 pounds. Trial lasted from 9/29 to 12/13, 1978.

^bNo significant ($P < .05$) difference among treatments.

Table 11. Performance of Finishing Pigs Fed Various Antibiotics (Trial II)^a

Criteria	Antibiotic				
	None (Control)	Tylan 20g/ton	Stafac 10g/ton	Lincomix 20g/ton	Flavomycin 2g/ton
Daily gain ^b , lbs.	1.42	1.43	1.54	1.50	1.46
Daily feed ^b , lbs.	5.71	5.53	5.82	5.82	5.31
Feed:gain ^b	4.02	3.87	3.78	3.88	3.64

^aEach value is the mean of three pens of 13 pigs each. Average initial weight was 124 pounds with an average final weight, 210 pounds. Trial was conducted from 2/5 to 4/4, 1979.

^bNo significant ($P < .05$) difference among treatments.