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ERYTHROMYCIN IN PROTEIN SUPPLEMENTS FED FREE-CHOICE TO GROWING-FINISHING SWINE ^{1/}

Richard C. Wahlstrom

In previous work at this station erythromycin had been shown to be an effective antibiotic when fed in complete mixed rations. Other workers have reported that erythromycin is somewhat unpalatable to swine. Therefore this experiment was conducted to study the effect of different levels of erythromycin in protein supplements fed free-choice to growing-finishing swine on growth rate, feed consumption and feed efficiency.

Experimental Plan

The first trial was conducted during the Fall and Winter of 1958-59. Forty weanling pigs averaging approximately 36 pounds were divided as equally as possible into 4 lots of 10 pigs each. During the first 4 weeks 6 pigs were removed because of scours and poor growth and their data are not included. The pigs were fed free-choice shelled yellow corn and a protein supplement. The following levels of erythromycin were added to the supplement: Lot 1 - none; Lot 2 - 25 gms. per ton; Lot 3 - 50 gms. per ton; and Lot 4 - 75 gms. per ton.

The second trial conducted during the summer of 1959 used 12 pigs per lot and 0, 20, 35 and 50 gms. of erythromycin per ton of supplement. The composition of the protein supplements is given in table 1.

Table 1. Composition of Protein Supplements (Percent)

	<u>Trial 1</u>	<u>Trial 2</u>
Soybean oil meal	56.5	62.0
Tankage	19.0	20.0
Dehydrated alfalfa meal	19.0	10.0
Di-calcium phosphate	2.5	4.5
Trace mineral salt	2.5	3.0
B-vitamin supplement	0.5	0.5

Summary of Results

The results of trial 1 are summarized and presented in table 2. The average daily gain is presented for the first 14 and 28 day periods as well as for the entire period to show the initial reduction in gain of pigs fed the supplements containing erythromycin and their adjustment to this initial set-back. For the entire period only Lot 3 which received the 50 grams per ton level showed much increase in gains over the control pigs (1.46 lbs. per day compared to 1.30 lbs. per day).

Although protein supplement consumption was not measured by periods, it was observed that the pigs receiving the supplements containing erythromycin did not consume as much during the first 2 or 3 weeks. However, by market weight there was very little difference in the average amount of supplement

^{1/} Presented at South Dakota State College Swine Field Day, August 28, 1959.

consumed per day. The three antibiotic fed lots all consumed more corn per day than did the control group. Feed efficiency was not consistent between lots.

Table 2. The Effect of Erythromycin in Protein Supplements Fed Free-Choice to Growing-Finishing Swine (Trial 1, Winter '58-'59)

Erythromycin (gms/ton)	<u>Lot 1</u> 0	<u>Lot 2</u> 25	<u>Lot 3</u> 50	<u>Lot 4</u> 75
No. of pigs ^{a/}	7	9	10	8
Av. initial wt., lb.	37.7	35.4	35.5	37.1
Av. final wt., lb.	210.0	196.3	204.4	197.5
Av. daily gain, lb.				
First 14 days	0.87	0.66	0.46	0.31
First 28 days	0.86	0.93	0.87	0.67
Entire period	1.30	1.29	1.46	1.36
Av. daily feed, lb.				
Shelled corn	4.21	4.48	4.34	4.35
Protein supplement	0.69	0.66	0.75	0.66
Total feed	4.90	5.14	5.09	5.01
Feed per cwt. gain, lb.				
Shelled corn	315	345	299	320
Protein supplement	52	51	51	48
Total feed	367	396	350	368

^{a/} Initially 10 pigs per lot. Six pigs removed because of scouring and poor growth.

Table 3 gives the results of trial 2. Again, as in the first trial, gains were lower in the lots receiving the antibiotic during the first few weeks. It appears that this reduction in gain is directly related to protein supplement consumption as these pigs did not eat enough supplement to properly balance their ration during this period. During the last 6 weeks of this trial the pigs receiving the antibiotic supplement have gained slightly faster than the control pigs. However, because of the initial reduction in rate of gain these pigs still are not as heavy as the control pigs.

Protein supplement consumption was reduced in all antibiotic lots during the first 3 weeks. Since that time only Lot 4 (50 grams of erythromycin per ton) appears to have had a consistently lower supplement consumption. Lots 1, 2, and 3 have consumed excessive amounts of supplement during the last 7 weeks.

Table 3. The Effect of Erythromycin in Protein Supplements Fed Free-Choice to Growing-Finishing Swine (Trial 2, June 8 to August 17, 1959)

Erythromycin (gms/ton)	<u>Lot 1</u> 0	<u>Lot 2</u> 20	<u>Lot 3</u> 35	<u>Lot 4</u> 50
No. of pigs	12	12	12	12
Av. initial wt., lb.	37.3	37.5	37.4	37.4
Av. final wt., lb.	143.0	130.6	139.2	129.2
Av. daily gain, lb.				
First 2 weeks	0.74	0.36	0.48	0.31
Second 2 weeks	1.68	1.11	1.49	0.98
Last 6 weeks	1.71	1.73	1.77	1.76
Entire period (10 weeks)	1.51	1.33	1.45	1.31
Protein Supplement per day, lb.				
First week	0.32	0.06	0.08	0.07
Second week	0.48	0.08	0.20	0.08
Third week	1.13	0.20	0.73	0.23
Fourth week	1.80	1.43	1.90	1.15
Av. of period (10 weeks)	1.17	0.90	1.13	0.81