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FURTHER STUDIES OF THE EFFECT OF ANTIBIOTICS IN RATIONS FOR
GROWING-FINISHING SWINE ^{1/}

Richard C. Wahlstrom

The continuous use of antibiotics in swine feeds has raised the question as to whether an antibiotic loses some of its effectiveness when fed continuously. Several new antibiotics or combinations of antibiotics are becoming available. This study was designed to study the effectiveness of some of the newer antibiotics in relation to an antibiotic that has been fed in the South Dakota Station herd for a number of years.

Experimental Plan

Seventy-two spring farrowed pigs were used in this experiment. They were allotted into 12 lots of 6 pigs each on the basis of litter, weight and sex. All lots were self-fed a complete mixed ration in concrete-floored pens. Two lots of pigs received each of the following experimental treatments:

- Lot 1 - Basal
- Lot 2 - Basal plus 20 grams aureomycin per ton
- Lot 3 - Basal plus 10 grams erythromycin per ton
- Lot 4 - Basal plus 50 grams SPS per ton (41.8% streptomycin, 16.4% penicillin, 41.8% sulfaquinoxaline).
- Lot 5 - Basal plus 25 grams Pro-Strep per ton (25% penicillin, 75% streptomycin).
- Lot 6 - Basal plus 26.25 grams antibiotic combination per ton (5 grams aureomycin, 2.5 grams erythromycin, 12.5 grams SPS, 6.25 grams Pro-Strep).

The composition of the basal ration is given in table 1.

Table 1. Composition of Basal Ration

	To approximately <u>110 lbs.</u>	110 lbs. to <u>market weight</u>
Ground yellow corn	81.0(percent)	90.0(percent)
Soybean oil meal	12.5	5.8
Tankage	5.0	2.3
Di-calcium phosphate	0.7	0.7
Limestone	0.2	0.6
Trace mineral salt	0.5	0.5
Vitamin supplement ^{a/}	0.1	0.1

^{a/} Furnished 1 mg. riboflavin, 2 mg. pantothenic acid, 4.5 mg. niacin, 5 mg. choline and 5 mcg. vitamin B₁₂ per pound of ration.

Summary of Results

The data summarized in table 2 show that for the initial period there was an increase in daily gains when each of the antibiotics were fed. This increase ranged from 3 percent for the erythromycin to 14 percent for the antibiotic combination. At the final weigh period the differences in rate of gain had

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

decreased. Heaviest pigs at this time were the pigs receiving the streptomycin-penicillin-sulfaquinoxaline mixture. This lot had a 10.5 percent faster gain than the control lot. The antibiotic combination and Pro-Strep also increased gains during the entire period while erythromycin and aureomycin showed little difference from the controls.

Feed efficiency data were available only for the initial period. All antibiotics increased feed efficiency during this period. Pigs fed Pro-Strep required the least feed, twenty six pounds less feed per hundred weight of gain than the control pigs. Feed savings from the other antibiotics ranged from 5 to 20 pounds per hundred weight of gain.

Table 2. Results of Antibiotics in Growing-Finishing Swine Rations.
(May 13 - August 17, 1958)

Lot No.	1	2	3	4	5	6
Antibiotic ^{a/} Grams per ton	None 0	Aureomycin 20	Erythromycin 10	SPS 50	Pro-Strep 25	Combination 26.25
No. of pigs ^{b/}	12	11	12	12	12	12
Av. initial wt., lb.	31.8	32.0	31.8	31.8	31.7	31.8
Av. final wt., lb.	177.8	177.5	180.2	192.9	183.3	188.9
Av. daily gain, lb.						
To 110 lb.	1.36	1.46	1.40	1.53	1.49	1.55
To Aug. 17	1.53	1.52	1.55	1.69	1.59	1.64
Av. daily feed, lb.						
To 110 lbs.	3.77	3.54	3.60	4.15	3.73	3.97
Av. feed per 100 lb. gain, lb. (To 110 lb.)	276	264	257	271	250	256

^{a/} See experimental plan for explanation of treatment.

^{b/} Two replicates of 6 pigs each per treatment. One pig died in lot 2, data are for 11 pigs.