Low-level Antibiotics in Growing-finishing Swine Rations.

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The new K-State facilities for growing-finishing swine seemed ideal to re-evaluate various antibiotics as low-level feed additives. The first trial reported here was with the first pigs fed in the new barn. They also were the first farrowed in the new farrowing house, and the first raised in the new nursery.

The trials were designed to: (1) compare rations with and without an antibiotic at a low level, (2) various antibiotics and combinations of antibiotics and (3) to determine the need for extra feeder space.

Design and Results

Trial 1:

Fifty weanling pigs, barrows and gilts, (Durocs, Hampshires and Yorkshires) averaging about 60 pounds each were assigned to one of five groups on the basis of breed, sex and weight. Each group was randomly assigned to a ration (pelleted) fed from a two-hole self-feeder.

The trial was December 10, 1968, to March 11, 1969. Each pen was 6' x 15' and was equipped with an automatic waterer. Floors were concrete slats over a pit with circulating fluid. A plywood 4' x 6' pallet was laid in each pen to reduce cold.

Winter weather was severe the first 20 days of the trial. The south side of the building was open. Because weight gains were near zero and eight pigs died from pneumonia (4 on rations S-415; 2 on rations S-415A; 2 on ration S-415B; and 1 on ration S-415C), the open south side was covered with clear plastic and supplementary heat was added. Inside temperatures still fell below freezing quite often.

Trial 2:

Fifty-six weanling pigs, barrows and gilt, averaging about 85 pounds each, (Duroc, Hampshire, Yorkshire and Cross-bred) were divided into 4 similar groups on the basis of breed, sex and weight. Rations, housing and management were as in trial 1 except for feeder space. In two pens one two-hole feeder served 14 pigs. After 36 days the four heaviest pigs were removed from each lot. The trial started April 2 and terminated June 10, 1969.

Summary

Adding a single antibiotic or a mixture of antibiotics at low levels to growing-finishing, pig ration had no significant effect on average daily gain. However, the four lots receiving no antibiotic gained slightly less than lots receiving antibiotics--all in previously unoccupied quarters.

12 pigs eating from one feeder (2 openings) gained almost as fast as 12 pigs eating from two feeders (4 openings). Feed efficiency tended to be improved with 4 feeder openings for 12 pigs.

Table 5. Composition of rations fed in trials 1 and 2 of antibiotic study

Ration no.	S-415	S-415A	S-415B	S-415C
Ground sorghum grain, lbs.	766.5	768.5	768	
44% protein soybean meal, lbs.	200	200	200	200
Ground limestone, lbs.	10	10	10	10
Dicalcium phos., lbs.	14	14	14	14
Salt, lbs.	5	5	5	5
Trace minerals (Z-5) lbs.	1	1	1	1
Vit. D (15,000 I.U./gm) gms.	10	10	10	10
Vit. A (10,000 I.U./gms) gms.	160	160	160	160
B-complex (Merck 1233) gms.*	114	114	114	114
Vit. B_{12} (Proferm 20) gms.	114	114	114	114
Aureo SP-250 gms.	1136	---	---	---
Terramycin-Neomycin, gms.	---	---	---	568
Tylan 10, gms.	---	---	227	---
Total, lbs.	1000	1000	1000	1000
Proximate analyses:**				
Moisture, %	13.3	13.2	14.2	13.3
Crude protein, %	16.8	16.2	17.4	16.1
Ether extract, %	2.7	2.5	2.0	2.2
Crude fiber, %	3.3	3.1	2.5	2.6
Total ash, %	4.7	4.4	4.5	4.2

* Contains 80 gms. of choline chloride; 24 gms. of niacin, 8 gms. of riboflavin and 16 gms. of D-panthothenic acid per lb.

** Courtesy of the Kansas State University grain science and industry analytical laboratory.

Table 6. Performance of pigs in trials 1 and 2 of antibiotic study

Ration No.	S-415	S-415A	S-415B	S-415C
Antibiotic	Aureo SP-250	None	Tylosin	Terramycin Neomycin
Av. daily gain, lbs.*				
Replicate 1	1.39 ± .05**	1.36 ± .06	1.44 ± .05	1.47 ± .07
Replicate 2	1.47 ± .08	1.35 ± .11	-----	-----
Av.	1.43	1.35	-----	-----
Av. daily feed, lbs.				
Replicate 1	4.60	4.34	4.70	4.47
Replicate 2	5.11	4.40	--	--
Av.	4.85	4.37	--	--
Av. feed eff., lbs. feed/lb. gain				
Replicate 1	3.31	3.21	3.17	2.94
Replicate 2	3.38	3.21	--	--
Av.	3.34	3.21	--	--
Trial 2				
Av. daily gain, lbs.***				
1 Feeder	1.67 ± .06[3]	1.63 ± .05	--	--
2 Feeders	1.78 ± .04	1.60 ± .06	--	--
Av.	1.72	1.62	--	--
Av. daily feed, lbs.				
1 Feeder	5.25	4.73	--	--
2 Feeders	5.05	4.53	--	--
Av.	5.15	4.63	--	--
Av. feed eff., lbs. feed/lb. gain				
1 Feeder	3.09	2.90	--	--
2 Feeders	2.84	2.80	--	--
Av.	2.96	2.85	--	--

* Fed to an average live weight of 185 pounds.
** Standard error of the mean.
*** Fed to an average live weight of 200 pounds.