

EXPERIMENT III—Winter, 1953

The Effect of Varying Amounts of Antibiotics (Aureomycin-B₁₂ Supplement) in the Protein Supplement for Swine in the Drylot

C. E. Aubel

The previous experiment, summer, 1952, showed that mixing the antibiotic in the protein supplement at the level of 25-35 pounds to a ton gave significant improvement in the well-doing of growing fattening swine on Sudan grass pasture, but when mixed at a lower level of 15 pounds, no improvement manifested itself over hogs that received no antibiotic in the protein supplement.

An experiment was conducted this past winter with fall pigs in the drylot. It was designed, as was the former experiment, to study the effect of varying amounts of antibiotic added to the protein supplement for pigs in the drylot.

The antibiotic used in this experiment of five lots was aureomycin fed as Aurofac and the following levels were added to the protein supplement:

Lot 1—no antibiotic
Lot 2—15 pounds/ton
Lot 3—25 pounds/ton
Lot 4—30 pounds/ton
Lot 5—40 pounds/ton

The pigs were started at an average weight of 33 pounds and fed free choice in drylot on shelled corn and the same protein supplement as the previous experiment and a similar mineral mixture.

The following table gives a summary of the results of this experiment.

Table 9.—The Effect of Varying Amounts of Antibiotics (Aureomycin-B₁₂ Supplement) in the Protein Supplement for Swine in the Drylot

(December 9, 1952, to March 23, 1953—104 days)

Ration fed	Shelled Protein mixed suppl.	corn, alfalfa Protein mixed suppl., 15 lbs. aureo-B ₁₂ to ton	hay, mineral Protein mixed suppl., 25 lbs. aureo-B ₁₂ to ton	mixture self-fed— Protein mixed suppl., 30 lbs. aureo-B ₁₂ to ton	Protein mixed suppl., 40 lbs. aureo-B ₁₂ to ton
Lot number	1	2	3	4	5
No. pigs in lot	10	10	10	10	10
Av. initial wt./pig	33.30	33.10	31.30	31.90	30.30
Av. final wt./pig	193.70	215.90	207.00	209.50	213.80
Av. total gain/pig	160.40	181.95	175.70	177.60	183.41
Av. daily gain/pig	1.54	1.74	1.72	1.70	1.75
Av. daily ration/pig:					
Corn	4.54	5.01	4.80	4.72	4.78
Protein supplt. ....	.76	.97	1.02	.95	.97
Alfalfa hay .....	.12	.11	.12	.14	.12
Feed consumed/100 lbs. gain:					
Corn	294.57	286.89	284.57	276.46	271.25
Protein supplt.	49.87	55.78	60.61	55.74	55.07
Alfalfa hay .....	.82	.66	.77	.87	.74
Mineral mixture .....	.12	.21	.17	.17	.21

Feed cost/100 lbs. gain \$11.08 \$11.12 \$11.26 \$10.80 \$10.62

Feed prices charged: Shelled corn, \$1.68 per bu.; mixed protein supplements in Lot 1, \$90 per ton; mixed protein supplements with Aurofac in Lot 2, \$95.25, Lot 3, \$98.75, Lot 4, \$100.50 per ton, Lot 5, \$104 per ton; alfalfa hay, \$32 per ton; Aurofac, 35c per lb.; minerals, 3c per lb.

Observations

1. In each case where the antibiotic was added to the ration, a significant improvement in the well-doing of the pigs was observed both in rate of gain and saving of feed per 100 pounds gain, especially the former.

2. The costs of gains were lowest also where the antibiotic was fed at levels of 30 pounds and 40 pounds to the ton.

3. The rates of gain were exceedingly good in all the antibiotic-fed lots. This probably could be explained by the fact that the pigs were started at such an early weight (33 pounds).

4. The same explanation could account for the splendid gains by Lot 2, which received the low level 15 pounds per ton.

5. Again in this experiment, excellent results were obtained when the levels fed were close to the recommended amounts for inclusion in a total feed (5 mg. per pound of feed).

Project 361: Comparison of Antibiotics Implanted Under the Skin and Fed in the Ration of Fattening Pigs

D. Richardson and M. J. Swenson

Certain antibiotics have generally been accepted as beneficial from the standpoint of increased rate of growth and feed efficiency when added to a ration for fattening pigs. The University of Arkansas reported that the subcutaneous implanting of bacitracin in newborn pigs increased their weaning weights. The purpose of this experiment was to observe the results on weaned pigs with antibiotic pellets implanted subcutaneously and to compare these results with pigs receiving a ration with and without antibiotics mixed in the ration.

Experimental Procedure

Twenty-five purebred female Poland-China pigs about 10 weeks of age were divided into five lots of five pigs each. The pigs were self-fed in pens having concrete floors. Water barrels with automatic watering cups were used. Since this experiment was conducted during the summer, the pigs were sprayed with water once a day. The basal ration consisted of 72.5 percent milo grain, 15 percent soybean oil meal, 5 percent alfalfa meal, 5 percent tankage, 2 percent steamed bonemeal, and 5 percent salt. All pigs received this ration. The difference in the various treatments was the kind of antibiotic and how it was given to the pigs. A summary of the treatments and the results is given in the accompanying table.

Table 10.—Results with Antibiotics Implanted and Mixed in Ration

	Basal	Basal and 2000 units bacit. implanted	Basal and 1000 units bacit. and 10000 units penicillin implanted	Basal and 1 lb. penbac ¹ /ton feed	Basal and 3 lbs. Aurofac ² /ton feed
No. pigs per lot	5	5	5	5	5
No. days fed	91	91	91	91	91

Av. initial weight	39.2	42.0	44.0	41.4	43.8
Av. final weight	175.4	184.0	197.0	189.6	195.4
Av. daily gain	1.50	1.56	1.68	1.63	1.67
Feed/100 lbs. gain ..	377	354	364	368	364

(1) Supplied approximately 2.5 mg. bacitracin and .32 mg. penicillin G per pound of feed.

(2) Supplied approximately 5.4 mg. aureomycin HCl per pound of feed.

Observations

1. About two weeks after the pellets containing bacitracin alone were implanted, the pigs showed evidence of toxicity in that they did not eat as well and did not appear as thrifty as the other pigs; however, these symptoms had disappeared by the end of the fifth week. The bacitracin-penicillin pellet did not cause any adverse symptoms.

2. Even though these results indicate that the combination of bacitracin-penicillin pellet may give similar results as when a combination of bacitracin and penicillin or aureomycin is mixed in the feed, it should be kept in mind that a relatively small number of animals were used. Considerably more work should be done before one should recommend the implantation of antibiotic pellets as a general practice in promoting growth.

3. The efficiency of feed utilization was considered good in all lots. There were slight but not significant differences.

4. These results give further proof of the value of milo grain when properly supplemented for fattening swine.

Project 242: Swine Breeding Investigations

Some Studies on Breeding Market Pigs by Crossing Duroc with Beltsville No. 1

C. E. Aubel

There has been much discussion in Kansas as to the desirability of cross-breeding inbred breeds (so-called hybrids) with other breeds. Consequently, a Beltsville No. 1 (Poland x Landrace origin) was secured and matings planned with the Duroc. The purpose was to study the vigor and size of the litter produced and their ultimate performance in the feedlot as compared with purebred Duroc pigs raised under comparable conditions.

In the winter of 1952, nine purebred Duroc sows were mated to a Duroc boar and five Duroc sows were mated to a Beltsville No. 1 boar. The following table gives a summary of the results of this experiment.

Table 11.—Some Studies on Breeding Market Pigs by Crossing
Durocs with a Beltsville No. 1 Boar

Farrowing Data—Spring, 1952

	Purebred Duroc	Beltsville No. 1 x Duroc
Lot number	1	2
No. sows farrowed	9	5
Av. no. pigs/litter	7.6	10.0
Av. birth wt. of pigs	2.4	2.4
Av. strong pigs/litter	6.6	8.4
Av. weak pigs/litter .....	.7	1.0

Av. born dead/litter .....	.1	.6
Av. 5-day wt. pigs in litter	3.4	3.8
Av. 56-day wt. pigs in litter	21.9	26.2
Av. pigs weaned/litter	6.4	8.4

From these data, it is seen that the crossbred pigs farrowed with a better record in almost every respect than did the purebred pigs.

From the pigs farrowed, 20 purebred Duroc pigs and 30 crossbred Beltsville No. 1 x Duroc pigs were selected to be fed out for market. They were fed in separate groups, self-fed corn and tankage on Sudan grass pasture. Their initial weight was 37.35 pounds for the purebred Durocs and 44.6 pounds for the crossbred. The following data show the results of this feeding test.

Table 12.—Some Studies on Breeding Market Pigs by Crossing
(June 18, 1952, to September 26, 1952—100 days)

	Purebred Duroc	Shelled corn, tankage (self-fed on Sudan past.) Beltsville No. 1 x Duroc
Lot number	1	2
Number pigs in lot	20	30
Av. birth wt. of pigs	2.4	2.4
Av. 56-day wt. of pigs	21.9	26.2
Av. initial wt. on feed	37.35	44.60
Av. final wt. on feed	161.35	174.41
Av. total gain/pig	124.00	129.81
Av. daily gain/pig	1.24	1.29
Feed/day/pig:		
Shelled corn	3.88	3.38
Tankage .....	.40	.60
Feed for 100 lb. gain/pig:		
Shelled corn	313.50	261.02
Tankage	32.25	46.22
Cost of gains	\$10.85	\$ 9.90

Feed prices charged: Corn, \$1.68 per bu., tankage, \$90 per ton.

Observations

From these data, it is seen that the purebred pigs at the end of 100 days feeding gained 124 pounds at the rate of 1.24 pounds daily with a feed consumption of 346.7 pounds of feed for 100 pounds gain, while the crossbred pigs gained 130 pounds in the 100 days at the rate of 1.29 pounds per day and a feed consumption per 100 pounds gain of 307.2 pounds. Thus the crossbred pigs fed out a little better than the purebred.

Project 93: Animal Breeding (Guinea Pigs)

Bacitracin Pellet Experiments with Guinea Pigs

L. A. Holland and M. J. Swenson

Two experiments were conducted to determine if bacitracin pellets implanted subcutaneously back of the right ear would stimulate gain