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Experiments conducted during the past few years have shown opaque-2 corn to have a higher nutritional value than normal corn. It is known that a higher content of the essential amino acid lysine is one of the reasons for the increased value of opaque-2 corn when fed to swine. Certain other essential amino acids are also present in higher amounts than in normal corn. It was reported at the 1970 South Dakota State University Swine Field Day (A.S. Series 70-29) that opaque-2 corn could be fed free-choice to growing swine. The experiment reported herein was conducted to obtain further information on feed consumption and performance of growing-finishing pigs fed opaque-2 or normal corn free-choice with two different protein supplements.

Experimental Procedure

Sixty crossbred, female pigs averaging approximately 50 lb. were allotted into 12 lots on the basis of weight and litter. The pigs were housed in inside, concrete-floored pens with access to outside concrete lots where the feeders were located. The experiment was conducted during the winter of 1970-71 from mid-November to early March.

The composition of the protein-mineral-vitamin-antibiotic supplement is shown in table 1. Supplement A was a combination plant and animal protein supplement while supplement B was composed of soybean meal only as the protein source. Protein contents of supplements A and B were 39.5 and 38.0%, respectively. Both supplements contained approximatley 3.35% calcium and 1.9% phosphorus.

Three lots of pigs were randomly assigned to each of the four treatments which were:

1. Normal corn and supplement A free-choice.
2. Opaque-2 corn and supplement A free-choice.
3. Normal corn and supplement B free-choice.
4. Opaque-2 corn and supplement B free-choice.

Results

A summary of the growth and feed data is shown in table 2. There were essentially no differences in rate of gain of any of the treatment groups. Pigs fed opaque-2 or normal corn free-choice gained at an equal rate as did pigs fed supplement A or B.

Considerable variation existed in feed consumption. Difficulty was encountered in adjustment of feeders at a level that feed could be obtained and wastage would not occur. Because of this variation even within treatment groups the differences are not statistically significant. However, there appeared to be a trend toward

reduced consumption of supplement A when pigs were fed opaque-2 corn. This difference was also noted in the previous year's experiment. When the soybean meal supplement (supplement B) was fed, no difference existed in consumption of the two supplements. Total feed consumption was reduced by 1.1 and 0.7 lb. per day when opaque-2 corn was fed free-choice with supplements A and B, respectively, compared to supplement consumption of pigs fed normal corn.

Pigs fed the opaque-2 corn required less feed per unit of gain than those pigs fed the normal corn since both groups gained at an equal rate but those pigs fed opaque-2 corn were consuming less feed.

Summary

Each experimental group in this trial consisted of three lots of 5 weanling pigs. Pigs fed normal or opaque-2 corn and supplement free-choice grew at similar rates. However, those pigs having free access to opaque-2 corn required less feed per gain than pigs fed normal corn free-choice.

There was essentially no difference in daily gain or feed per gain when pigs were fed a supplement composed of both plant and animal protein or a plant protein (soybean meal) source only. Less of the animal-plant protein supplement was consumed by pigs fed opaque-2 corn. All treatment groups did consume somewhat excessive amounts of supplement. However, some wastage also occurred.

Table 1. Composition of Supplements, Percent

Ingredient	Supplement A	Supplement B
Soybean meal, 44%	63.1	86.1
Meat and bone meal, 50%	20.0	--
Dehydrated alfalfa meal, 17%	10.0	--
Dicalcium phosphate	3.0	7.5
Ground limestone	1.0	3.5
Trace mineral salt, 1% zinc	2.5	2.5
Vitamin-antibiotic mix[a]	0.4	0.4

[a] Provided 6,800 I.U. vitamin A, 2,000 I.U. vitamin D, 8 mg. riboflavin, 16 mg. calcium pantothenate, 36 mg. niacin, 40 mg. choline, 20 mcg. vitamin B_{12} and 50 mg. aureomycin per pound.

Table 2. Results of Feeding Opaque-2 Corn Free-Choice to Growing-Finishing Swine

Corn supplement	Normal A	Opaque-2 A	Normal B	Opaque-2 B
Number of pigs[a]	15	15	13	14
Avg. initial wt., lb.	49.8	49.9	50.0	49.9
Avg. final wt., lb.	196.7	193.0	190.8	188.2
Avg. daily gain, lb.	1.45	1.46	1.45	1.41
Avg. feed con./day, lb.				
Corn	3.84	3.58	4.15	3.41
Supplement	1.57	0.73	1.19	1.23
Total	5.41	4.31	5.24	4.64
Avg. feed/gain, lb.	3.73	2.95	3.67	3.29

[a] Three replicated lots of 5 gilts per treatment.