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Corn vs. Sorghum Grain for Growing-Finishing Pigs

R. H. Hines, B. A. Koch, and Gary Cowman

Many Kansas swine growers are quite sure that corn-fed growing-finishing pigs will outperform those fed sorghum grain. Just as many others feel that sorghum grain is equal to corn in swine rations. Most of the time sorghum grain is lower in price per pound than corn.

Research results suggest that corn and sorghum grain are quite similar in chemical composition and in feeding value. Sorghum grain is more variable in crude protein content than corn. One recent comparison between corn and sorghum grain is summarized in this report.

Procedure

Twenty-four weanling pigs (Duroc or Hampshire) averaging near 50 pounds each in weight were divided into 4 similar groups of six pigs each. Breed, sex, and weight were considered in grouping the pigs. The twelve heavier pigs (averaging 46 pounds each) were used in a second replicate.

Each group of six pigs was fed in a pen six feet by eight feet with equal space outdoors. All floors were concrete. No bedding was used. Pigs were hand-watered three times each day. The trial was initiated on December 7.

Each group ate a pelleted ration from a two-hole self feeder. Rations were prepared in the Grain Science and Industry Department. Ration formulations are shown in Table 1. Table two shows ration analyses.

Pigs and feeders were weighed at 14 day intervals until the first pig reached 200 pounds. Thereafter they were weighed weekly. Pigs were slaughtered in the Animal Science & Industry Department meat laboratory when they weighed approximately 210 pounds. Carcass data was collected. Stomachs were also collected and examined for possible ulcers by Dr. D. C. Keeley in the School of Veterinary Medicine.

Results and Discussion

Performance data and carcass data are reported in Table 3. All differences in either performance or carcass measurements were minor. Average daily gain and feed efficiency were both somewhat better in the case of the corn-fed pigs in this particular trial.

It is of interest to note that 9 of the 12 pigs receiving corn showed either active ulcers, or healed ulcers or denuded areas in the stomach. One pig actually died from a perforated stomach ulcer. Only four of the twelve pigs eating sorghum grain showed ulcer symptoms (one healed ulcer, three denuded areas).

Table 1. Composition of Rations

<u>Ingredients</u>	<u>Corn Ration</u>	<u>Sorghum Grain Ration</u>
Yellow corn, lbs.	824	---
Sorghum grain, lbs.	---	824
Soybean meal (50%), lbs.	150	150
Hardy T. M. salt, lbs. ¹	5	5
Merck-MCR-42, lbs. ²	5	5
Calcium Carbonate, lbs.	7.5	7.5
Dicalcium phosphate, lbs.	8.5	8.5
Zinc oxide, gms.	<u>72</u>	<u>72</u>
TOTAL, LBS.	1000	1000

¹ Furnished by Hardy Salt Co., St. Louis, Missouri. Analysis; evaporated salt, 97%; Zn, 0.800%; Co, 0.022%; Mn, 0.400%; Cu, 0.048%; Fe, 0.330% and I, 0.011%.

² Furnished by Merck & Co., Rahway, New Jersey. This premix furnishes the following per ton of complete feed: Vitamin A, 3,000,000 I.U.; Vitamin D, 300,000 I.U.; Riboflavin, 1 gm; Pantothenic acid, 5 gm.; Niacin, 15 gms; Choline, 100 gms.; Vitamin B₁₂, 16 mgm; and antibiotic, 20 gm. (Pro-Strep).

Table 2. Ration analyses as reported by the Grain Science and Industry Department laboratory.

(Average percentages as fed)

	<u>Corn Ration</u>	<u>Sorghum Grain Ration</u>
Moisture	12.8	13.0
Crude Protein	15.0	14.3
Ether Extract	3.1	2.8
Crude fiber	2.5	2.7
Total ash	3.8	3.7

Table 3. Performance data and carcass measurements of pigs on a corn ration or on a sorghum grain ration.

	<u>Corn ration</u>	<u>Sorghum Grain ration</u>
<u>Average initial weight, lbs.</u>		
Rep. 1	58.0	58.2
Rep. 2	44.3	46.8
AV.	50.5	52.5
<u>Average final weight, lbs.</u>		
Rep. 1	209.4	208.7
Rep. 2	211.6	209.5
AV.	210.5	209.1
<u>Average daily gain, lbs.</u>		
Rep. 1	1.56	1.59
Rep. 2	1.70	1.51
AV.	1.63	1.55
<u>Average lbs. of feed per lb. of gain</u>		
Rep. 1	306.2	320.8
Rep. 2	306.4	322.9
AV.	306.3	321.8
<u>Average carcass length, in.</u>		
Rep. 1	28.8	28.4
Rep. 2	29.0	29.1
AV.	28.9	28.8
<u>Average carcass backfat, in.</u>		
Rep. 1	1.20	1.37
Rep. 2	1.27	1.27
AV.	1.24	1.32
<u>Average carcass loin eye area sq. in.</u>		
Rep. 1	5.17	4.99
Rep. 2	4.82	5.02
AV.	5.00	5.00