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## Effects of grain sorghum hybrid on finishing pig performance

### Abstract

Two trials were conducted to compare the feeding value of homozygous and heterozygous yellow endosperm grain sorghum and corn for finishing pigs. Homozygous yellow endosperm grain sorghum had no advantage in feeding value over heterozygous yellow endosperm hybrids ( $P>.05$ ). Finishing hogs fed grain sorghum hybrids did not differ ( $P>.05$ ) in average daily gain, feed intake, or feed efficiency compared to those fed a corn diet.; Swine Day, Manhattan, KS, November 19, 1987

### Keywords

Swine day, 1987; Kansas Agricultural Experiment Station contribution; no. 88-125-S; Report of progress (Kansas State University. Agricultural Experiment Station and Cooperative Extension Service); 528; Swine; Grain sorghum; Finishing pig performance

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**K****S****U****EFFECTS OF GRAIN SORGHUM HYBRID****ON FINISHING PIG PERFORMANCE****G. Goldy, R. H. Hines, and R. D. Goodband**

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**Summary**

Two trials were conducted to compare the feeding value of homozygous and heterozygous yellow endosperm grain sorghum and corn for finishing pigs. Homozygous yellow endosperm grain sorghum had no advantage in feeding value over heterozygous yellow endosperm hybrids ( $P>.05$ ). Finishing hogs fed grain sorghum hybrids did not differ ( $P>.05$ ) in average daily gain, feed intake, or feed efficiency compared to those fed a corn diet.

**Introduction**

The use of yellow endosperm grain sorghum hybrids has increased greatly. Commercial grain sorghum seed companies have claimed superior feeding values for homozygous yellow endosperm hybrids. However, the issue of endosperm type and color has become confused with seedcoat color, since yellow endosperm grain sorghum may be either heterozygous or homozygous for this trait and may have a variety of seedcoat colors.

**Procedures**

In trial 1, 150 crossbred pigs (D-CW-Y) with an average initial weight of 96.1 lb were fed in a 76-day finishing trial. Pigs were randomly allotted by litter, sex, and weight to three replications of five dietary treatments. Grains were ground through a hammer mill equipped with a 3/16 in screen. Pigs were fed ad libitum with self feeders in a partially slatted, modified, open-front finishing unit with 10 pigs (five gilts and five barrows) per pen.

In trial 2, NK 2778 was not included as a dietary treatment. Ninety-six crossbred pigs (D-CW-Y) with an average initial weight of 112.5 lb were fed in an 81-day finishing trial. Pigs were allotted, fed, and housed as described in trial 1, except eight pigs were housed per pen in this trial.

**Results and Discussion**

The characteristics of the four grain sorghum hybrids evaluated in the finishing trials are shown in Table 1. Each of the four grain sorghum hybrids and corn were included at 75.70% of each respective diet (Table 2). Table 3 summarizes the data for the two finishing trials. The average daily gain of the pigs did not differ ( $P>.05$ ) between grain sorghum hybrids and corn. Average daily gains ranged from 1.80 to 1.86 lb. Average daily feed intake did not differ ( $P>.05$ ) between dietary treatments. Feed efficiencies were not statistically different ( $P>.05$ ). It can be concluded from these

data that the grain sorghum hybrids studied have relative feeding values similar to one another and to that of corn.

Table 1. Descriptive Characteristics of Grain Sorghums Studied

Variety	Abbreviation	Color	
		Pericarp	Endosperm <sup>b</sup>
Funk's 550	F 550	white	hetero-yellow
Cargill 70	C 70	red	hetero-yellow
Northrup-King 2778 <sup>a</sup>	NK 2778	red	homo-yellow
DeKalb DK 42Y	DK 42Y	yellow	homo-yellow

<sup>a</sup>Not included in trial 2.

<sup>b</sup>Genotype.

Table 2. Composition of Finishing Diets

Ingredient	%
Grain <sup>a</sup>	75.70
Soybean meal (44%)	20.85
Dicalcium phosphate (21%)P	1.40
Limestone	.95
Salt	.50
Trace mineral premix <sup>b</sup>	.10
Vitamin premix <sup>c</sup>	.25
Antibiotic <sup>d</sup>	.25
	<u>100.00</u>

<sup>a</sup>Corn: F 550, C 70, NK 2778, or DK 42Y grain sorghum.

<sup>b</sup>Containing 5.5% Mn, 10% Fe, 1.1% Cu, 20% Zn, 0.15% I, and 0.1% Co.

<sup>c</sup>Each lb of premix contains the following: vitamin A 4,000,000 IU, vitamin D 30,000 IU, vitamin E 2,000 IU, riboflavin 450 mg, d-pantothenic acid 1,200 mg, choline 40 g, niacin 2,500 mg, vitamin B<sub>12</sub> 2.2 mg, menadione dymethylpyrimidinol bisulfite 250 mg.

<sup>d</sup>Antibiotic contained 100 g chorotetracycline, 100 g sulfamethazine and 50 g penicillin per lb and was fed the first 28 days of the trial.

Table 3. Effects of Grain Sorghum Hybrid on Finishing Pig Performance

Item	Grain Sorghum Hybrids				Corn
	F-550	C-70	DK 42Y	NK 2778	
<u>Avg. da. gain, lb</u>					
Trial 1 <sup>a</sup>	1.93	1.89	1.83	1.86	1.89
Trial 2 <sup>b</sup>	1.78	1.73	1.78	--	1.76
	<u>1.86</u>	<u>1.81</u>	<u>1.80</u>		<u>1.83</u>
<u>Avg. da. feed, lb</u>					
Trial 1	6.58	6.78	6.56	6.69	6.51
Trial 2	7.05	6.82	7.43	--	7.20
	<u>6.85</u>	<u>6.80</u>	<u>6.99</u>	<u>6.69</u>	<u>6.86</u>
<u>Feed/gain</u>					
Trial 1	3.42	3.59	3.57	3.59	3.44
Trial 2	3.97	3.96	4.16	--	4.08
	<u>3.64</u>	<u>3.77</u>	<u>3.86</u>	<u>3.59</u>	<u>3.76</u>

<sup>a</sup>Each mean represents 30 pigs (3 replications of 10 pigs), initial wt. 96 lb, average final wt. 240 lb.

<sup>b</sup>Each means represents 24 pigs (3 replications of 8 pigs), initial wt. 112 lb, average final wt. 255 lb.



Dr. Dave Nichols advises a student on coursework and programs of study.