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## Flaked Corn, Wheat, and Sorghum Grain for Growing Pigs

R. H. Hines and Gary L. Allee

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### Summary

One hundred fifty-three barrows and gilts were used to evaluate flaking of corn, wheat, and sorghum grain for weaned pigs. Flaking increased rate of gain and improved feed efficiency (9 to 10%). Pigs fed corn rations gained significantly faster and were more efficient than pigs fed sorghum grain or wheat; and pigs fed sorghum grain gained faster and were more efficient than pigs fed wheat, regardless of processing method.

### Procedures

One hundred fifty-three Duroc, Yorkshire and Hampshire barrows and gilts were used to study effects of flaking wheat, corn and sorghum grain for growing pigs. Pigs were allotted to treatments to equalize breed, sex and litter.

These 9 treatments were compared: (a) ground wheat; (b) flaked wheat; (c) ground flaked wheat; (d) ground sorghum grain; (e) flaked sorghum grain; (f) ground flaked sorghum grain; (g) ground corn; (h) flaked corn; (i) ground flaked corn. Nine pigs averaging 45 pounds were allotted to each treatment in the first replicate. The second replicate had 8 pigs per treatment with an average initial weight of 40 pounds.

The pigs were housed in the KSU controlled-environment nursery building, each group in a 6' x 11' pen on a floor of four-inch concrete slats with one-inch slots over an oxidation ditch. Pigs in each pen were fed ad libitum from a two-hole self feeder and had access to an automatic watering cup. Room temperature during the 28 day trial was maintained at approximately 72°. Basal rations used for each grain source are shown in table 6. Ground rations were prepared by using a 1/4 inch screen in a hammermill.

### Results and Discussion

The performance data of growing pigs fed corn, wheat, or sorghum grain ground, flaked or ground flaked are shown in table 7. Pigs fed wheat, corn or sorghum grain flaked gained significantly faster than pigs fed any of the grains ground. Flaking corn improved efficiency of gain 10%;



flaking wheat or sorghum grain improved efficiency 9% over grinding.

Pigs fed the corn ration gained significantly faster than those receiving either sorghum grain or wheat, confirming previously reported work here (Swine Industry Day - 1971). Pigs fed flaked rations gained significantly faster than pigs fed either ground flakes or ground rations. Performance of pigs fed ground flakes varied widely between replicated wheat and sorghum grain tests. These rations appeared to be very dusty and powdery which seemed to cause the pigs to root feed from the feeders. Feeders were adjusted daily if necessary, but feed wastage appeared to be highest on ground flakes.

This study indicates that daily gain and feed efficiency can be improved by flaking the grain for growing pigs. Grinding flaked grain resulted in no beneficial effects in performance of growing pigs.

Table 6. Basal Ration for Each Grain Fed Growing Pigs

Ration:			
<u>Ingredient, lbs.</u>	<u>Wheat</u>	<u>Sorghum grain</u>	<u>Corn</u>
Wheat	1560	----	----
Sorghum grain	----	1450	----
Yellow corn	----	----	1450
Soybean meal	340	470	470
Dicalcium phosphate	54	54	54
TNA-290	5	5	5
Trace mineral	1	1	1
Salt	10	10	10
VTM premix <sup>1</sup>	10	10	10
% Crude protein, calc.	17.3	16.9	16.5

1- Each pound of VTM premix contained: Vit. A - 400,000 I. U.; Vit. D<sub>3</sub> - 30,000 I. U.; Riboflavin - 450 mgs.; d-Pantothenic acid - 1200 mgs.; choline chloride - 34,560 mgs.; Niacin - 2500 mgs.; Vit. E - 2,000 I.U.; Vit. B<sub>12</sub> - 2.2 mgs.; BHT - 5.7 grams.

Table 7. Performance of Growing Pigs Fed Corn, Wheat, or Sorghum Grain Ground, Flaked, or Ground Flaked (28 Day Trial)

<u>Grain:</u>	<u>Wheat</u>			<u>Sorghum Grain</u>			<u>Corn</u>		
<u>Process:</u>	<u>Gr.</u>	<u>Fl.</u>	<u>G.Fl.</u>	<u>Gr.</u>	<u>Fl.</u>	<u>G.Fl.</u>	<u>Gr.</u>	<u>Fl.</u>	<u>G.Fl.</u>
<u>Daily gain, lbs.</u>									
Rep. 1	1.19	1.29	1.31	1.40	1.49	1.41	1.46	1.52	1.40
Rep. 2	0.93	1.30	1.27	1.24	1.33	1.15	1.39	1.44	1.43
Average	1.06	1.29	1.29	1.32	1.41	1.28	1.42	1.48	1.42
<u>Feed intake, lbs.</u>									
Rep. 1	3.54	3.50	3.94	3.62	3.82	3.86	3.78	3.62	3.34
Rep. 2	2.92	3.75	3.71	3.23	2.95	2.85	3.15	2.83	3.13
Average	3.23	3.62	3.82	3.42	3.38	3.36	3.46	3.22	3.24
<u>Feed/gain</u>									
Rep. 1	2.98	2.70	3.01	2.58	2.50	2.74	2.59	2.39	2.39
Rep. 2	3.13	2.89	2.93	2.56	2.22	2.48	2.27	1.97	2.19
Average	3.06	2.80	2.97	2.57	2.36	2.61	2.43	2.18	2.29

1- Rep. 1, 9 pigs per treatment, initial wt. 45 lbs.

Rep. 2, 8 pigs per treatment, initial wt. 40 lbs.