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A Study of Lysine and Distillers Dried Grains
With Solubles in Growing-Finishing Swine Rations

Richard C. Wahlstrom and George W. Libal

Previous work at this station showed that distillers dried grains with solubles (DDG/S) could be fed in growing-finishing swine rations at levels up to 10 percent without affecting pig performance (A.S. Series 68-27). It was also shown that a 20% level of DDG/S reduced gains slightly, but its greatest effect was a reduction of feed efficiency. Supplementation of these rations with lysine appeared to be beneficial.

This experiment was conducted to further study the effect of lysine supplementation at two levels in rations containing 20% DDG/S on rate of gain, feed consumption and feed efficiency of growing-finishing swine.

Experimental Procedure

Eighty crossbred weanling pigs averaging approximately 38.6 lb. were allotted, four pigs per pen, into four replicated groups (two of barrows and two of gilts) based on weight, ancestry and sex and then randomly allotted to the five experimental treatments as follows:

1. Corn-soybean meal basal
2. Basal plus 0.1% L-lysine
3. 20% DDG/S ration
4. 20% DDG/S plus 0.15% L-lysine
5. 20% DDG/S plus 0.25% L-lysine

The composition of the rations fed is shown in table 1. Feed and water were provided ad libitum in self-feeders and waterers located in connecting outside pens. The experiment was conducted for 83 days during the severe winter weather of 1968-69.

Results

A summary of the results of this experiment are shown in table 2. Average daily gain was significantly lower and feed conversion significantly poorer when pigs received the 20% DDG/S ration. Supplementation of this ration with lysine significantly improved both rate of gain and feed efficiency; however, the performance did not equal that of pigs fed the corn-soybean meal ration.

There were no benefits in adding lysine to the corn-soybean meal ration or to adding more than 0.15% lysine to the DDG/S ration. These results would indicate that 0.65% lysine is adequate for rations for growing-finishing pigs of this size as the corn-soybean meal ration and the 20% DDG/S ration plus 0.15% lysine both contained 0.65% total lysine.

Barrows gained faster and more efficiently, though not significantly, than gilts. The difference in rate of gain was consistent between treatments and is in agreement with previous work which indicated barrows gain faster than gilts. However, the feed conversion differences were not consistent and may also have been affected by the cold temperatures and the extreme amount of snow during the period of this experiment.

Summary

Weanling pigs averaging 38.6 lb. initially gained significantly faster on significantly less feed when a ration containing 20% distillers dried grains with solubles was supplemented with 0.15% lysine. Additional lysine (0.25%) was of no further benefit. Supplemental lysine added to a corn-soybean meal ration containing 0.65% lysine did not affect rate of gain or feed conversion.

Table 1. Composition of Rations (Percent)

	Basal	20% DDG/S
Ground yellow corn	82.3	71.1
Soybean meal, 50%	15.0	6.4
DDG/S	--	20.0
Limestone	0.7	0.8
Dicalcium phosphate	1.0	0.7
Trace mineral salt (0.8% Zn)	0.5	0.5
Vitamin-antibiotic premix ^a	0.5	0.5

^a Provided 1125 I.U. vitamin A, 340 I.U. vitamin D, 2 mg. riboflavin, 4 mg. calcium pantothenate, 9 mg. niacin, 10 mg. choline chloride, 10 mcg. vitamin B₁₂ and 10 mg. chlortetracycline per lb.

Table 2. Results of Lysine and DDG/S in Swine Rations

	Sex	Av. daily feed, lb.	Av. daily gain, lb.	Av. feed per lb. gain, lb.
Basal ration	M ^a	5.88	1.74	3.39
	F	5.66	1.72	3.29
	Av.	5.77	1.73	3.34
Basal + 0.1% lysine	M	5.70	1.81	3.15
	F	5.60	1.59	3.55
	Av.	5.65	1.70	3.35
20% DDG/S	M	5.31	1.36	3.89
	F	5.29	1.32	3.99
	Av.	5.30	1.34**	3.94*
20% DDG/S + 0.15% lysine	M	5.73	1.65	3.44
	F	5.45	1.55	3.52
	Av.	5.59	1.60	3.48
20% DDG/S + 0.25% lysine	M	5.67	1.67	3.39
	F	5.52	1.53	3.59
	Av.	5.60	1.60	3.49
Barrows		5.66	1.65	3.45
Gilts		5.50	1.54	3.59

^a Two lots of barrows and two of gilts per treatment, 4 pigs per lot; av. initial wt., 38.6 lb.; av. final wt., 171.1 lb.

* Significant (P < .05).

** Significant (P < .01).