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K C. Ferrell

G L. Allee

B A. Koch

See next page for additional authors

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Influence of diet lysine level on performance of finishing barrows and gilts

Abstract

One hundred eighteen barrows and gilts were used to evaluate adding lysine to a 11.2% crude protein, milo-soybean meal ration. Rate of gain was significantly improved ($P < .05$) in both barrows and gilts receiving the higher dietary levels of lysine, but not feed efficiency. Loin-eye area of barrows receiving three levels of lysine was not affected, but loin-eye area of gilts was significantly improved by the addition of lysine to the diet. Carcass length, backfat thickness and ham and loin percentage were not improved in either barrows or gilts. Rate of gain, feed efficiency, and carcass parameters did not differ significantly for pigs fed .65 or .80% lysine.; Swine Day, Manhattan, KS, November, 1973

Keywords

Swine day, 1973; Report of progress (Kansas State University. Agricultural Experiment Station and Cooperative Extension Service); 203; Swine; Lysine; Performance; Finishing barrows; Finishing gilts; Feed efficiency

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Authors

K C. Ferrell, G L. Allee, B A. Koch, and Robert H. Hines

K**Influence of Diet Lysine Level on Performance
of Finishing Barrows and Gilts****S**K. C. Ferrell, R. H. Hines,
Gary L. Allee and B. A. Koch**U**

Summary

One hundred eighteen barrows and gilts were used to evaluate adding lysine to a 11.2% crude protein, milo-soybean meal ration. Rate of gain was significantly improved ($P < .05$) in both barrows and gilts receiving the higher dietary levels of lysine, but not feed efficiency. Loin-eye area of barrows receiving three levels of lysine was not affected, but loin-eye area of gilts was significantly improved by the addition of lysine to the diet. Carcass length, backfat thickness and ham and loin percentage were not improved in either barrows or gilts. Rate of gain, feed efficiency, and carcass parameters did not differ significantly for pigs fed .65 or .80% lysine.

Procedures

Three levels of lysine (0.50, 0.65, 0.80% of diet) were fed to one hundred eighteen barrows and gilts housed in a totally slatted finishing unit. Each 6' X 15' pen contained an automatic waterer and a two-hole self feeder. Pigs were allotted according to breed, sex, and initial weight. The control diet contained 11.2% crude protein and 0.50% lysine (88.3% milo and 8.0% soybean meal-44%). All diets were pelleted, contained the same amounts of milo, soybean meal, minerals, vitamins, and antibiotics. Lysine levels were increased by the addition of synthetic L-lysine·HCl to the control ration.

Carcass data were taken on thirty barrows and thirty gilts: carcass weight, backfat thickness, carcass length, loin-eye area, and ham and loin weight.

Results and Discussion

The performance data of finishing pigs fed one of three levels of lysine are shown in Table 4.1. Barrows fed .80 per cent lysine in the diet gained significantly faster than barrows fed .50 per cent lysine. There was no significant difference in feed efficiency of the barrows fed either .50, .65 or .85 per cent lysine, but trend was toward improved feed efficiency as the lysine level increased. Gilts exhibited the same response as barrows in both rate of gain and feed efficiency.

Table 4.1. Performance of Finishing Pigs Fed Indicated Lysine*

Sex Lysine level,%	Barrows			Gilts		
	.50	.65	.80	.50	.65	.80
No. pigs	20	20	19	20	20	19
Initial wt.(lbs.)	120	119	115	105	101	100
Final wt. (lbs.)	212	214	205	194	201	194
Avg. da. gain (lbs.)	1.38 ^A	1.45 ^{AB}	1.51 ^B	1.21 ^a	1.29 ^{ab}	1.36 ^b
Feed/gain	3.74 ^A	3.53 ^A	3.44 ^A	3.34 ^a	3.30 ^a	3.27 ^a

* By sex, means on the same line with different superscript letters differ significantly (P<.05).

Carcass data of sixty finishing pigs fed one of three levels of lysine are shown in Table 4.2. There were no significant differences in carcass length and loin-eye area of the barrows receiving the three levels of lysine in the diet.

Table 4.2. Carcass Data of Finishing Pigs Fed Indicated Lysine*

Sex Lysine level,%	Barrows			Gilts		
	.50	.65	.80	.50	.65	.80
No. pigs	10	10	10	10	10	10
Carcass length (in.)	30.25 ^A	30.34 ^A	29.97 ^A	30.73 ^a	30.55 ^a	30.56 ^a
Backfat (in.)	1.29 ^B	1.22 ^B	1.42 ^A	1.09 ^a	1.18 ^b	1.15 ^b
Loin-eye area (sq. in.)	4.68 ^A	4.93 ^A	4.47 ^A	4.76 ^a	5.27 ^{ab}	5.53 ^b
% Ham & loin (carc. wt.)	39.79 ^B	41.04 ^A	39.26 ^B	41.64 ^a	42.36 ^a	42.18 ^a

* By sex, means on the same line with different superscript letters differ significantly (P<.05).

Barrows fed the higher levels of lysine yielded leaner carcasses at .65% lysine, but fatter carcasses at .80% lysine. Per cent ham and loin of the carcass followed a similar trend with backfat thickness.

Carcass length and per cent ham and loin of the gilts was not affected by lysine level, although gilts fed the lower level of lysine had slightly less backfat. Gilts fed .80 per cent lysine in the diet had a significantly greater loin-eye area than those fed .50 per cent lysine in the diet.