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Efficacy of feeding finishing-pigs to heavier weights on two protein sequences

Abstract

Eighty-four pigs averaging 75 lbs. were used to evaluate feeding finishing hogs to 230, 260, or 290 lbs. on two protein regimes. Rate of gain declined after the pigs reached 200 lbs. regardless of protein level, which resulted in an increase of approximately 20 to 25 days required for each pen of pigs to average 30 lbs. of gain. Feed costs increased with the increased pounds of feed required per pound of gain for the heavier weights. Pigs fed the lower protein level from 200 lbs. to final weight required more feed per pound of gain, yielded carcasses with slightly more backfat thickness and significantly smaller loin eye areas than pigs fed more protein.; Swine Day, Manhattan, KS, November 11, 1976

Keywords

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Efficacy of Feeding Finishing-Pigs to Heavier Weights on Two Protein Sequences

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Summary

Eighty-four pigs averaging 75 lbs. were used to evaluate feeding finishing hogs to 230, 260, or 290 lbs. on two protein regimes. Rate of gain declined after the pigs reached 200 lbs. regardless of protein level, which resulted in an increase of approximately 20 to 25 days required for each pen of pigs to average 30 lbs. of gain. Feed costs increased with the increased pounds of feed required per pound of gain for the heavier weights. Pigs fed the lower protein level from 200 lbs. to final weight required more feed per pound of gain, yielded carcasses with slightly more backfat thickness and significantly smaller loin eye areas than pigs fed more protein.

Introduction

Market weight of 220 to 240 lbs. for barrows and gilts has been widely used by swine producers for several years. However, recently some industry people have advocated marketing hogs at heavier weights of 260 or 290 lbs. This study evaluated performances of pigs from approximately 75 lbs. to market weights of 230, 260 and 290 lbs. In addition, two levels of dietary protein were fed after pigs reached 200 lbs.

Procedure

Eighty-four Yorkshire pigs averaging 75 lbs. were allotted on the basis of sex and initial weight to 12 pens (2 replications of six treatments). Two protein sequences were evaluated: (A) 16% protein corn-soybean meal fortified diet fed from 75 lbs. to 120 lbs.; switched to 14% protein corn-soy diet to final weight; (B) 16% protein corn-soybean meal fortified diet fed from 75 lbs. to 120 lbs., switched to 14% protein corn-soy diet to 200 lbs. then to 12% corn-soy diet to final weight. Compositions of the diets are shown in table 35. All diets were fed as a pellet.

Pigs were housed in a modified open-fronted building with concrete, slatted floors. Each pen (6' x 15') contained a two hole self feeder with an automatic watering cup. Catalytic heaters provided supplemental heat.

Seven barrows were randomly selected from each treatment group for carcass data. Barrows were removed from experimental pens for slaughter as they individually reached their designated final weight.

Results and Discussion

Performances of the pigs from 75 to 200 lbs. are summarized in table 36. All pigs were started on the 16% diet at 75 lbs. and switched to the 14% diet at 120 lbs. Performances for all pigs were quite similar with an average daily gain of 1.74 lb. Feed-per-lb. of gain averaged 2.94 and feed costs-per-lb.-of-gain, 21.5¢.

Table 35. Composition of diets.

Protein Level, %	16	14	12
Ingredient, lbs/ton			
Gd. yellow corn	1512	1618	1732
Soybean meal (44%)	420	314	200
Dicalcium phosphate	18	18	18
Limestone	20	20	20
Salt	10	10	10
VATM-premix[abc]	20	20	20
Calc. Analysis:			
Protein, %	16.0	14.0	12.0
Ca, %	.62	.60	.58
P, %	.54	.52	.50
Lysine, %	.75	.60	.45

[a]Provided per ton of complete diet: Vit. A, 4,000,000 IU; Vit. D 300,000 IU; Vit. E, 20,000 IU; Riboflavin, 45 g; Niacin, 25 g; pantothenic acid, 12 g; Vit. B , 22 mg.

[b]Trace mineral in complete diet (ppm): Zinc, 100; iron, 100; manganese, 100; copper, 10; iodine, 3; cobalt, 1.

[c]Antibiotic - provided 40 g of tylan per ton.

Table 36. Performance of finishing pigs from 75 to 200 lbs.[a]

Final weight:	230		260		290	
Protein sequence:[c]	A	B	A	B	A	B
Avg. da. gain, lbs.	1.73	1.68	1.81	1.78	1.68	1.74
Avg. da. feed, lbs.	5.08	5.00	5.31	5.25	4.99	5.09
Feed/gain	2.94	2.98	2.93	2.96	2.96	2.92
Feed Cost/ lb. gain[b]	21.5¢	21.8¢	21.4¢	21.6¢	21.6¢	21.3¢

[a]Avg. of two replicates, seven pigs per replicate.

[b]Avg. feed price - 7.3¢/lb.

[c]All pigs received the same rations between 75 and 200 lbs.

Table 37 summarized overall performances of the pigs by treatment to designated final weights. Decreases in average daily gain are noted by comparing gain in tables 36 & 37. Reducing dietary protein to 12% tended to increase feed required per pound of gain with mixed results for rate of gain. Days on test increased approximately 25 for pigs fed to 257 lbs. instead of 230 lbs. average. Another 15 days were required for those pigs fed to 275 lbs. average. Pigs fed to 275 lbs. required an average of 40 days to develop the additional 45 lbs.

Feet and leg problems were minimal up to approximately 200 lbs. However, as the pigs became heavier, they seemed to continually develop more difficulty in movement which undoubtedly affected their performance. Leg abrasions were more apparent on the heavier pigs.

Table 38 summarizes the effect of slaughter weight on carcass traits. Backfat thickness increased approximately .1 inch with each 30 lbs. of increased weight. Carcass length also increased with each 30 lbs. of increased weight. Loin eye area was similar for hogs slaughtered at 260 and 290 and significantly larger than from 230 lb. barrows. Percentages of lean cuts and ham-loin on a carcass basis did not differ significantly by weights of carcasses. Table 39 summarizes protein sequence effects on carcass measurements.

Feed cost per lb. of gain increased approximately 2¢ per lb. for overall gain as hogs were carried to each 30 lbs. heavier weight. Feed cost per lb. of gain was approximately 37¢ per lb. for each lb. above 200 lbs. for the hogs fed to the two heavier weights. Feed cost for the lighter hogs gaining from 200 to 230 lbs. was approximately 30¢ per lb. of gain.

Table 37. Effect of protein sequence and slaughter weight on performance parameters (overall)[b].

Final wt.:	230		260		290	
Protein seq.[a]	A	B	A	B	A	B
Avg. final wt.						
Rep 1	231.8	229.6	260.8	257.0	270.7	273.3
Rep 2	232.6	228.0	254.1	257.9	270.3	288.4
	231.7	228.8	257.4	257.5	270.5	280.8
Avg. da. gain						
Rep 1	1.56	1.43	1.38	1.41	1.37	1.22
Rep 2	1.54	1.46	1.50	1.47	1.33	1.47
	1.55	1.44	1.44	1.44	1.35	1.34
Avg. da. feed						
Rep 1	5.00	4.81	4.99	5.10	5.20	4.76
Rep 2	4.61	4.69	4.98	4.78	4.72	5.27
	4.80	4.75	4.98	4.94	4.96	5.01
Feed/gain						
Rep 1	3.21	3.36	3.60	3.60	3.79	3.90
Rep 2	2.98	3.22	3.33	3.50	3.55	3.58
	3.10	3.29	3.46	3.55	3.67	3.74
Days on feed						
Rep 1	95.8	102.8	128.6	125.7	137.6	133.4
Rep 2	109.8	108.0	123.4	134.5	153.2	148.1
	102.8	105.4	126.0	130.1	145.4	140.8
Feed cost/lb. gain[c]	22.6	23.8	25.3	25.6	26.8	27.0

[a]Protein Sequence - A - 16% protein diet to 120 lbs., 14% protein diet from 120 to slaughter weight.
B - 15% protein diet to 120 lbs., 14% protein diet from 120 to 200 lbs., 12% protein diet from 200 lbs. to slaughter weight.

[b]Seven pigs per pen.

[c]Ration costs - 7.3¢/lb. for 14% ration, 7.1¢ for 12% ration.

Table 39. Effect of protein sequence on carcass data of pigs slaughtered at different final wts.

Final wt., lbs.	230		260		290	
Protein sequence	A	B	A	B	A	B
Final wt., lbs.	233.7	233.3	259.0	259.3	289.7	284.8
Dress %	73.0	73.2	74.4	75.6	73.4	72.7
Backfat, in.	1.22	1.28	1.33	1.34	1.37	1.47
Length, in.	31.3	31.7	32.4	32.6	32.8	33.4
Loin eye, sq. in.	5.30	5.26	6.25	5.70	6.20	5.59
Ham-loin, %	41.0	40.9	41.5	40.7	40.6	40.4
Lean cuts, %	60.2	59.4	60.1	59.2	59.9	58.8

Table 38. Effect of slaughter weight on carcass traits at designated weights.

Final weight, lbs.	230	260	290
No. pigs	14	14	14
Avg. sl. wt.	233.5	259.1	287.3
Dressing %	73.1	75.0	73.1
Backfat	1.25[a]	13.4[ab]	1.42[b]
Length	31.5[a]	32.5[ab]	33.1[b]
Loin eye	5.28[a]	5.98[b]	5.89[b]
% H-L	40.9	41.1	40.5
% Lean cuts	59.8	59.7	59.3

[ab]Means with different superscripts differ significantly ($P<.05$).