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Meal-time vs ad libitum feeding of finishing swine (feeder comparisons)

Abstract

Three feeding trials using 480 finishing pigs were conducted to evaluate meal time feeding versus ad libitum feeding. Growth rate and feed required per pound of gain were similar for all treatments. Carcass characteristics, except for backfat thickness, were similar for meal and ad libitum-fed pigs. Pigs fed ad libitum did have significantly more backfat (1.23 vs 1.01 inches) than the meal-fed pigs. Growth rate and feed efficiency were similar when rectangular feeders were compared with oval feeders for ad libitum feeding of finishing pigs.; Swine Day, Manhattan, KS, November 10, 1983

Keywords

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MEAL-TIME VS AD LIBITUM FEEDING
OF FINISHING SWINE (FEEDER COMPARISONS)

Robert H. Hines & Jose Vargas Vargas

Summary

Three feeding trials using 480 finishing pigs were conducted to evaluate meal time feeding versus ad libitum feeding. Growth rate and feed required per pound of gain were similar for all treatments. Carcass characteristics, except for backfat thickness, were similar for meal and ad libitum-fed pigs. Pigs fed ad libitum did have significantly more backfat (1.23 vs 1.01 inches) than the meal-fed pigs. Growth rate and feed efficiency were similar when rectangular feeders were compared with oval feeders for ad libitum feeding of finishing pigs.

Introduction

Ad libitum feeding of growing-finishing swine is the most commonly used system of feeding by swine producers. Meal-time feeding was introduced by Chore-Time Equipment, Inc. a few years ago to offer an alternative to ad lib feeding. These studies evaluate programmed meal-time feeding versus ad libitum feeding using both a rectangular feeder (Pride of the Farm) and an oval feeder (Osborne).

Experimental Procedure

Three trials were conducted to evaluate two ad libitum feeders and a meal-time feeder. One hundred and sixty finishing pigs were allotted by weight, litter, and sex to the following treatments for each trial.

Treatment A - Chore-Time Feeder, pigs fed two 3-hour periods. Water availability was programmed for four 3-hour periods with two of these periods during feeding (4 replicates per trial).

Treatment B - Rectangular 2 hole feeder (Pride of the Farm) - 2 per pen ad libitum feed and water (2 replicates per trial).

Treatment C - Oval feeder (Osborne) - ad libitum feed and water (2 replicates per trial).

Pigs were housed 20 per pen in the KSU finishing barn. In trials 1 and 2, the pigs were on a concrete slatted floor (100%); whereas in trial 3 the pens were 50% concrete slats with the remainder of the pen solid concrete. Each pen was 12' x 15' with 2 nipple waterers for those pigs receiving water ad libitum. The diet used for all three treatments was a sorghum grain - soybean meal fortified diet that had a calculated analysis of 15.1% crude protein, .80% calcium, and .70% phosphorous.

Water intake was determined in trial 2 for one group of meal-time fed pigs

and one group of ad libitum-fed pigs. Also in trial 2, 18 barrows were selected randomly from each feeding group for determination of carcass characteristics. Characteristics evaluated were length, loin eye, backfat, 10th rib fat, percent lean cuts and percent muscle.

In trial 4, rectangular and oval feeders were further evaluated for ad libitum fed pigs. One hundred and twenty-eight pigs were allotted by sex, weight and litter to the two treatments with 8 replicates. In addition to pig performance, in this trial the number of times the feeders needed adjusting and time spent to adjust the feeder were recorded.

Table 1. Performance of Finishing Pigs Fed Ad-Lib or Meals

Trait:	Avg.da.gain, lbs.	Avg.da.feed int., lbs.	Feed/gain
<u>Trial 1^x</u>			
Meal Time (4 pens)	1.88	6.08	3.22 ^b
Ad lib, rect. (2 pens)	1.90	5.89	3.10 ^a
Ad lib, oval (2 pens)	1.86	5.79	3.10 ^a
<u>Trial 2^y</u>			
Meal Time (4 pens)	1.54	5.32	3.43
Ad-lib, rect. (2 pens)	1.56	5.44	3.48
Ad-lib, oval (2 pens)	1.54	5.32	3.44
<u>Trial 3^z</u>			
Meal Time (4 pens)	1.48	5.68	3.84
Ad-lib, rect. (2 pens)	1.50	5.85	3.90
Ad-lib, oval (2 pens)	1.51	5.92	3.93
<u>Summary-3 Trials:</u>			
Meal Time (12 pens)	1.63	5.69	3.50
Ad-lib (12 pens)	1.64	5.70	3.49

^x20 pigs per pen, int. wt. 119 lbs., final wt. 236 lbs., 62 day trial

^y20 pigs per pen, int. wt. 116 lbs., final wt. 220 lbs., 68 day trial

^z20 pigs per pen, int. wt. 118 lbs., final wt. 205 lbs., 58 day trial

Table 2. Carcass Characteristics of Pigs Fed Ad Lib or Meal (Trial 2)

Type feeding	Meal	Ad-Lib
Carcass Data:		
Length, in.	32.2	31.7
Backfat, in.	1.01	1.23*
10th Rib fat, in.	1.03	1.07
Loin eye, sq. in.	4.25	4.40
Lean cut, %	59.6	58.2
Muscle, %	52.0	52.2

*P=.03

Table 3. Effect of Feeder-Type on Performance of Growing-Finishing Pigs

Item	Feeder Type	
	Rectangular	Oval
No. Pigs	64	64
No. Pens	8	8
Avg. int. wt., lbs.	85.0	84.4
Avg. final wt., lbs.	217.9	213.0
Avg. da. gain, lbs.	1.58	1.53
Avg. da. feed int., lbs.	4.63*	5.00
Feed/gain	2.93	3.09

P=.02

Results and Discussion

Table 1 presents the performance of finishing pigs fed with meal-time feeders or ad libitum feeding using two types of feeders. In trial 1 all pigs grew at the same rate, however those pigs being fed with meal-time feeders were 4% less efficient than pigs fed ad libitum. The pigs fed with meal feeders consumed slightly more feed per day, however the increased intake did not improve rate of gain.

In trial 2, all pigs performed similarly, regardless of the treatment. Water intake data also was recorded during this trial. Those pigs having access to water ad libitum used 2.01 gallons per pig per day or a water/feed ratio of 3.15 lbs. of water per lb. of feed consumed. The meal-fed pigs consumed only 1.12 gallons pig per day with a water/feed ratio of 1.76. This difference in water intake did not affect growth rate or feed efficiency. Trial 2 was conducted during the hotter months of June, July and August which probably resulted in some water loss due to playing with the nipples in the ad libitum pen.

Measurements of carcasses (table 2) showed no significant differences in carcass length, loin eye, 10th rib fat, and percent lean cuts or muscle due to treatment. However, backfat thickness was significantly greater (.22 in) for those pigs fed ad libitum.

In trial 3, the performance of all treatment groups was similar. Meal fed pigs consumed slightly less feed per pig, however equal growth rate still was maintained.

Summarizing the three trials involving meal feeding and ad libitum feeding, the performance of pigs was not improved nor was the lbs. of feed required per lb. of gain. It should be mentioned that ad libitum feeders were kept in excellent adjustment to minimize feed wastage.

Rectangular and oval feeders were compared in trial 4 (table C). Pigs using the rectangular 2-hole feeders grew slightly faster and were approximately 5% more efficient. The eight rectangular feeders required a total of nine adjustments (1.1/feeder) during the trial and the oval feeders required 22 adjustments (2.8/feeder). The average time spent per feeder was .6 and 1.9 minutes, respectively. Both feeder types were monitored closely to minimize wastage.