

Limited Feeding for Growing-finishing Swine (Project 110).

B. A. Koch

Limiting daily feed intake during the last half of the growing-finishing period is a possible way to improve carcass characteristics of market pigs.

A review of limited feeding trials conducted here and elsewhere leads to these conclusions regarding limited feeding:

1. It reduces growth rate.
2. Reduces excess backfat but its effect on meaty hogs is questionable.
3. Requires 10 to 30 days extra feeding.
4. Requires feeding in small groups.
5. May or may not improve feed efficiency.
6. May produce a softer carcass.

The study reported below compared limited feeding with full feeding, and dry feeding with wet feeding.

Experimental Procedure

Thirty-two growing pigs (Poland Chinas, Durocs, and crossbreds), both barrows and gilts, that averaged nearly 100 pounds, were divided into eight groups of four pigs each. Each group of four pigs was housed and fed in a 6- x 16-foot pen, half of which was under roof. All pigs were watered in a trough three times a day. Four groups ate ad libitum from two-hole self-feeders and four groups were hand fed twice a day. All rations were pelleted. Two of the hand-fed groups ate off the floor. An equal amount of feed was soaked in water and fed to the other two groups in a trough twice each day. Feed was limited to 4 pounds per pig per day until the pigs weighed approximately 150 pounds, then it was increased to 5 pounds per pig per day. Feed was increased to 6 pounds per day when pigs weighed approximately 180 pounds. It was held at that level until they went to market. The four hand-fed groups and two of the self-fed groups were fed ration 35-D (See Table 21). The other two self-fed groups received ration 35-E (See Table 24).

Performance of the various groups is summarized by feeding method in Table 24.

Observations

Self-fed pigs gained considerably faster than limit-fed pigs. Limit-fed pigs made more efficient use of feed than self-fed pigs. Carcass differences were very slight at slaughter.

There was no difference in performance of pigs limit-fed dry on the floor and those limit-fed gruel in a trough. Teeth were checked and there was no evidence of excessive wear from eating off the floor.

Table 24
Self-feeding compared with limited feeding of growing-finishing pigs.

Method	Self-fed	Limited-Dry	Limited-Wet	Self-fed
Ration no. ¹	35-D	35-D	35-D	35-E
No. of pigs	8	8	8	8
Av. on-test wt., lbs.	110	108	112	111
Av. off-test wt., lbs.	212	204	205	209
Av. daily gain, lbs.	1.73	1.59	1.46	1.71
Standard error	±.07	±.08	±.05	±.10
Av. feed eff., lbs.	3.10	3.05	3.15	3.31
U.S.D.A. carcass grades:				
U.S. Choice No. 1	7	6	7	7
U.S. Medium	1	2	1	1

1. See Table 18 for ration formulation.

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Slotted Floors for Swine

B. A. Koch

Slotted floors in all phases of swine production are being widely investigated. Confining pigs on a slotted floor is not a new idea. However, we need to know more about how best to use slotted floors.

Experimental Procedure

A 12- by 20-foot portable unit with a partially slotted floor is being used here to study pig performance. The unit consists of 96 square feet of solid floor (under roof) and 144 square feet of commercial slotted floor (uncovered).

Twenty-six head of Durocs, Polands, and crossbreds averaging 62 pounds were started on test February 23, 1963. The pigs had access to two three-hole, fence-line self-feeders and a kerosene-heated, 80-gallon waterer (all on the slotted floor). They ate a complete pelleted ration (ration 35-A, Table 24).

Observations

Performance data are summarized in Table 25. The pigs were self-fed 72 days. Pigs preferred to eat from the feeder parallel with the slots. All manure fell through the slotted floor. No labor was used for cleaning. Pigs stayed clean. Feet and legs were no more unsound than one would expect on concrete floors. Wasted feed was held to a minimum by careful adjustment of feeders. Wasted feed was lost because it fell through the floor. Manure accumulated beneath the floor with a minimum of odor. After the pigs were removed, the unit was moved. Manure was then loaded with a power scoop.

Table 25
Performance of pigs on portable slotted floor, February 23, 1963, to May 6, 1963—72 days.

No. of pigs	26
Av. on-test wt., lbs.	62.4
Av. off-test wt., lbs.	196.1
Av. daily gain, lbs.	1.86
Standard error	±.03
Av. feed efficiency, lbs.	3.05
Av. age off test, days	155

Processing Sorghum Grain for Growing-finishing Pigs.

B. A. Koch and C. W. Deyoe

Sorghum grain can be processed several ways for growing-finishing swine. Trials conducted in cooperation with the Department of Flour and Feed Milling Industries were designed to determine the preparation pigs preferred and how the pigs performed when limited to one preparation.

Experimental Procedure

Six different preparations of R.S. 610 hybrid grain sorghum were offered 10 pigs during a 118-day feeding period. Pigs ate the preparation of their choice. Feeders were moved every third day to minimize position effects.

The pigs had access to an electrically heated, automatic waterer. They ate protein supplement 49-A (see Table 18) free choice from a seventh

1. Department of Flour and Feed Milling Industries, K.S.U.

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self-feeder. The waterer and all feeders were under roof in an open-front shed. Each pig had approximately 30 square feet of floor area, two thirds of which was under roof.

The six preparations were (1) whole grain; (2) dry rolled grain; (3) dry rolled and pelleted grain; (4) steam rolled grain; (5) steam conditioned, rolled grain and (6) fine ground grain.

At the same time five groups of pigs were each given only one preparation throughout the growing-finishing period. Preparations used were the same as the first three above, a complete ration in meal form and a complete ration in pellet form. The pigs eating preparations (1), (2), and (3) ate protein supplement 49-A (see Table 18) free choice. The complete rations were 80 percent dry rolled sorghum grain and 20 percent protein supplement 49-A.

These pigs were housed in 7- x 28-foot pens with 16 feet under the roof of an open-front building. Water was available from automatic, electrically heated waterers. Each pen contained a three-hole, fence-line feeder. Pigs eating free choice had supplement available at one feeder opening and grain at the other two. Pigs eating a complete ration had the ration available at all three openings.

Observations

Results of the preference study are summarized in Table 26. The pigs definitely preferred whole grain or dry rolled pelleted grain over all other preparations, with no definite preference between the two preparations. They consumed very little of any of the other preparations.

Results of the performance part of the study are summarized in Table 27. Average daily gains of pigs eating various preparations did not differ significantly. The amount of grain required to produce 100 pounds of gain differed among the three groups on grain and supplement free

Table 26
Consumption of various sorghum grain preparations during a 118-day preference trial.

Preparation	Total lbs.	Days	Lbs. per day
Whole grain	2213	118	18.75
Dry rolled	7	118	0.06
Rolled and pelleted	2298	118	19.47
Steam rolled	8	118	0.07
Steam conditioned, rolled	12	118	0.10
Fine ground	9	118	0.07

Table 27
Performance of pigs limited to one sorghum grain preparation.

Ration preparation	No. of pigs	Av. gain, lbs. per day	Grain + supplement, lbs. per 100 lbs. gain	Feed cost 100 lbs. gain ²
Whole grain	10	1.43 ± .04 ¹	310 + 55	\$8.12
Dry rolled	10	1.50 ± .07	285 + 58	7.82
Rolled and pelleted	10	1.41 ± .10	273 + 56	7.51
Complete ration (meal) ³ ..	10	1.48 ± .08	298 + 72	8.95
Complete ration (pelleted) ³	10	1.53 ± .06	246 + 62	7.95

1. Ingredient and processing costs: sorghum grain, \$1.77 per cwt.; protein supplement, \$4.79 per cwt.; rolled grain, 20 cents per cwt.; pelleting, 10 cents per cwt.

2. Standard error of mean.

3. 80% dry rolled grain + 20% protein supplement.

choice. However, supplement intakes were very similar for the three groups. Pigs eating a complete ration were forced to eat a particular ratio of grain and supplement. Pigs eating a complete pelleted ration were much more efficient gainers than those eating a complete meal ration.

Kansas Swine Improvement Association Testing Station

B. A. Koch and W. A. Moyer

Eleven Kansas swine producers had 27 pens of barrows and gilts on test during the summer of 1963. It was necessary to send most of the pigs to Maurer-Neuer Meat Packers in Arkansas City for slaughter because our refrigeration facilities failed. Some carcass data were lost. Table 28 summarizes performance and carcass data collected.

Two litter-mate pigs were fed in each pen. The pigs received ration S-35-A (Table 18) throughout the testing period. Average testing cost per pig was \$29; average return per carcass, \$32. Sixteen of the 54 pigs that started on test met certification requirements.

Nine Kansas producers had 14 pens of barrows and gilts on test during the fall and winter of 1963-64. Another producer had a pen of 15 animals on test under the rules of the Superior Meat Sire (SMS) program. Tables 29 and 30 summarize performance and carcass data collected.

Two litter-mate pigs were fed in each pen as before. The pigs received rations S-35-D (Table 18). Average testing cost per pig was \$35; average return per carcass, \$32. Ten of the 20 pigs in the 14 test pens and 9 of those in the SMS pen met or exceeded purebred breed association certification standards.