

**The Maximum Value of Alfalfa Meal in Protein Supplements for Pigs on Pasture.**

**PROJECT 110, Test II**

**C. E. Aubel**

Pastures for swine are often poor, inadequate, or unavailable in Kansas. There is a growing appreciation of the value of alfalfa hay or meal in the rations of all swine and brood sows as well as pigs being fed for market. This test was to secure information on the maximum quantity of alfalfa meal that could be used in protein supplement mixtures for pigs on summer pastures and the quantity of alfalfa meal that could be substituted for pasture.

In this test three lots of pigs on sudangrass pasture were self-fed shelled corn and a mixed protein supplement, with varying quantities of alfalfa meal. One group was fed in the dry lot with a large quantity of alfalfa meal in the protein supplement, to ascertain whether or not alfalfa meal thus fed could replace green pasture.

Lot 1 received no alfalfa meal, but a mixed protein supplement of 5 parts tankage, 4 parts soybean meal, and 1 part cottonseed meal.

Lot 2 received 4 parts tankage, 4 parts soybean meal, 1 part cottonseed meal, and 1 part alfalfa meal.

Lot 3 received 4 parts tankage, 4 parts soybean meal, and 2 parts alfalfa meal.

Lot 4, in the dry lot, received 4 parts tankage, 4 parts soybean meal, and 3 parts alfalfa meal.

Results are shown in Table 19.

**Table 19.—The maximum value of alfalfa meal in protein supplements for pigs on pasture.**

(June 12, 1954-September 9, 1954—89 days)

Ration fed	Shelled corn, sudangrass pasture, mixed protein suppl.			Shelled corn, mixed protein suppl. in dry lot
	5 parts tankage, 4 parts S.B.M., 1 part C.S.M.	4 parts tankage, 4 parts S.B.M., 1 part alf. meal, 1 part C.S.M.	4 parts tankage, 4 parts S.B.M., 2 parts alf. meal	4 parts tankage, 4 parts S.B.M., 3 parts alf. meal
Lot number .....	1	2	3	4
No. pigs in lot .....	9	10	10	8
Av. initial wt. per pig, lbs. ....	58.11	55.40	55.50	56.12
Av. final wt. per pig, lbs. ....	192.55	195.00	188.10	199.37
Av. total gain per pig, lbs. ....	134.44	139.60	132.60	143.25
Av. daily gain per pig, lbs. ....	1.51	1.56	1.49	1.60
Av. daily ration per pig:				
Shelled corn, lbs. ....	4.33	4.19	4.01	4.50
Protein supplt., lb. ....	.50	.72	.65	.77
Feed per 100 lbs. gain per pig:				
Shelled corn, lbs. ....	286.78	267.55	269.68	280.10
Protein supplt., lbs. ....	33.47	46.20	43.96	47.99

**Observations**

1. The Lot 2 pigs receiving the mixed protein supplement of 4 parts tankage, 4 parts soybean meal, 1 part cottonseed meal, and 1 part alfalfa meal made the best gains of pigs on pasture. Lot 3 pigs receive

ing 2 parts alfalfa meal made about the same gains as the Lot 1 pigs that received no alfalfa meal. Best gains of all were made by Lot 4, pigs in the dry lot that received the largest amount of alfalfa meal. They gained 1.60 pounds per day. The pigs in this lot also consumed daily more feed than the others and required more feed per 100 pounds gain. Thus the gains were more expensive in dry lot than on pasture.

2. The test indicates that the quantity of alfalfa meal that can be fed to pigs on pasture, without affecting their gains, is limited. However, economical gains can be produced using large quantities of alfalfa meal.

**Varying Amounts of Alfalfa Meal in the Rations of Spring Pigs and in Dry Lot.**

**PROJECT 110, Test III**

**C. E. Aubel**

Summer of 1954 test with spring pigs was to get information on the maximum use of alfalfa meal in protein supplemental mixtures for pigs in the dry lot.

Four lots of pigs were self-fed shelled corn and a mixed protein supplement.

Lot 1 pigs were fed sudangrass pasture and self-fed a protein supplement of 4 parts tankage, 4 parts soybean meal, 1 part cottonseed meal, and 1 part alfalfa meal.

Lot 2 received the same protein supplement as Lot 1 for 38 days or until the pigs weighed 100 pounds. They were then removed from the pasture and put into a dry lot and fed a protein supplement of equal parts tankage and alfalfa meal until the close of the experiment, when they weighed 197 pounds.

Lot 3 was fed in the dry lot the entire feeding period on a protein mixture of 4 parts tankage, 4 parts soybean meal, and 3 parts alfalfa meal.

Lot 4 was fed in the dry lot the entire feeding period with an increased alfalfa meal allowance, a protein supplement mixture of 5 parts tankage, and 5 parts alfalfa meal.

Results are given in Table 20.

**Table 20.—Varying amounts of alfalfa meal in the rations of spring pigs in the dry lot.**

(June 12, 1954-September 9, 1954—89 days)

Lot number .....	Shelled corn, sudangrass past., mixed prot. suppl.		Shelled corn, mixed prot. suppl. in dry lot		
	4 parts tankage, 4 parts S.B.M., 1 part C.S.M., 1 part alf. meal	4 parts tankage, 4 parts S.B.M., 1 part C.S.M., 1 part alf. meal	5 parts tankage, 5 parts alf. meal	4 parts tankage, 4 parts S.B.M., 3 parts alf. meal	5 parts tankage, 5 parts alf. meal
Lot number .....	1	2	2	3	4
		(June 12- July 20— 38 days)	(July 20- Sept. 9— 51 days)		
No. pigs in lot .....	10	10	10	8	9
Av. initial wt. per pig, lbs. ....	55.40	56.60	99.50	56.12	57.22
Av. final wt. per pig, lbs. ....	195.00	99.50	196.88	199.37	179.44

Table 20 (Continued).

Av. total gain per pig, lbs. ....	139.60	42.90	97.38	143.25	122.22
Total gain, Lot 2—entire period .....		140.28			
Av. daily gain per pig, lbs. ....	1.56	1.12	1.90	1.60	1.37
Av. daily gain per pig, lbs., Lot 2—entire period .....		1.57			
Av. daily ration per pig:					
Shelled corn, lbs.	4.19	3.15	4.98	4.50	4.17
Protein supplt., lb. ....	.72	.39	.75	.77	.74
Feed per 100 lbs. gain per pig:					
Shelled corn, lbs.	267.55	279.72	261.24	280.10	303.64
Protein supplt., lbs. ....	46.20	34.96	39.43	47.99	51.73
Feed per 100 lbs. gain per pig: (Lot 2) for entire period					
Shelled corn, lbs.		266.89			
Protein supplt., lbs. ....		38.06			

Observations

In this experiment Lot 1 pigs on pasture the entire feeding period and Lot 2 pigs on pasture only about one-half the feeding period (then placed in the dry lot) made about the same gains. They gained 1.56 and 1.57 pounds daily for the period with almost exactly the same feed per 100 pounds gain, except that the pigs in dry lot one-half the time (on increased alfalfa meal) consumed 8 pounds less protein supplement than the pasture-grazed pigs.

The daily gains of those on dry lot one-half time were about the same as Lot 3 (fed the entire time in dry lot with 3 parts alfalfa meal). Lot 3 pigs used 23 pounds more feed per 100 pounds gain than Lot 2 pigs.

The Lot 4 pigs made the poorest showing of all with a daily gain of 1.37 pounds, and they had a rather high requirement of feed per 100 pounds gain.

Conclusion

Results indicate thus far that when the allowance of alfalfa meal in a ration is too high, efficiency decreases. But a ration of proper quantities of alfalfa meal, fed in the dry lot, will be as efficient as pasture and a smaller quantity of alfalfa meal.

More tests are needed to verify these observations.

The Comparative Value of Corn and Whole and Ground Milo as Swine-Fattening Feeds.

PROJECT 110, Test IV

C. E. Aubel

Sorghum grains are grown extensively in parts of Kansas for hog feed. In previous feeding tests with hogs at this station, some sorghum

grains have given excellent results compared with corn. In 1950 Westland and Midland milos gave 12 percent greater daily gain than corn. The economy in feed per 100 pounds gain was about 5 percent better from sorghum grain than from corn. Because corn has been more difficult to produce in Kansas, while sorghum grains have increased in popularity, it was thought advisable to compare sorghum grain with corn again.

Four lots of pigs were self-fed in dry lot. All lots received a mixed animal and plant protein supplement of 4 parts tankage, 4 parts soybean meal, 1 part linseed meal, and 1 part alfalfa meal. The milo was an unidentified variety, straight elevator run. Lot 1 received shelled corn; Lot 2, whole milo; Lot 3, coarsely ground milo from a burr mill; Lot 4, ground milo. The protein supplement mixture for this lot contained aureomycin supplied as Aurofac at the rate of 27 pounds per ton.

Table 21 gives the results.

Table 21.—Comparative value of corn and milo as swine-fattening feeds.

Ration fed, 91 days	Shelled corn, protein mixed supplt., min. mix.	Whole milo, protein mixed supplt., min. mix.	Burr mill ground milo, protein mixed supplt., min. mix.	Ground milo, protein mixed supplt., 27 lbs. Aurofac per ton min. mix.
Lot number .....	1	2	3	4
Number pigs in lot .....	10	10	9	9
Av. initial wt. per pig, lbs. ....	51.90	51.70	53.11	52.55
Av. final wt. per pig, lbs. ....	202.90	219.20	223.22	224.32
Av. total gain per pig, lbs. ....	151.00	162.50	170.11	171.77
Av. daily gain per pig, lbs. ....	1.65	1.78	1.86	1.88
Av. daily ration per pig:				
Grain, lbs. ....	5.40	6.26	6.42	6.34
Protein mix, lb. ....	.89	.90	.91	.92
Lbs. feed per 100 lbs. gain per pig:				
Grain .....	325.82	350.89	339.64	323.42
Protein mix .....	54.17	50.76	48.85	48.77
Mineral mix .....	.08	.07	.06	.06

Observations

1. Whole milo produced about 8 percent greater gains in pigs than was produced by corn.

2. Daily gains of pigs fed ground milo were about 12 percent greater than daily gains of pigs fed corn.

3. Ground milo was more efficient than whole milo.

4. Adding aureomycin to the ration reduced the amount of feed required per 100 pounds gain.

5. Milo was palatable. Each lot fed milo consumed more of it daily than the amount of corn consumed daily by the corn-fed lot.

6. Milo was a satisfactory grain in all respects and was better than corn, in these tests, for fattening pigs.

Some Studies on Breeding Market Pigs by Crossing Duroc with Beltsville No. 1 for Meat-type Hogs.

PROJECT 242

C. E. Aubel

Much discussion in Kansas has concerned the desirability of cross-breeding inbred breeds (so-called hybrids) with other breeds for meat-