

Table 61  
 Varying Amounts of Alfalfa Meal in the Rations of Spring Pigs in the Dry Lot.  
 June 11, 1955, to September 20, 1955—101 days.

Lot number	Shelled corn, sudangrass pasture, mixed protein supplement— 4 parts tankage 4 parts tankage 4 parts S.B.M. 4 parts S.B.M. 1 part C.S.M. 1 part C.S.M. 1 part alf. meal 1 part alf. meal		Shelled corn, in dry lot— 4 parts tankage 4 parts tankage 4 parts S.B.M. 4 parts S.B.M. 5 parts alf. meal 5 parts alf. meal 5 parts alf. meal 5 parts alf. meal	
	1	2	2	3
Number pigs in lot	9	10	10	10
Av. initial wt. per pig, lbs.	57.40	58.90	100.10	58.80
Av. final wt. per pig, lbs.	191.44	100.10	177.80	192.20
Av. total gain per pig, lbs.	134.04	41.20	77.70	133.40
Total gain—Lot 2—entire period, lbs.		118.90		
Av. daily gain per pig, lbs.	1.32	1.05	1.25	1.33
Av. daily gain per pig—Lot 2—entire period, lbs.		1.17		
Av. daily ration per pig, lbs.:				
Shelled corn	4.20	4.68	4.14	4.30
Protein supplement	.67	.25	.58	.77
Lbs. feed per 100 lbs. gain per pig:				
Shelled corn	308.19	442.96	330.63	325.71
Protein supplement	50.81	24.27	54.82	58.62
Lbs. feed per 100 lbs. gain per pig: (Lot 2) for entire period—				
Shelled corn	352.73			
Protein supplement	44.23			

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 178 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.

Table 61 gives the results of this experiment.

#### Observations

In this experiment Lot 1 pigs on pasture the entire feeding period and the pigs in Lot 3 in the dry lot the entire period on 3 parts of alfalfa meal made about the same daily gains. They gained 1.32 and 1.33 pounds daily, respectively, for the period. A little less feed (both corn and supplement) per 100 pounds gain was consumed by pigs on pasture.

The Lot 2 pigs finished in dry lot after reaching 100 pounds on pasture, and the Lot 4 pigs in the dry lot the entire period made the poorest gains, 1.17 and 1.10 pounds daily, respectively. They also had higher feed requirements per 100 pounds gain.

The results of this experiment indicate that when the allowance of alfalfa meal in a ration is too high, efficiency decreases, but that a ration containing the right quantity of alfalfa meal and fed in dry lot will be as efficient as pasture-fed pigs that receive less alfalfa meal.

This experiment should be repeated to verify these observations.

#### Free-Choice Feeding of Shelled Corn and a Protein Mixed Supplement Compared with Feeding Pigs Completely Mixed Rations in Pellet Form.

PROJECT 110, Test 6  
 C. E. Auel

What is the best way to feed corn to growing-fattening pigs? Should it be shelled and fed free choice with a good mixed protein supplement, or should the hogs be fed completely mixed rations as meal or in pellet form? For years growing-fattening pigs have been considered capable of balancing their own rations when fed free choice. Recently experiments have shown it better practice to give pigs their feed as completely mixed rations.

This experiment consisted of two lots of nine pigs each. Lot 1 pigs were fed free-choice shelled corn and a mixed protein supplement made up of 4 parts tankage, 4 parts soybean meal, 1 part linseed meal, and 1 part alfalfa meal. The supplement had a crude protein percentage of 49. Lot 2 pigs were fed pellets of corn ground and mixed with the same protein supplement at the ratio of 3½ parts corn to 1 part supplement. This was fed from 50 pounds, their starting weight, to 75 pounds. The 3½-to-1 pellet had a protein percentage of 19.06. At 75 pounds the ratio of corn to protein supplement was changed to 6 to 1 and fed until the pigs reached 125 pounds. This pellet tested 16.9 percent protein. From 125 pounds to finish the pigs received a pellet with corn to supplement ratio of 9 to 1, which had a protein percentage of 14.3. No antibiotic was fed to either lot.

Table 62 gives the results.

**Table 62**  
Free-Choice Feeding Compared with Completely Mixed Rations in Pellets.

December 6, 1955, to March 12, 1956—97 days.

Ration fed .....	Shelled corn, Protein-mixed supplement, free choice	Pellets (complete mixture corn and protein supplements)
Lot number .....	1	2
Number pigs in lot .....	9	9
Av. initial wt. per pig, lbs. ....	50.70	51.90
Av. final wt. per pig, lbs. ....	221.11	203.33
Av. total gain per pig, lbs. ....	169.11	151.43
Av. daily gain per pig, lbs. ....	1.74	1.56
Av. daily ration per pig, lbs.:		
Shelled corn .....	5.16	
Protein supplement .....	.82	
Pellets .....		5.47
Lbs. feed per 100 lbs. gain per pig:		
Shelled corn .....	329.04	
Protein supplement .....	52.36	
Pellets .....		350.87

**Observations**

1. The daily feed consumption of the pigs fed free choice was .51 pound greater than that of those fed pellets.
2. The pigs fed free choice gained .18 pound more each day than the pellet-fed pigs.
3. The pellet-fed pigs required 30.5 pounds less total feed than the pigs fed free choice.
4. In this experiment complete mixtures of corn and protein supplements slowed the daily rate of gain but reduced the feed consumed per 100 pounds gain. If the costs of grinding, mixing, and pelleting were considered, their expense probably would offset the cost of the 30.5 pounds of feed saved.

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

PROJECT 110, Test 7

C. E. Aubel

In many parts of Kansas sorghum grains are grown extensively. In previous feeding tests with hogs at this station, some sorghum grains gave excellent results compared with corn. In 1950 Westland milo and Midland milo gave 12 percent greater daily gains than did 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 get results from a 1956 experiment that compared corn with sorghum grain, with the sorghum grain prepared for feeding in different ways.

Five 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, dry rolled milo; Lot 4, wet rolled milo; and Lot 5, rolled milo with 5 percent cane molasses added.

Table 63 gives the results.

**Table 63**  
Comparative Value of Corn and Milo as Swine-Fattening Feeds.  
December 6, 1955, to March 12, 1956—97 days.

Ration fed .....	Shelled corn, Protein mixed supplt.	Whole milo, Protein mixed supplt.	Dry-rolled milo, Protein mixed supplt.	Wet-rolled milo, Protein mixed supplt.	Rolled milo, 5 percent molasses-mixed protein supplt.
Lot number .....	1	2	3	4	5
Number pigs in lot .....	9	9	9	10	9
Av. initial wt. per pig, lbs. ....	50.70	52.77	52.40	51.50	50.30
Av. final wt. per pig, lbs. ..	221.11	216.66	214.77	198.50	219.44
Av. total gain per pig, lbs. ....	169.11	163.89	162.37	147.00	169.14
Av. daily gain per pig, lbs. ....	1.74	1.68	1.67	1.51	1.74
Av. daily ration per pig, lbs.:					
Grain .....	5.16	6.28	6.68	5.96	6.47
Protein mix .....	.82	.79	.88	.91	.86
Lbs. feed per 100 lbs. gain per pig:					
Grain .....	329.04	372.06	399.36	354.08	371.15
Protein mix .....	52.36	46.98	52.62	54.14	49.40

**Observations**

1. The daily gains of the pigs receiving corn were slightly greater than for the pigs receiving whole or dry-rolled milo. With the wet-rolled milo daily gains of pigs were .23 pound less. The pigs getting rolled milo with molasses made the same daily gains as the corn-fed pigs.

Thus the whole- or dry-rolled milo on a pound-for-pound basis was about 3 percent less efficient than corn. The wet-rolled milo was about 13 percent less efficient.

2. The quantity of grain consumed per 100 pounds gain was greater in all the milo-fed lots than in the corn-fed lots, running from a little less than 1 percent with wet-rolled milo to 21 percent with the dry-rolled milo; however, cost of corn usually is at least 20 percent more than milo per pound.

3. The protein supplement requirements per 100 pounds gain varied from a little less in Lots 2 and 5 to a little more in Lots 3 and 4 than required by pigs fed corn. The protein requirements for all varied only slightly.

4. The milo was palatable. Each lot fed milo consumed more grain daily than the lot fed corn.

5. Milo was a satisfactory, though not outstanding, grain for feeding in this experiment.

**Metabolism of Carotenoid Pigments and Vitamin A by Swine.**

PROJECT 311, Test 8

**Relative Value of Carotenoid Pigments of New-Crop (1954) Yellow Corn and Old-Crop (1948-49 government stored) Yellow Corn and of Dehydrated Alfalfa for Supplying the Vitamin A Requirements of Weanling Pigs.**

D. B. Parrish and C. E. Aubel

Question has been raised concerning the vitamin A potency of stored yellow corn. Samples of 1954 corn and 1948-49 stored corn were analyzed for provitamin A content by a separation and chemical determination of the carotene and crude cryptoxanthin contents. The 1948-