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DIVISION OF ANIMAL INDUSTRY

Hardening Peanut-Fed Hogs



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†As of March 1, 1919.

†In cooperation with School of Agriculture, A. & M. College of Texas.

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HARDENING PEANUT-FED HOGS

BY

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During the winter of 1916-1917 an experiment was conducted at this Station to ascertain whether soft pork produced by feeding peanuts could be profitably hardened by finishing the hogs on a grain ration. The results of this test showed that after hogs had been grazed on peanuts for forty days and then fed a balanced ration of milo chops and cottonseed meal for thirty days that they killed out firm. In order to secure corroboration of these results and to acquire some additional information on certain phases of the soft pork problem, another experiment planned along similar lines was conducted in the winter of 1917-1918.

OBJECTS

The objects of this experiment were as follows:

1. To determine the effects on the quality of pork produced by feeding corn alone to 115-pound hogs.
2. To determine the quality of pork produced by feeding eighty days on corn and cottonseed meal.
3. To determine the length of time required to harden pork with corn and cottonseed meal after feeding peanuts alone for forty days.
4. To study the relative economy of feeding corn alone; corn supplemented with cottonseed meal; peanuts alone; and peanuts, followed by corn supplemented with cottonseed meal for periods of varying duration.
5. To study the shrinkage of pork produced by feeding certain rations during the curing and smoking process.

PLAN OF EXPERIMENT

Sixty-two head of late spring farrowed pure bred Duroc-Jersey hogs were used in this test. At the beginning of the experiment they were in good growing condition and ranged from 100 to 130 pounds and averaged 115 pounds per head. In order to determine the quality of pork the hogs carried, two of them were killed at the beginning of the test. Four more hogs were killed after forty days on peanuts. The other fifty-six were divided into seven lots of eight head each.

The experiment was begun November 29, 1917, and continued until February 20, 1918. The several lots were not placed on feed at the

*Resigned May 31, 1918.

same time, but since the total number of days of feeding ranged from sixty to eighty-five, they were placed on feed at periods so arranged that all would come off of the experiment at the same time. The feeding was to range from sixty to eighty-five days, so as to determine, if possible, what time was required to harden the pork after forty days feeding on peanuts. The hogs were weighed individually for three consecutive days at the beginning and at the end of the peanut feeding period and again at the termination of the experiment. Complete records were kept of all feeds consumed, also of the weights of the hogs by lots and by individuals.

The seven lots of hogs were fed as follows:

Table 1.—Feeding arrangement.

Lots	Date started	First period of 40 days	Second period	Total days
1	Dec. 3	Corn alone	Corn alone	80
2	Dec. 3	Corn and cottonseed meal (6:1)	Corn and cottonseed meal (6:1)	80
3	Dec. 3	Peanuts	Peanuts	80
4	Dec. 22	Peanuts	Corn and cottonseed meal (6:1)	60
5*	Dec. 11	Peanuts	Corn and cottonseed meal (6:1)	70
6*	Dec. 11	Peanuts	Corn and cottonseed meal (6:1)	70
7	Nov. 29	Peanuts	Corn and cottonseed meal (6:1)	85

*Duplicates.

FEEDING RESULTS.

While the main objects sought in conducting this experiment were as previously stated, it was also found desirable to secure as much additional information as possible on the results of feeding the several rations. Records were kept of all the feeds consumed, together with the resultant gains. From these figures were calculated the results of the feeding, as given in table 2.

Table 2.—Results of experiment.

	Lots.						
	1	2	3	4	5	6	7
Number hogs in lot	8	8	8	7	8	8	8
Days on feed	80	80	80	60	70	70	85
Corn fed, lbs.	2826	2597	1106	1226	1226	1226	1672
Peanuts fed, lbs.			2569	1295	1283	1283	1142
Cottonseed meal fed, lbs.		411	135	210	210	210	281
Total feed fed, lbs.	2826	3008	2569	2536	2719	2719	3095
Weight at beginning, lbs.	886	879	882	819	989	920	854
Final weight at feeding pens, lbs.	1509	1628	1770	1484	1605	1675	1625
Selling weight, lbs.	1470	1600	1730	1430	1630	1630	1600
Gain or loss in shipping, lbs.	-39	-28	-40	-54	+25	-45	-25
Amount per lot lost in dressing, lbs.	312	331	228	267	326	316	282
Dressing per cent.	78.80	79.32	87.40	81.33	80.00	80.62	82.38
Warm weight, lbs.	1158	1269	1502	1163	1304	1314	1318
Killed hard, number	8	8	0	5	7	6	8
Killed soft, number	0	0	8	2	1	2	0
Gain on feed, lbs.	584	721	848	611	641	710	746
Daily gain per head, lbs.	0.91	1.13	1.32	1.45	1.15	1.27	1.10
Daily feed per hog, lbs.	4.4	4.7	4.0	6.0	4.8	4.8	4.5
Lbs. feed per 100 lbs. gain	484	417	303	413	422	383	415

Table 2.—Results of experiment—continued.

	Lots						
	1	2	3	4	5	6	7
Initial value per pig at 11c							
per lb.	\$ 12.21	12.10	12.10	12.87	13.59	12.65	11.75
Cost of feed per pig*	\$ 10.59	11.28	16.05	14.57	13.40	13.40	14.46
Marketing costs	\$ 0.75	.75	.75	.75	.75	.75	.75
Labor	\$ 1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total cost per pig	\$ 24.55	25.13	29.90	29.19	28.74	27.80	27.96
Average selling price	\$ 30.36	33.00	31.32	32.50	33.14	32.64	33.00
Actual profit per hog	\$ 5.81	7.87	1.42	3.31	4.40	4.84	5.04

*Peanuts rated at five cents per pound. Corn and cottonseed meal at three cents per pound each.

In table 2 there are two or three points of special interest to the practical feeder. The least economical ration, so far as quantity of feed per unit of gain is concerned, was that made up of corn alone, as supplied in lot 1, in which the feed required per 100 pounds of gain amounted to 484 pounds. When corn was supplemented with ordinary cottonseed meal, as in lot 2, the feed required per 100 pounds of gain was only 417 pounds. Probably the most noticeable feature of these results is the very low feed requirement per 100 pounds of gain when peanuts alone were fed. The amount, 303 pounds, is very low, but in previous experiments a very low figure has been secured, which bears out the fact that 300 pounds of peanuts will produce 100 pounds of gain. The inferior quality of the pork, however, which tends to be produced by feeding peanuts alone, together with the high price (five cents per pound) which was paid for peanuts, counteracted their high pork producing value to such an extent that they proved the least profitable ration of the test. The average profit per hog in lot 3 amounted to but \$1.42. The results of the experiment showed the most profitable ration to be the corn and ordinary cottonseed meal (6:1) which was fed to lot 2. A profit of \$7.87 per pig was realized from this ration.

It is a well established fact that a large percentage of hogs finished in sixty to ninety days on a ration of peanuts alone will chill soft or oily after remaining in the coolers from forty-four to forty-eight hours. All such hogs when sold guaranteed to chill firm* receive a discount of \$2.00 or more per hundred pounds live weight on all of the leading markets if they do not chill firm. This soft condition can be overcome to a greater or less extent by finishing on grain rations balanced with cottonseed meal, wheat shorts, or tankage. Corn and cottonseed meal, when properly fed, tend to produce a hard fat. A great many feeders, however, have met with misfortune in feeding cottonseed meal to hogs and do not wish to take the risk of feeding it again, in which event tankage, wheat shorts, or meat meal may well be substituted.

The hogs in lot 2, receiving a ration of corn and cottonseed meal in

*Hogs sold guaranteed to chill firm are referred to on market as "Diamond G."

the proportion of 6:1, made excellent gains for the entire feeding period of eighty days, none of them at any time showing signs of sickness. All of the other hogs that received the corn and cottonseed meal ration during a period of from twenty to forty-five days made good gains. These results add more strength to the argument that hogs may be fed ordinary cottonseed meal (forty-three per cent. protein) as one-seventh of the ration for a period of from seventy to eighty days, with profit and with little risk of poisoning.

At this Station six similar feeding tests, in which cottonseed meal has supplemented a grain ration in the proportion of six to one, have been completed.* Fifty-five hogs in all have been fed for a period of from seventy-five to ninety-six days, only one hog dying. This hog died after being fed corn, six parts, and cottonseed meal, one part, for seventy-two days, the symptoms being those of cottonseed meal poisoning. Cottonseed meal, at present prices, is one of the most economical available protein hog feeds on the market. While there is a certain amount of risk in feeding it, the results of these tests show that it is not very great. Enough cottonseed meal could be used to balance a corn or milo ration during the fattening period with comparative safety.

Although care was exercised in dividing the hogs in order that all of the lots would be as nearly alike as possible at the beginning, lots 5 and 6 fed out quite differently. These two lots received the same kind and the same amount of feed throughout the fattening period. The hogs of lot 6, however, gained practically nine pounds per head more in the seventy days than the hogs in lot 5. This indicates that the many irregularities, grouped under the general heading "individuality" are a factor not easily controlled in feeding tests of this kind.

HOGS SOLD GUARANTEED

The hogs were sold on the Fort Worth market "Diamond G," or with an understanding that all hogs that chilled firm would be paid for at the rate of \$16.50 per hundred live weight, while all that were pronounced oily by the Federal expert grader should receive a discount of \$2.00 per hundred pounds live weight. All of the hogs graded doubtful or slightly soft by the packer expert were not as firm as desired but were not soft enough to require the discount.

METHOD OF IDENTIFYING HOGS

At the beginning of the experiment each hog was hair-marked in such a way that it could be easily identified at any time. Individual weights were taken throughout the test and a complete record kept. A few days before the hogs were shipped to market, the test number of each hog was tattooed on each ear. The hogs of the various lots were then given a hair-brand lot number so that each lot could be easily separated at the yards. After the hogs were slaughtered and scraped the tattooed numbers in the ears could be clearly seen, so no trouble was experienced

*Bulletins 201, 224 and 228. Three tests, results unpublished.

in identifying the hogs of the various lots after killing. When the head was removed the ears were left on the carcass so that no possible mistake could be made in identifying the hogs after they had been chilled in the cooler. The same number tattooed in the ear was recorded on the ham, shoulder, and belly with an indelible pencil while in the cooler before the carcasses were thoroughly chilled. This was done so that after the carcasses were cut the several pieces could still be identified. By using such identification marks before curing and smoking, it was possible to follow each piece through these processes with accuracy.

KILLING TEST

The hogs were bought by Swift & Company and killed as test hogs. After the carcasses had remained in the cooler forty-six hours they were graded by a packer cooler expert and also by a Federal government expert. The packer expert first graded the carcasses, after which they were graded by the government expert without knowledge of how they had been graded by the packer.

Table 3.—Temperatures of cooler and meat during the period that the hogs were in the cooler

Temperature of cooler at start of filling.....	27° F.
Number of cooler.....	7
Times filled.....	6
Temperature of cooler 6 hours after killing.....	38° F.
Number of hogs in cooler.....	400
Temperature of hams.....	60° F.
Temperature of shoulders.....	61° F.
Temperature of cooler 12 hours after killing.....	32° F.
Temperature of hams.....	46° F.
Temperature of shoulders.....	47° F.
Temperature of cooler 24 hours after killing.....	29° F.
Temperature of hams.....	36° F.
Temperature of shoulders.....	37° F.
Temperature of cooler when carcasses were cut (46 hours after killing).....	30° F.
Temperature of hams.....	33° F.
Temperature of shoulders.....	33° F.

The following table shows the grading of both the experts, the total per cent. shrinkage, in cure and smoke, and the melting points of fat samples from each carcass and the average firmness test readings. (See Bulletin 226 of this Station for description.)

Table 4.—The grading of hog carcasses after being in the cooler 46 hours and a comparison between the grading and total loss in smoke and cure.

(F—Firm; D—Doubtful; O—Oily)

Number of hog	Graded by packer expert	Graded by gov't expert	Percentage loss in cure and smoke	Melting point		Firmness tests reading
				back fat	leaf fat	
Lot 1						
38.....	F	F	.01	38.8° C	40.5° C	2.4
59.....				40.5° C		2.0
64.....	O	F	6.1	31.2° C		3.8
29.....	F	F	1.3	30.5° C		4.2
25.....	F	F	4.	30.5° C	41.9° C	1.6
47.....	F	F	4.	30.1° C	40.5° C	1.8
23.....	F	F	3.6	34.4° C	40.8° C	2.2
42.....	F	F	3.9	39.3° C	41.5° C	2.6
Average.....			5.2 loss	34.2° C	41.0° C	2.6

Table 4.—The grading of hog carcasses after being in the cooler 46 hours and a comparison between the grading and total loss in smoke and cure—continued.

(F—Firm; D—Doubtful; O—Oily)

Number of hog	Graded by packer expert	Graded by gov't expert	Percentage loss in cure and smoke	Melting point		Firmness tests reading
				back fat	leaf fat	
Lot 2						
20.....	F	F	6.2	38.8° C		1.4
71.....	F	F	3.7	37.5° C		1.0
43.....	F	F	0.5 gain	39.7° C		2.8
69.....	F	F	0.5 gain	37.5° C	42.7° C	2.8
16.....	D	F	5.6	32.8° C	43.6° C	2.6
2.....	F	F	9.7	34.2° C	41.9° C	1.8
45.....	F	F	8.2	40.3° C	44.6° C	1.4
39.....	F	F	4.1	37.5° C	41.4° C	1.8
Average.....			5	37.3° C	42.8° C	2.0
Lot 3						
67.....	O	O	10.	22.5° C	29.3° C	66.2
52.....	O	O	7.7	26.5° C		42.4
61.....	O	O	9.0	32.9° C	34.6° C	11.0
58.....	O	O	10.	24.4° C	33.4° C	67.2
19.....	O	D	5.7	27.3° C		67.8
54.....	O	O	3.6	26.6° C	38.3° C	57.0
44.....	O	O	6.5	27.9° C		20.2
1.....	O	O	6.7	28.0° C	37.8° C	30.0
Average.....			8.0 loss	27.0° C	34.7° C	45.2
Lot 4						
50.....	F	F	.008	36.9° C	41.3° C	2.4
60.....	F	F	1.	43.0° C	41.7° C	3.0
8.....	F	F	7.	28.4° C	40.3° C	3.6
63*.....			not shipped			
15.....	O	O	12.	30.8° C	39.0° C	21.6
21.....	F	F	7.	38.1° C	41.1° C	2.0
46.....	O	O	.011 gain	28.8° C	38.8° C	4.6
31.....	D	F	4.	28.1° C	38.6° C	10.2
Average.....			5.	33.4° C	40.1° C	5.9
Lot 5						
65.....	F	F	4.9	36.3° C	43.2° C	4.0
68.....	D	F	5.8	34.6° C	39.5° C	10.0
13.....	D	F	3.	35.5° C	41.4° C	2.8
14.....	D	F	4.9	28.2° C	40.2° C	8.6
24.....	F	F	6.	39.0° C	44.4° C	3.0
4.....	D	F	3.	27.8° C	40.5° C	9.4
32.....	O	O	1.	28.0° C	39.5° C	24.6
5.....	D	F	6.	35.5° C	41.3° C	5.6
Average.....			4.	33.1° C	41.3° C	8.5
Lot 6						
46.....	F	F	1.8	34.8° C	38.3° C	3.8
28.....	D	F	5.0	35.5° C	41.9° C	9.0
66.....	F	F	6.9	33.6° C	39.8° C	10.4
70.....	F	O	2.0	34.6° C	39.3° C	4.6
12.....	D	O	7.0	30.0° C	40.1° C	12.0
33.....	D	F	10.0	33.1° C	39.2° C	16.4
7.....	F	F	5.0	30.3° C	40.7° C	7.4
37.....	F	D	6.5	33.0° C	40.1° C	4.8
Average.....			5.	33.1° C	39.9° C	8.5
Lot 7						
9.....	F	F	7.1	40.6° C	41.7° C	2.2
62.....	O	F	5.2	34.3° C	42.1° C	11.4
57.....	D	F	6.8	40.7° C	41.0° C	4.0
21.....	F	F	4.3	36.8° C	41.8° C	1.6
3.....	D	F	6.7	35.3° C	41.3° C	11.4
35.....	F	F	1.8	37.8° C	45.3° C	4.0
48.....	O	F	4.2	40.2° C	43.6° C	5.8
30.....	F	F	4.38	33.3° C	41.3° C	10.0
Average.....			4.9	37.4° C	42.3° C	6.3

*This hog became crippled and was not shipped.

The grading results show that hogs which have been fed similar feeds frequently chill out differently and the same ration apparently may produce both hard and soft pork. Although this variation is a matter that has caused a great deal of misunderstanding between the shipper and packer, the results of this and former tests indicate that such a condition may be expected and suggest strongly that other factors than feed are probably of importance. Throughout the entire test great care was taken to avoid mistakes and to guard against prejudices. None of the men at the yards or in the packing house knew how the lots had been fed.

It will be noticed that one hog in lot 1 and two hogs in lot 7 were pronounced oily by the packer expert while they passed as firm by the government expert. On the other hand, two hogs in lot 6 were pronounced oily by the government expert and were passed as satisfactory by the packer expert. This shows that with only an arbitrary standard for a guide any two qualified men will vary somewhat on carcasses that are close to the dividing line.

The results of the tests from the feeding pens to fresh pork cuts are shown in tables 2 and 4. The effect of the feed on the quality of pork is shown in table 2, from which it is seen that thirteen hogs out of thirty-five chilled oily. Lots 1, 2 and 7 chilled out satisfactorily. In lot 3, which received peanuts alone for eighty days, seven carcasses were classed oily and one doubtful. Two hogs graded as soft in lot 4, which had been fed peanuts for forty days followed by corn for twenty days. Three hogs out of sixteen killed soft in lots 5 and 6. Both of these lots had been fed peanuts for forty days followed by corn and cottonseed meal (6:1) for thirty days. In lot 7 all chilled firm, this lot having been on peanuts for forty days followed by corn and cottonseed meal (6:1) for forty-five days. The average melting point for the back fat and the leaf fat for the several lots is given in table 5. These determinations were made by the junior author and checked by the State Chemist, Dr. G. S. Fraps.

Table 5.—Melting points of back and leaf fat in degrees Centigrade.

	Back fat	Leaf fat
Lot 1.....	34.2	41.0
Lot 2.....	37.3	42.8
Lot 3.....	27.0	34.7
Lot 4.....	33.4	40.1
Lot 5.....	33.1	41.3
Lot 6.....	33.1	39.9
Lot 7.....	37.4	42.3

The results indicate that under favorable conditions it is possible to harden carcasses on the grain mixtures herein reported after forty days feeding on peanuts alone. The results also show that the length of time required properly to harden a carcass may be as short as twenty days, but the hardness test and the melting point test show that the carcasses will be firmer if the grain feeding period is from thirty to

forty-five days in length. The resultant pork from these hogs was followed through curing and smoking.

SHRINKAGE TEST

Through the courtesy and cooperation of Swift & Company of Fort Worth, which slaughtered these hogs, it was possible to make tests on the different cuts through curing and smoking to ascertain what differences might be encountered in these processes that would be traceable to the feeds.

After the carcasses had been graded and cut, they were followed through the regular channels of curing and smoking and were handled as test meats, being given the same treatment as the rest of the meat.

All of these meats were put into cure February 23 and pulled from cure April 26, making a total of sixty-two days cure. Before going into smoke the sweet pickle bellies were given four minutes soak per day in cure; dry salt bellies, five minutes soak per day in cure; all hams, four minutes soak per day in cure; picnics,* four and one-half minutes soak per day in cure. Two waters were used at a temperature of seventy to seventy-five degrees.

Table 6.—Time meats were left in smoke.

	Hours
Dry salt bellies.....	16
Sweet pickle bellies.....	22
Ten pound down hams.....	24
Twelve pound over hams.....	26
All picnics.....	21

Records and weights were kept on each cut. As a result of these records it has been possible to construct table 7 showing the percentage gains and losses for hams, shoulders, picnic shoulders, sweet pickle and dry salt bellies for the hogs fed on each ration.

Table 7.—Percentage gains and losses in cure and smoke and net percentage gains and losses by lots.

Lot	Hams			Shoulders	Picnic shoulders			Sweet pickle bellies			Dry salt bellies		
	Gain in sweet pickle	Loss in smoke	Loss in cure net	Loss in dry salt	Gain in sweet pickle	Loss in smoke	Loss in cure net	Gain in sweet pickle	Loss in smoke	Loss in cure net	Loss in dry salt	Loss in smoke	Loss in cure net
1.....	10.5	13.1	4.0	0.0	16.0	22.0	9.5	16.0	15.0	5.8	.78	8.0	8.3
2.....	11.9	11.4	.035	.....	12.7	18.0	8.6	16.0	17.0	4.3	3.3	7.0	10.6
3.....	7.3	11.4	5.0	6.3	12.0	15.9	5.4	7.0	16.0	10.5	3.7	6.9	10.9
4.....	11.9	11.5	1.0	1.0	13.8	20.0	9.2	11.6	23.0	13.7	5.6	7.0	12.9
5.....	9.0	12.0	4.1	1.7	25.6	20.0	0.5	10.9	16.7	7.8	2.1	7.2	9.6
6.....	9.2	12.4	4.3	0.7	14.6	20.0	8.6	9.7	17.0	9.5	4.0	7.3	12.0
7.....	7.6	12.0	5.3	2.8	.....	.....	.....	12.9	16.4	5.7	3.3	8.0	13.8

*Small selected shoulders cured as hams are cured.

In order to compare the results in the curing and smoking of meats of different firmness the figures given in table 8 were calculated. The arrangement of the figures are in accordance with the firmness of the carcasses by test lots. The first column of figures shows the average of those carcasses that were firm, the next column of those that were medium firm, and the third represents the hogs that were distinctly oily.

Table 8.—Percentage gains or losses in curing and smoking.

	Hard	Medium hard	Soft
Hams:			
Gain in cure.....	11.2	9.4	7.3
Loss in smoke.....	12.7	12.0	14.0
Net loss.....	1.5	3.6	6.7
Shoulders:			
Loss in cure.....	1.55	1.5	6.3
Picnics:			
Gain in cure.....	14.3	18.0	12.0
Loss in smoke.....	20.0	20.0	15.9
Net loss.....	5.7	2.0	3.9
Sweet pickle bellies:			
Gain in cure.....	16.0	11.3	7.0
Loss in smoke.....	16.0	18.3	16.0
Net loss.....	0.0	7.0	9.0
Dry salt bellies:			
Loss in cure.....	2.0	3.8	3.7
Loss in smoke.....	7.5	7.4	6.9
Net loss.....	9.5	11.2	10.6

From these results it is apparent that the pork cuts gain in sweet pickle cure and lose in dry salt cure and smoke. In connection with hams, picnic shoulders, and sides in the sweet pickle cure, it is noteworthy that the hard meat takes on more weight than the soft meat. In the case of the hams and bellies, the gain by the soft meat is approximately only half that of the hard. The loss in the smoke, however, is not greatly different in the three kinds of meat. The soft hams lost a little more than the hard, but losses on the picnics and bellies were less in the smoke for soft meat after sweet pickle cure. In the case of dry salt cure used with the extra large shoulders and bellies, the shrinkage was always greatest with the soft meat, but the shrinkage on the sides in smoke after dry salt cure was less for the soft meat than the hard.

The net loss through pickle cure and smoke of all soft or oily meat in this test ranged from 3.9 per cent. to 9.0 per cent., an average of 6.6 per cent. loss. The net loss on all firm meat in this test cured and smoked in a similar manner ranged from zero to 5.7 per cent., an average of 2.4 per cent. loss. This shows that the net shrinkage through cure and smoke of soft or oily meat in this test was 4.2 per cent. greater than for firm meat. The difference in net shrinkage between oily and firm sides that received the dry salt cure and then were smoked was only 1.1 per cent. The large shoulders received only the dry salt cure

and were not smoked. The soft or oily shoulders lost 6.3 per cent., while the loss on the firm shoulders was only 1.55 per cent.

Considering the shrinkage by lots on all of the different cuts, and by all three methods of curing the net loss for lot 3, containing oily hogs only, was 8 per cent., while the net loss for the other lots averaged about 5 per cent. Although the number of hogs used was not large enough to warrant definite conclusions, much valuable information was secured and the results indicate what may be expected when large quantities of meat are cured.

The results of this test confirm results of preliminary work, in which it was found that soft pork in sweet pickle cure gains less than firm pork. Since the gain is less in sweet pickle cure, and the loss in smoke practically the same, the total net loss on soft pork is greater than is the loss on firm pork.

It was also found that the appearance of the finished soft product was not so good and that it was more flabby and softer than the firm hogs. These results indicate that the soft meat is of inferior quality, judging from its appearance after being cured and smoked, and from the fact that the shrinkage is greater through cure and smoke.

SUMMARY

1. The corn supplemented with cottonseed meal proved more profitable than corn alone and was the most profitable ration.
2. The greatest gain per hundred pounds of feed resulted from feeding peanuts alone, which ration proved least profitable.
3. Hogs fed peanuts alone for eighty days produced soft pork.
4. Most of the hogs fed corn and cottonseed meal for twenty, thirty and forty-five days after being fed for forty-five days on peanuts, chilled firm in the cooler.
5. The melting points of the back fat averaged from six to eight degrees centigrade lower than the melting points of leaf fat.
6. Peanuts alone fed to 115-pound hogs for forty days produced soft carcasses.
7. Hogs made soft on peanuts were hardened by twenty days feeding on grain. Hogs chill firmer, however, if fed for thirty to forty-five days on grain after being fed for forty days on peanuts.
8. Soft pork gains less in sweet pickle cure than firm pork.
9. Soft pork shrinks more in dry salt cure than firm pork.
10. The difference in shrinkage of firm and soft meat through smoke is about the same.
11. The total shrinkage of soft meat during curing and smoking was 3 per cent. greater than the shrinkage of firm meat.
12. The rations fed apparently influenced the cured and smoked pork only in so far as they affected the firmness of the meat.
13. The results show that the same ration or feed may frequently produce both hard and soft pork.