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PEANUTS, COWPEAS AND SWEET POTATOES
AS FOOD FOR PIGS.

J. F. DUGGAR, Agriculturist.

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Peanuts, Cowpeas and Sweet Potatoes as Food for Pigs.

BY J. F. DUGGAR.

SUMMARY.

Spanish peanuts, when harvested by young pigs, were converted into pork, worth, at 3 cents per pound, \$18.34 per acre of peanuts, when all conditions were favorable.

In another field, with only half a stand of plants, the value of the pork from an acre of Spanish peanuts was \$10.94 and \$7.83 in two experiments.

Under favorable conditions pork (live weight) was produced at the rate of 1,426 pounds per acre of peanuts, supplemented by 37.8 bushels of corn.

With half a stand of plants an acre of Spanish peanuts produced, unaided, pork at the rate of 261 pounds per acre, and at the rate of 840 pounds per acre when the acre of peanuts was supplemented with 35.6 bushels of corn.

When fed to pigs in pens only 2.8 pounds of unhulled Spanish peanuts were required to produce each pound of increase in live weight. This is equal to 9 pounds of increase, worth 27 cents, as a return for each bushel of peanuts eaten.

Shoats pastured on nearly mature cowpeas and supplied with corn made almost three times the gain in live weight made by similar shoats fed exclusively on corn.

The cowpea crop was above the average, and its value in 3-cent pork, after subtracting the cost of the corn fed, was \$10.65 per acre.

Shoats fed in pens gained more rapidly in weight on a

ration of ground cowpeas and corn than on ground corn alone. In effect 5.28 pounds of this mixed food was equal to 8.06 pounds of ground corn.

Three pounds of sweet potatoes proved decidedly inferior to one pound of cornmeal.

Cowpeas fed with corn did not injuriously affect the quality of pork or lard. Peanuts, when fed with corn, greatly softened the pork and lard.

The softening effect of peanuts was still greater when they constituted the sole food.

This softening effect of peanuts was not corrected by feeding exclusively on corn for a month before the date of slaughtering.

THE PIGS FED.

The experiments recorded in this bulletin were begun Sept. 8, 1897, and concluded Feb. 16, 1898. All the animals used were growing pigs, varying in size at the beginning of the different experiments from pigs just weaned to half-grown shoats. The results obtained apply to the class of animals here used, and not necessarily to nearly mature fattening hogs.

In every experiment an abundance of ash material was insured by a daily supply of hardwood ashes, unleached, and salt. The weighing of pigs and of food, of which more than 2,500 were made during the course of these experiments, and other details, were attended to by Mr. T. U. Culver, Farm Superintendent.

FEEDING EXPERIMENTS WITH PEANUTS.

PASTURING PEANUTS.

A lot of 6 Poland China pigs immediately after weaning were enclosed with a portable fence in a field of Spanish peanuts. The aim was to ascertain the amount of pork that could be produced by a given area of this crop.

The pigs were not allowed to range over the entire field but were kept on a small area until all the peanuts were eaten, the inclosure being moved as often as necessary. Shelled corn was fed daily, so as to make growth more rapid.

From the first day, the nuts were eaten with great relish, and as long as the vines remained green and tender a large proportion of the leaves were also eaten. The pigs were placed on the peanuts September 8, when the crop of nuts was not yet fully matured. The peanuts had been planted May 5.

Before beginning to weigh the pigs, a week was allowed for them to become thoroughly accustomed to their food. Afterwards weekly weighings were made.

At the beginning of the experiment the 6 pigs weighed 184.3 pounds; at the end of the experiment six weeks later, they weighed 380.7 lbs., having more than doubled their weight in six weeks.

The gain was 196.4 pounds. To produce this growth there were eaten 373 pounds of shelled corn, and all of the peanuts and some of the leaflets on an area of 7,673 square feet, which is a little more than one-sixth of an acre.

The following is the financial statement of the above result, valuing pork at 3 cents per pound gross and corn at 40 cents per bushel:

	DR.	CR.
By 196.4 lbs. pork at 3c.....		\$5.89
To 373 lbs. corn at 40c per bu.....	\$2.66	
To balance; value of 7,673 sq. ft. in peanuts	3.23	
	<hr/>	<hr/>
	\$7.53	\$7.53

A profit of \$3.23 on 7,673 square feet is at the rate of

\$18.34 per acre. If corn were valued at 50 cents per bushel the net returns for an acre of peanuts would be reduced to \$14.86 after subtracting the value of the corn.

Here we have over \$18 per acre as the return for peanuts converted into pork. It should also be remembered that the land was enriched not only by the manure but by the peanut vines, for the peanut is a soil-improving plant, drawing a part of its nitrogen, like the cowpea, from the air. The nuts on a part of the patch were dug, and the yield was at the rate of 1,565 lbs. (62.6 bushels) of dry nuts per acre.

Thus we have as the total food required to produce 1 lb. of gain 1.4 lbs. of peanuts and 1.9 lbs. of corn, or a total of 3.3 lbs. of concentrated food and an indefinite amount of leaflets.

To put the matter in another way, one acre of peanuts, supplemented by 2,117 lbs. of corn or 37.8 bushels, afforded 1,115 pounds of pork.

This piece of poor sandy upland which gave a return of over \$18 per acre in peanut pork, would not have produced with same fertilizers, over 200 pounds of lint cotton per acre worth \$10 to \$12. The expense of cultivating these peanuts was much less than the cost of a similar area in cotton.

PEANUT PASTURAGE VS. CORNMEAL.

On another field of fertility about equal to the preceding, Spanish peanuts were planted June 24, following wheat, which had been harvested about a month before. An exceptionally dry summer was the cause of a very poor stand. The plants on a number of rows were counted, and instead of the usual average of one plant for every 18 or 20 inches of drill, the average distance between plants was nearly four feet.

In this field another experiment was made in pasturing peanuts. Nine Essex pigs, of similar breeding, and from two litters differing in age by only three days, were used. They had been recently weaned and were decidedly inferior in feeding qualities to the Poland Chinas used in the preceding ex-

periment. They were divided into three lots of three pigs each.

Lot V was hurdled on the above mentioned peanuts, and in addition was given daily what corn meal the pigs would eat. Lot VI was also hurdled as before, but received no grain. Lot VII was confined in a dry lot and given all the ground corn they would eat, and nothing else.

The experiment proper began November 4 after a week of preliminary feeding. During the next four weeks the gains made were as follows :

The lot pastured on peanuts and given corn gained 38.6 lbs.

The lot pastured on peanuts gained 21.1 lbs.

The lot receiving only corn lost 5.1 lbs.

Lot V ate 2.06 pounds of corn, for every pound of growth made, and during four weeks grazed on an area of 2,025 square feet planted in peanuts.

This is at the rate of 840 pounds of growth from one acre of peanuts (with less than half a stand) and 1710 pounds (35.6 bushels) of cornmeal. With pork at three cents per pound and cornmeal at 40 cents per bushel of 48 pounds, this is a gross return of \$25.20 and a net return (after subtracting the value of the meal) of \$10.94 per acre of peanuts.

Lot VI, on peanuts without grain, pastured an area of 3,517 square feet, and the gain made was 21.1 pounds, which is at the rate of 261 pounds of pork per acre. At three cents per pound gross for pork, this gives a value of \$7.83 to the acre of peanuts on which there was only half a stand of plants.

Bearing in mind the defective stand in this field, it is safe to conclude that pigs under 100 pounds should convert an acre of peanuts into pork worth from at least \$12 to \$20, the higher net value of an acre of peanuts being obtainable when the pigs receive in addition a moderate allowance of corn or cornmeal.

The peanut is certainly worthy of a foremost place in the list of hog crops. The Spanish variety can be used for the early crop, and also for planting after oats, the common running variety for the late fall crop. It is highly desirable to arrange a succession of peanut crops rather than to have large

areas ripen at the same time, for in wet weather Spanish peanuts will not remain long in the ground after maturity without sprouting.

PEANUTS VERSUS CORNMEAL.

A more accurate measure of the nutritive value of the nuts was desired than could be obtained in grazing experiments.

Hence for a further period of six weeks all three lots were fed in pens on weighed quantities of food.

Lot V. received equal weight of cornmeal and unhulled Spanish peanuts; Lot VI., peanuts alone; and Lot VII., now reduced to two pigs by the removal of the most unthrifty at the end of the pasturage experiment, continued to receive only cornmeal.

During the period of six weeks ending Jan. 13, 1898, the results were as follows:

Peanuts and cornmeal vs. peanuts alone and cornmeal alone.

	Gain.	Lbs. of food per lb. of gain.
	<i>Lbs.</i>	<i>Lbs.</i>
Lot V.—One-half peanuts, one-half cornmeal...	84.0	3.7
Lot VI.—Peanuts	59.5	2.8
Lot VII.—Cornmeal	8.6	10.7

In this experiment a pound of peanuts, including hulls, was worth more for young pigs than a pound of cornmeal. These young pigs were able to make a growth of 9 pounds per bushel of Spanish peanuts when no other food was allowed. This gives a food value of 27 cents to a bushel of

Spanish peanuts when pork is worth 3 cents per pound, gross, and $31\frac{1}{2}$ cents when pork is worth $3\frac{1}{2}$ cents per pound.

The unfavorable effects of long continued feeding of an exclusive corn ration to young pigs is shown in the above table. The unthrifty appearance of the pigs eating nothing but corn was a startling commentary on the financial loss following such a course.

The addition of corn to the peanut ration increased the total gain, but it required more of the mixed food than of peanuts to produce a pound of increase.

FEEDING EXPERIMENTS WITH COWPEAS.

COWPEA PASTURAGE FOR SHOATS.

September 8, 1897, six Essex shoats, all of the same litter and averaging 50.1 pounds each, were divided into two lots, one lot weighing 152.7 pounds, the other 148.2. Lot I, which was slightly the heavier, was confined to a dry lot and fed as much shelled corn as the shoats would eat. Lot II was confined by hurdles to a field of cowpeas of the variety Wonderful or Unknown.

The soil of this field was sandy upland of a better grade than the ordinary upland soils of this locality. The stand of cowpeas was thin and the rows were about four feet apart. Nevertheless the yield of dry peas on the portion of the field from which peas were picked, was at the rate of 13.2 bushels per acre, which is considerably above the ordinary yield.

When the pigs were placed in the field the leaves were all green and only about one-half of the peas had taken on the color of maturity. The other pods were all green, but most of them had attained full size. As long as the leaflets continued succulent and green, they were readily eaten. In the latter half of the experiment only the seed was eaten.

Before the beginning of the experiment proper, the usual preliminary period of a week was allowed for the pigs to get accustomed to their rations. Both lots received hardwood ashes and salt regularly.

During the 6 weeks covered by this portion of the experiment, the results were as follows:

Corn vs. cowpea pasturage and corn.

	Gain.	Lbs. corn eaten.	Lbs corn per lb. gain.
	<i>Lbs.</i>		
Lot I.—Corn alone.....	45.2	263.8	5.86
Lot II.—Cowpea pasturage and corn	122.0	374.0	3.07

When corn was fed alone it took nearly twice as much corn to make a pound of growth as when the pigs had access to both corn and cowpeas. The pigs on pasture had a better appetite, ate more corn, made nearly three times as much growth as the pigs on an exclusive corn diet, and made that gain at less cost per pound.

Assuming that the whole field was similar to the area on which the peas were weighed, yielding at the rate of 13.2 bushels per acre, the area of 7,280 square feet, on which the pigs were pastured during six weeks, yielded 132 pounds of shelled cowpeas. This is equal to 1.1 pounds of cowpeas, together with 3.07 pounds of corn, for every pound of growth made by the pigs. Thus we have 4.17 lbs. as the total amount of mixed grain required to produce one pound of growth, against 5.86 pounds of corn, when corn was fed alone. The better effects of the mixed ration may be due to one or all of the following causes:

- (1.) To the undetermined amount of leaflets eaten;
- (2.) To the more nitrogenous character (or better quality) of the mixed ration;
- (3.) To the better appetites of the pigs on a mixed diet, resulting in the consumption of a larger quantity of corn and in more rapid fattening than occurred with the lot on an exclusive corn diet. It is a well established principle that rapid fattening of pigs is effected with less food per pound of growth than is slow fattening.

The financial statement for Lot II is as follows—based on pork at 3 cents per pound and corn at 40 cents per bushel:

	DR.	CR.
By 122 lbs. of live pork at 3c. per lb.....		\$3 66
To 263.8 lbs. of corn at 40c. per bu.....	\$1 88	
To balance: Value of 7,280 sq. ft. in cowpens.....	1 78	
	\$3 66	\$3 66

This is at the rate of \$10.65 per acre. This is certainly not a large return for an acre, but to this value of pork produced by an acre of cowpeas should be added the fertilizer value of the vines, which is considerable, as every farmer knows. There is reason to believe that vines and excrement on a field where pigs have grazed are worth practically as much for fertilizing purposes as the vines on a similar area not grazed.

A return of \$10.65 per acre, a figure which was obtained from an acre capable of yielding 13.2 bushels of peas, is not to be expected from land poorer than that used in this experiment.

It was planned to duplicate the experiment just detailed, using two Essex sows and their litters, both of the same age and breeding. A few days after farrowing, one sow and her litter were placed in hurdles on the cowpea field referred to above; as much shelled corn was fed as this lot would eat. The other sow, with her litter, received only corn. The experiment was brought to a premature close by the sudden death (from hog cholera and swine plague) of the sow receiving only corn. During three weeks, when both sows were in health, the sow and six pigs on cowpea pasture and supplied with corn made a total gain of 29.9 pounds. The other lot, a sow and seven pigs, receiving only corn, lost during this period 9 pounds. As usual just after farrowing, both sows lost weight—the one on corn alone 42 pounds, the other 9.1

pounds. The seven pigs suckling the corn-fed sow gained 33 pounds; the other lot gained 39 pounds.

GROUND COWPEAS AND CORN VERSUS GROUND CORN ALONE.

At the conclusion of the grazing experiment just noted, the same pigs were used in another experiment closely related in aim to the preceding.

Lot I. was continued on an exclusive corn ration. Lot II. received equal weights of corn and shelled cowpeas. The food for both lots was ground, and both lots were kept in covered pens, with small yards adjoining.

After the usual preliminary period of one week, the experiment proper was begun Nov. 4, 1897, and continued until Jan. 3, 1898.

During this period of 70 days the results were as follows:

Ground corn versus ground cowpeas and corn.

	Gain.	Food eaten.	Lbs. food per lb. of gain.	* Nutritive ratio of food.
	Lbs.	Lbs.	Lbs.	
Lot I.—Ground corn alone.....	68.0	548.2	8.06	1 to 9.7
Lot II.— $\frac{1}{2}$ corn, $\frac{1}{2}$ cowpeas (ground).....	108.0	569.9	5.28	1 to 6.2

* The nutritive ratio of a food is the ratio of the digestible nitrogenous matter contained in it to the sum of the digestible fats, sugars, starch and other non-nitrogenous organic matter. The digestibility of cowpeas was assumed to be the same as that of Canada field peas.

The above table shows that the gain made was much greater with the mixed ration of corn and cowpeas than with corn alone. It required to make one pound of growth more than 8 pounds of ground corn fed alone; less than $5\frac{1}{3}$ pounds of the mixed grain produced the same result.

SWEET POTATOES VERSUS CORNMEAL.

The 6 Poland China pigs employed in the first experiment described in this bulletin were divided at the conclusion of that test, into 2 lots of three each, one lot weighing 191.5 pounds, the other lot 189.2 pounds.

After a week in which to accustom the pigs to their new food the experiment proper, which consisted of two periods of 28 days each, was begun November 4.

During the first period Lot III received a ration consisting of three parts by weight of sweet potatoes and one part ground cowpeas. During this period Lot IV was fed on a ratio made up of equal weights of ground corn and ground cowpeas.

Since more than two-thirds of the weight of sweet potatoes is water, more than half of the ration of sweet potatoes and cowpeas was water. The other ration contained but little moisture, probably 10 or 12 per cent.

The effort was at first made to feed equal weights of dry matter to each lot. This required that each lot should consume equal weights of peas and that for every pound of corn eaten by Lot IV three pounds of sweet potatoes should be eaten by Lot III. Lot III could not be induced to eat the desired quantity of sweet potatoes. Hence each lot was fed all it would eat of its special ration.

At the end of 28 days, the rations were reversed, the pigs which had formerly eaten sweet potatoes and cowpeas being now given corn and cowpeas, and *vice versa*. More than a week was allowed for both lots to become accustomed to their changed rations. Then the second period of the experiment, consisting of 28 days was begun December 16.

The results for both periods are plainly stated in the following table:

Sweet potatoes vs. ground corn.

	Gain.	Food eaten.	Lbs. food per lb of gain.	*Dry matter per pound of gain.
	Lbs.	Lbs.	Lbs.	Lbs.
<i>First period.</i>				
Lot III. { $\frac{3}{4}$ sweet potatoes..... $\frac{1}{4}$ cowpeas (ground).....	36.7	431.0	11.74	5.28
Lot IV. { $\frac{1}{2}$ corn } (ground)..... $\frac{1}{2}$ cowpeas }	78.5	255.8	3.42	3.08
<i>Second period.</i>				
Lot VI. { $\frac{3}{4}$ sweet potatoes..... $\frac{1}{4}$ cowpeas, (ground).....	29.1	446.7	15.35	7.00
Lot III. { $\frac{1}{2}$ corn } (ground)..... $\frac{1}{2}$ cowpeas }	51.7	265.	5.11	4.60
<i>Totals for 8 weeks (1st and 2nd periods)</i>				
Ration of { $\frac{3}{4}$ sweet potatoes..... $\frac{1}{4}$ cowpeas, (ground).....	65.8	877.7	13.34	6.00
Ration of { $\frac{1}{2}$ corn } (ground)..... $\frac{1}{2}$ cowpeas }	130.2	520.8	4.00	3.60

*Assuming 90 per cent. of dry matter in corn and peas and 30 per cent. dry matter in sweet potatoes.

In both periods of the experiment the ration containing sweet potatoes was decidedly inferior to that containing corn.

Taking the results for the entire eight weeks covered by the two periods of the experiment, the increase in live weight was nearly twice as great with the ration containing corn as with the other. In order to produce a pound of increase in live weight there was required $13\frac{1}{2}$ pounds of the ration made up of sweet potatoes and cowpeas, or 4 pounds of the ration of corn and cowpeas.

Making allowance for 70 per cent. of water in the potatoes and 10 per cent. in each of the grains, there was required

to make a pound of increase 3.6 pounds of dry matter in the grain ration and 6 pounds of dry matter in the sweet potato ration.

This result, so disadvantageous to sweet potatoes, was probably due in part to the fact that the pigs would not eat a sufficient quantity of the bulky ration to obtain the same amount of dry matter as was furnished by full rations of the more concentrated mixture.

By feeding a ration made up of equal weights of sweet potatoes and cowpeas, the daily consumption of nutritive materials would doubtless be increased, and on such a ration we might expect results more favorable to sweet potatoes. Again, hogs rooting in potato fields might eat larger quantities of sweet potatoes.

But the difference is apparently too wide to be ascribed wholly to the amount of food eaten. The figures suggest that the dry matter of sweet potatoes is inferior in composition or in digestibility to that of corn.

The results show that under the conditions of this experiment one pound of corn was worth much more than three pounds of sweet potatoes. These figures do not enable us to place an exact value on potatoes, but indicate that pricing corn at 40 cents per bushel, sweet potatoes were worth less than 13 cents per bushel of 56 pounds. (The legal weight of a bushel of sweet potatoes varies in different states.)

If corn were worth 50 cents per bushel, these results would give to sweet potatoes a value considerably below 17 cents. Probably 10 and 12 cents per bushel would be a closer estimate of the nutritive value of a bushel of potatoes fed with cowpeas in the proportions employed in this experiment.

It is plain that sweet potatoes could not profitably be grown, stored, and fed to hogs, even if each bushel could be converted into pork worth 10 to 15 cents. This does not imply that sweet potatoes cannot be profitably employed as food for hogs. But a profit is possible only by saving the expense of harvesting, the heaviest single item of expense in sweet potato culture. If the hogs do the rooting, the sweet potato is doubtless a cheaper food than corn on some sandy

soils that yield ten to fifteen times as many bushels of sweet potatoes as of corn. The vines are also valuable as food for hogs.

The value of sweet potatoes will be enhanced by feeding with them a liberal allowance of cowpeas or peanuts, which supply the nitrogenous material in which the sweet potato is deficient.

EFFECT OF COWPEAS AND PEANUTS ON QUALITY OF PORK.

The feeding experiments with pigs conducted by the Agricultural Department of this Station during the last two years have been chiefly concerned with a comparison of the nutritive values of cowpeas, peanuts, sweet potatoes, corn and other products of Southern farms. The great aim has been to accumulate information which might make plain the methods of producing pork at the least possible cost and with greatest profit.

Attention has also been given to the effects of various foods on the quality of pork. Certain packing houses paid during the past winter extra prices for hogs that afforded the best quality of pork, that is pork with the largest proportion of lean meat. Whether such pork would bring an advanced price or not, it is certainly important that pork for the family table should be of the best quality. While pork from a thin mature hog is not desirable, lean pork from well nourished animals is more nutritious, or contains more of the very valuable nitrogenous material, than does pork that has an excessive proportion of fat.

Both in these experiments and in those recorded in Alabama Bulletin No. 82 the proportion of lean meat was greater in a ration made up of equal weights of cowpeas and corn than with an exclusive corn diet.

One of the corn fed pigs was very thin throughout the latter half of the experiment and yet when the carcass was examined a marked deficiency in muscular development was noted.

Two pigs from each of Lots I, II, V, VI, and VII were carefully examined with reference to the weight of internal organs and amount of fat on stomach, intestines and kidneys. The results showed that the fat on stomach, and intestines constituted 4.20 per cent of the net weight of the pigs fed on corn alone and only 2.43 per cent. of the net weight of those fed on a mixture of cowpeas and corn. There was also a slightly greater percentage of kidney fat on the lot fed on corn.

The pork resulting from feeding a mixture of corn and cowpeas was scarcely distinguishable in appearance from that produced by exclusive corn feeding.

EFFECT OF FOODS ON QUALITY OF LARD.

Fat of pigs from Lots I, II, V., VI. and VII. was rendered into lard. It was evident that the firmness of this lard was greatly effected by the kind of food. Samples of lard were sent to the chemist of the Experiment Station, Prof. B. B. Ross, with a request that he determine the melting points of each sample. His report is given below :

Effects of food on melting point of lard.

Lot. No.	Pig. No.	FOOD.	Lard from body fat, or kidney fat, or both	Melting point of lard.	
				Degrees Fahrenheit.	Degrees Centigrade.
II.	48	$\frac{1}{2}$ cowpeas, $\frac{1}{2}$ corn.	Leaf lard.	114.8	46.0
II.	48	do do	Body lard.	112.1	44.5
I.	47	Corn (large, fat shoat)	Leaf lard.	113.0	45.0
I.	47	do do	Body lard.	109.4	43.0
VII.	63	Corn (small, poor pig)	Leaf and body lard.	109.4	43.0
VI.	61	$\frac{1}{2}$ peanuts, $\frac{1}{2}$ corn.	Leaf and body lard.	104.1	40.5
V.	58	Peanuts.	Leaf and body lard.	78.1	24.5

As pig No. 47 was in good condition when killed, and as No. 63 was not, the lard from the former may be safely taken as the more correct standard for lard from hogs fed exclusively on corn. The average of the melting points of leaf lard and body lard from this pig gives 111.2 degrees Fahrenheit as a standard. The average melting point of lard from the pig fed on cowpeas and corn was 113.4 degrees, or 2.2 degrees higher than that of corn lard. When equal weights of peanuts and corn were fed, the melting point of the lard was reduced 7.1 degrees Fahrenheit below the standard. When peanuts constituted the entire ration the melting point was lowered by 35.1 degrees.

Lard from exclusive peanut feeding solidified only during the coldest weather of February, at other times in February and March becoming almost a semi-liquid.

The low melting point, or want of firmness of lard, made from peanuts, injures its sale. However, cooking tests fail to reveal any real inferiority.

As shown by the above table, leaf lard was slightly firmer than body lard.

It is a common practice among farmers whose hogs depend largely on peanuts, sweet potatoes and acorns, to feed corn exclusively in the two or four weeks immediately preceding the date of butchering. The aim is to harden the meat.

With the aim of learning to what extent pork can be hardened by this process, one pig from each of the pens receiving peanuts or cowpeas, was placed on an exclusive corn diet after the conclusion of the experiments described above. This corn ration was continued for one month. Then the pigs were slaughtered, the fat rendered into lard, and the melting points again determined by Professor Ross, with the following results:

Melting point of lard from pigs, fed on various ration, but on corn alone during the last month of life.

Lot No.	Pig No.	Food up to 1 mo. before killing.	Food for 1 mo. before killing.	Melting point of lard.	
				Degrees Fahrenheit	Degrees Centigrade
II.	45	{ $\frac{1}{2}$ cowpeas. $\frac{1}{2}$ corn.	Corn.	109.4	43.0
V.	56	{ $\frac{1}{2}$ peanuts. $\frac{1}{2}$ corn.	Corn.	98.6	37.0
VI.	59	Peanuts.	Corn.	101.3	38.5

The month of corn feeding had a marked effect in raising the melting point from 76.1 degrees (No. 58) up to 101.3 degrees, a temperature which was still considerably below that of corn lard.

The month of corn feeding did not raise the melting point of the two samples of lard from pigs which prior to that period had received for several months a ration consisting of half corn and half peanuts. In fact, the melting points at the end of the month of exclusive corn feeding were several degrees lower than at the beginning, a variation which was probably due to individual peculiarities of the different animals from which the samples of lard were made.

Even after the month of exclusive corn feeding, the lard and pork from pigs formerly receiving peanuts were conspicuously more oily and softer than ordinary lard and pork.

After one month of corn feeding, cooking tests of small sections of pork from Nos. 45, 56 and 59 were made by two families. One report was as follows :

“The corn and cowpea sample [Lot 2] looked and cooked like all corn-fed pork; very little shrinkage; flavor very fine and delicate. The all-peanut sample [Lot VII] was rather soft.

It shrank more than the other in cooking, but the flavor was peculiarly sweet and rich. It was preferred to either of the others by some of the family. The corn and peanut sample was intermediate in character. All were pronounced very good, much better than the average pork of the market."

The other report was substantially the same except that the samples from the lots fed on peanuts alone, and peanuts and corn, were not distinguishable in flavor. Even after cooking, the samples from the lots fed partially or exclusively on peanuts were more oily and less firm than ordinary pork.

In brief, one month of exclusive corn feeding increased the firmness of pork made from animals previously fed on peanuts alone, but the improvement was not sufficient to make the flesh or the lard as firm as the same articles afforded by animals fed entirely on corn. Further experiments in this direction are planned.

APPENDIX.

Lungs, heart, spleen, liver, kidneys, fat on stomach and intestines, and fat around kidneys in percentages of dressed weight (dressed weight=100); also actual dressed weight in pounds:

Lot.	Pig--Number.	Lungs.	Heart.	Spleen.	Liver.	Kidneys.	Fat on stomach and intestines.	Fat around kidneys.	Dressed weight.
		%	%	%	%	%	%	%	Lbs.
I.....	44	.81	.20	.099	2.91	.240	4.85	6.75	50.4
I.....	47	.62	.27	.140	3.03	.250	3.55	4.85	124.4
I.....	Av	.72	.24	.120	2.97	.245	4.20	5.80	87.4
II.....	46	.52	.20	.090	2.10	.280	2.17	5.90	123.9
II.....	48	.61	.31	.180	1.98	.310	2.69	5.11	93.8
II.....	Av	.57	.26	.135	2.04	.295	2.43	5.50	108.9
V.....	60	1.13	.30	.090	4.34	.540	3.08	7.00	33.4
V.....	61	.64	.34	.230	2.84	.350	4.32	5.53	68.5
V.....	Av	.89	.32	.160	3.59	.445	3.70	6.27	51.0
VI.....	57	1.32	.42	.170	4.77	.310	4.80	6.40	28.9
VI.....	58	1.01	.39	.160	3.95	.440	4.52	6.94	38.5
VI.....	Av	1.17	.41	.165	4.36	.375	4.66	6.67	33.7
VII.....	62	1.29	.36	.140	8.63	.360	1.08	2.52	13.9
VII.....	63	1.98	.48	.190	3.09	.430	4.20	4.37	20.7
VII.....	Av	1.64	.42	.175	5.86	.395	2.64	3.45	17.3

