FULL FEEDING VERSUS LIMITED FEEDING OF SWINE ON PEANUT PASTURE

by

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B. S., Kansas State College
of Agriculture and Applied Science, 1926

A THESIS

submitted in partial fulfillment of the

requirements for the degree of

MASTER OF SCIENCE

KANSAS STATE COLLEGE
OF AGRICULTURE AND APPLIED SCIENCE

1934

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INTRODUCTION

Limited feeding versus full feeding of swine is a problem that has attracted attention mainly outside of the corn belt. In sections of the country where corn is not grown extensively, efforts are being made to replace it as much as possible with pasture such as soybeans, cowpeas, velvet beans, and peanuts. Even under corn belt conditions, the question of the advantage of limited feeding over full feeding might arise. Especially when the feeder is trying to hold his animals for a more favorable market or when corn is high in price.

The purpose of the investigation is primarily to determine the most efficient method of feeding concentrates on peanut pasture. Other questions of secondary consideration that were associated with the experiment were as follows:

1. Can peanuts be used for finishing hogs for the early fall market?

2. Will limited feeding produce acceptable finish for the market?

3. Possibilities of restricting the concentrates of pigs farrowed in early winter in mild climates thereby utilizing a long grazing period and preparing them for an

early fall market.

PART I

DISCUSSION OF PEANUTS

Description of the Plant

Botanically, the pea belongs to the family Papilionacea or pea family. It is an annual with more or less trailing habit of growth. The plants grow from one to two feet high and produce thick, angular, hairy stems with spreading branches. Each leaf consists of the leaf stem and two pairs of leaflets. No tendrils are produced. The small yellow flowers are produced more or less clustered in the axil of the leaves. Two kinds of flowers are produced. The male or staminate flowers, which are rather showy and the hidden pistilate flower. When fertilization takes place, the male flower withers and falls. Immediately the short, thick peduncles that support the female flower turn downward until sharp pointed ovaries are thrust into the soil, the result being that the development of the pods takes place underground entirely.

The fruit of the peanut is really not a nut, but a ripened pod with edible seed.

The roots are yellow in color and abundantly supplied

with nodules.

Composition

All parts of the peanut are rich in nutrients. The seeds are especially rich in oil. The meal or cake left after the oil has been extracted is high in protein. Peanut hay is almost as high in value as clover hay. Morgan (7) quoting from Hunt gives the composition of peanuts as shown in table 1.

Table 1. Composition of Peanuts

	Water	Ash	Protein	Fiber	Nitrogen-free extract	Fat
Peanut kernels	7.9	2.8	29.5	4.3	14.2	49.2
Peanut meal	10.7	5.5	52.5	5.9	27.3	8.8
Peanut vines before blooming	31.2	10.7	12.6	22.2	48.3	6.1
Peanut vine cut when fruit was ripe	31.9	12.1	10.8	32.2	39.8	5.0

Variety Suitable for Hog Pasture

The Spanish peanut is used more widely as a livestock feed than any other variety. The pods are small, and the plant upright in growth. Yields of 50 to 75 bushels per acre are common. A bushel of peanuts weighs 28 pounds.

Peanuts as Hog Feed

The production of a soft, oily fat is characteristic of peanut feeding. This is due to the fact that the oil found in such plants has a relatively low melting point. The fat may be laid down directly in the body of the animal without change. A great deal of experimental work has been done to remedy this condition but apparently little progress has been made. The result of soft pork investigations show that peanuts grazed or self-fed with or without supplementary minerals for a period of 60 days to pigs starting at approximately 100 pounds in weight, produce soft or oily carcasses. It is impossible to produce hard carcasses by feeding corn and tankage or corn and cottonseed meal to such soft hogs for a subsequent feeding of 60 days although the hogs are made firmer by subsequent feeding of hardening feeds.

Hardening on corn and non-softening supplements proceeds more slowly than softening on peanuts with pigs. Starting at approximately 100 pounds initial weight, it appears to require three times as much gain on corn and non-softening protein supplements as previously made on peanuts to produce hogs of a moderate degree of firmness.

Fresh pork from a soft carcass is soft, flabby and

difficult to handle. Lard, when derived from oily carcasses, is usually fluid at ordinary temperatures. The sausage will not hold its shape in retail packages or in cakes for frying. The smoked products present a greasy, unattractive appearance. Fluid fat may even drop from the meat, especially in warm weather.

Feeding Results with Peanuts

Under practical farm conditions, peanuts are usually grazed off by hogs. An idea of the rate of gain and the amount of peanuts required for 100 pounds of gain may be secured from Hankins and Ellis (6) as shown in tables 2 and 3.

Table 2. Summary Results of Feeding Peanuts Grazed

Number of pigs used	146
Average number of days fed	47.09
	pounds
Average initial weight	107.13
Average final weight	161.68
Average gain	54.55
Average daily gain	1.16

Table 3. Summary of Results of Feeding Unshelled Peanuts Self-fed in Dry Lot

Number of pigs used	316
Average number of days fed	60.07
	pounds
Average initial weight	96.64
Average final weight	166.53
Average gain	69.89
Average daily gain	1.16
Feed consumed per 100 pounds daily gain:	
	pounds
Unshelled peanuts	351.90
Mineral mixtures based on results of 133 hogs	9.40
Total	361.30

It will be observed that most of the experiments with peanuts are carried out in dry lots so that the amount of feed required per 100 pounds of gain can be determined. In the previous experiments, the rate of gain in the dry lot and from grazing peanuts were identical.

Some points of interest from the work of J. C. Grimes and W. D. Salmon of the Alabama Station[1] show that hogs made good gains on peanuts supplemented by minerals only. The rate of gain was slightly increased by supplementing peanuts with corn. Minerals were supplied in all cases.

Burk (3) of the Texas Station in 1918 found that hogs grazing on peanut pasture alone made satisfactory gains.

1. Letter from J. C. Grimes.

Hogs grazing on peanut pasture and receiving a half grain ration of milo, chop, and cottonseed meal made very little better gain than when fed peanuts alone.

Hogs fed in dry lots after grazing on peanuts made more rapid gains than those that were continued on peanut pasture or those that had been fed a balanced ration in the dry lot during the entire period. Therefore, a grain ration may be profitably fed to hogs previously grown on peanuts.

W. W. Henley,[1] Assistant Animal Husbandryman at the Florida Station makes the following statements concerning peanut feeding: "The Animal Husbandry Department of this station has been feeding both Spanish and runner peanuts on pasture planted with other field crops for fattening hogs the past three years. We used peanuts alone and various combinations of crops, such as peanuts plus corn, peanuts plus sweet potatoes, etc. The gain on the crops naturally vary with the yield of crops. We have secured more pork per acre when we fed peanuts with sweet potatoes (one acre each) supplemented with fish meal 60 per cent protein ad libitum."

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1. Letter from W. W. Henley.

FULL FEEDING VERSUS LIMITED FEEDING ON PEANUT PASTURE

Since the experiment was conducted on somewhat immature peanuts and parts of the young growing vine were consumed, the crop must be regarded partly as a forage crop. Other native forage plants were also mixed with the peanuts. Information of this nature is quite limited, therefore, it will be well to review the literature from other sources on limited feeding.

Most of the work on limited feeding has been done in the western and northern section of the United States. There, the production of carbonaceous concentrates is a limiting factor. The same condition exists in the southern states where the yield of corn is low and high in price. As long as this condition exists, swine production in these sections will be limited. Limited grain feeding may or may not be a partial solution to this problem.

The following discussion will show the advantage and disadvantage of limited feeding on pasture.

Full feeding in dry lot may even be questioned according to Ellis and Zeller (4). Pigs produce more efficiently on limited feed levels. Do pigs which are allowed all the feed they can consume produce pork more economically than

those fed on a restricted basis? It is true that full feeding or self feeding produces the most rapid gains and shortens the time required for a pig to reach market weight. Results of recent feeding tests conducted at the United States Animal Husbandry Experimental Farm, Beltsville, Maryland, have shown, however, that decreasing the feed intake as low as 50 per cent of a full feed resulted in an increasing efficiency in the conversion of feed into pork.

Test Showing Material Saving in Feed

In a test conducted during the fall of 1930, three lots of pigs were fed 2, 3, and 4 pounds of feed respectively per 100 pounds of live weight. The ration consisted of corn, tankage, alfalfa meal, and mineral mixture to give a nutritive ratio 1:5.5. The pigs were kept in dry lots without access to pasture and were hand fed individually twice a day in a compartment feeder. They weighed approximately 68 pounds each at the beginning of the test and were slaughtered when they reached weights of approximately 200 pounds each.

The pigs on the 4-pound allowance required only 119 days to reach slaughter weight but they consumed 559 pounds of feed to do so. On the other hand, even though pigs on the 2-pound allowance of feed required 166 days to reach the

same, they consumed on the average, only 395 pounds of feed. Thus, restrictions of the feed from 4-2 pounds per 100 pounds live weight resulted in the saving of over 150 pounds of feed for each pig even though additional time was required to reach market weight. The pigs on the 3-pound allowance were intermediate to the other two lots. They reached an average weight of 200 pounds in 128 days and consumed 458 pounds of feed. One hundred pounds thus produced 32, 29, and 24 pounds of pork respectively. In other words, the most restricted lot produced one-third more pork on an equal amount of feed, but in a 40 per cent longer feeding period than the full fed lot. No injurious or distressing effects upon the physical development of the pigs were observed even in the lowest feeding level.

Production of Lean Pork by Restricted Feeding

There was also a marked difference in leanness of pork produced by the high and the low feeding levels. The leanest pork was produced on the lowest feed level. This was accompanied with an increased yield in the higher price cuts such as the ham and loin.

Whether the previous experiment will hold true under all conditions, may be open to question. The amount of grain required for 100 pounds of gain on the full fed ration

is rather high. More favorable results are to be expected in feeding a limited ration to hogs on pasture. Usually the economy of full feeding in a dry lot is unquestioned due to rapid gain which means a smaller proportion of feed for maintenance. To what extent cheap pastures will replace high price concentrates in the ration is of considerable importance, especially when grain production may be the limiting factor. The irrigated section of the west where alfalfa pasture can be produced in abundance is a striking example. In the southern section of the United States, year round pastures are available. The Canadian experiment farm and parts of the United States too far north for successful corn growing have used the limited ration to economize on the grain portion of the ration.

Under ideal conditions of production in the corn belt, it will seldom be necessary to consider limited feeding where two litters a year are being produced, and with the pigs ready for market at six months of age, limited feeding would not be practical. On the other hand, the farmer may not have an ample supply of corn for spring and summer full feeding. Limited feeding would also be justified where pigs are farrowed late and cannot be finished for the early market. Feeder pigs are also desirable for following cattle that are being full fed.

The following list contains questions that might arise from the use of a limited ration:

1. The economy of gain.
2. How will limited fed pigs respond to full feeding?
3. The effect of protein supplements on a limited ration.
4. The question of early marketing.
5. Corn and hog price fluctuation for different months of the year.
6. Possibility of shifting farrowing dates to make greater use of pasture and meet the early market conditions in some sections.

An attempt to answer the above questions will be made by reviewing experimental work.

The Economy of Gain

Table 4 shows that less concentrates are required in limited feeding to produce 100 pounds of gain. This means that pasture is being utilized to a greater extent. The rate of gain is almost in direct proportion to the amount of concentrates consumed. The low daily gains of limited feeding in some cases more than offset the advantage of low feed requirement. Young pigs may become stunted and unthrifty. According to Arnett (1) hogs will not do well

Table 4. Limited Feeding on Pasture.

Experiment Station	Ref. No.	Initial weight	Length of feeding period (days)	Average daily gain (pounds)	Ration	Concentrates for 100# of gain
Belle Fourche	2	28	120	.47	Alf. pasture + 2% corn	241# corn
		28	120	.93	Alf. pasture + corn self fed	353# corn
Minnesota	7	34.5	137	.53	Alf. pasture + 3% corn	----
		32.1	137	.66	Alf. pasture + 4% corn	----
Huntley Recl. Project	10	38	73	0.11	Alf. pasture alone	none
		37	73	.20	Alf. pasture + 1% corn	232# corn
		38	73	0.38	Alf. pasture + 2% corn	280# corn
		37	73	.37	Alf. pasture + 2% corn	280# corn
		39	73	.62	Alf. pasture + 3% corn	294# corn
		38	73	1.08	Alf. pasture + corn self fed	348# corn
Huntley Recl. Project	10	50.4	81	.52	Alf. pasture + limited ration	288# corn
		51.5	87	1.04	Alf. pasture + full feed	339# corn
Ohio	20	48.4	85	1.034	Clover pasture + corn and tankage full feed	371.942#
		48.1	85	.623	Clover pasture + corn and tankage 3%	349.816#
		48.3	85	.502	Clover pasture + corn and tankage 2%	266.791#
North Dakota	21	41.3	109	.78	Alf. pasture + 2½% grain	325#
		48.5	109	.93	Alf. pasture + 3½% grain	344#
		46.4	109	1.14	Alf. pas. + grain self fed	464#

on a limited ration until after they weigh 60 or 70 pounds.

It is a common opinion that pigs cannot utilize a large amount of forage to a good advantage, but young pigs make greater gains per unit of feed than older animals, thus pointing out the advantage of early growing gains.

All limited feeding trials do not show the advantage of the one mentioned. As shown by Swine Feeding Investigations by Weaver (10). Lot 1 was given a full ration of 9 parts corn, 2 parts shorts, and 1 part tankage. They were on pasture from June 16, 1917 to October 13, 1917. The average initial weight was 34 pounds and the average final weight 202.58 pounds. The average daily grain ration was 4.15 pounds per head daily. The pigs gained on the average 1.05 pounds daily. It required 395 pounds of concentrates to produce 100 pounds of gain in live weight.

Lot 2 was fed one-half ration of the same mixture as lot 1 during the pasture season which was 155 days. They were fed until approximately the same weight as lot 1. This required 208 days. The average initial weight of pigs in lot 2 was 34.3 pounds and final weight of 204 pounds. The average amount of concentrates eaten per pig daily was 3.36 pounds while the average daily gain was 0.82 pounds for this lot and 4.09 pounds of grain were required to produce 1 pound of live weight.

These data indicate that with pigs of spring farrow, there is little difference in amount of grain required to bring a hog to marketable weight, whether he is full fed from weaning to market or whether he is grown to a weight of 100-125 pounds and then full fed.

Ferrin and McCarty (5) conclude that the cost of 100 pounds of gain are approximately the same for limited feeding and full feeding alfalfa pasture saved 100 pounds of concentrates on limited feeding and 62 pounds on full feeding.

Peters and Giekin (8) found that 3 1/2 pounds of grain per 100 pounds of live weight was more satisfactory than a larger or smaller amount.

An experiment by Bell (2) indicated that neither market weight nor as desirable a finish can be secured on alfalfa pasture with limited feeding as when grain is full fed. For the hog raiser who has to purchase corn during the summer, it would be advisable to feed only a limited grain ration to his hogs until he can buy new corn cheaper. But with plenty of corn on hand and a good market for hogs, it would be advisable to full feed.

How Limited Fed Pigs will Respond to Full Feed

Pigs that have been on a restricted ration make more rapid gains when placed on full feed than those that have been full fed continuously.

A study of corn and hog prices during the year indicate that hogs show a more violent fluctuation than corn. September and April being the two peak months for hog prices. August being the peak month for corn.

The following figures by Vestal (9) show the trend of corn and hog prices during the year.

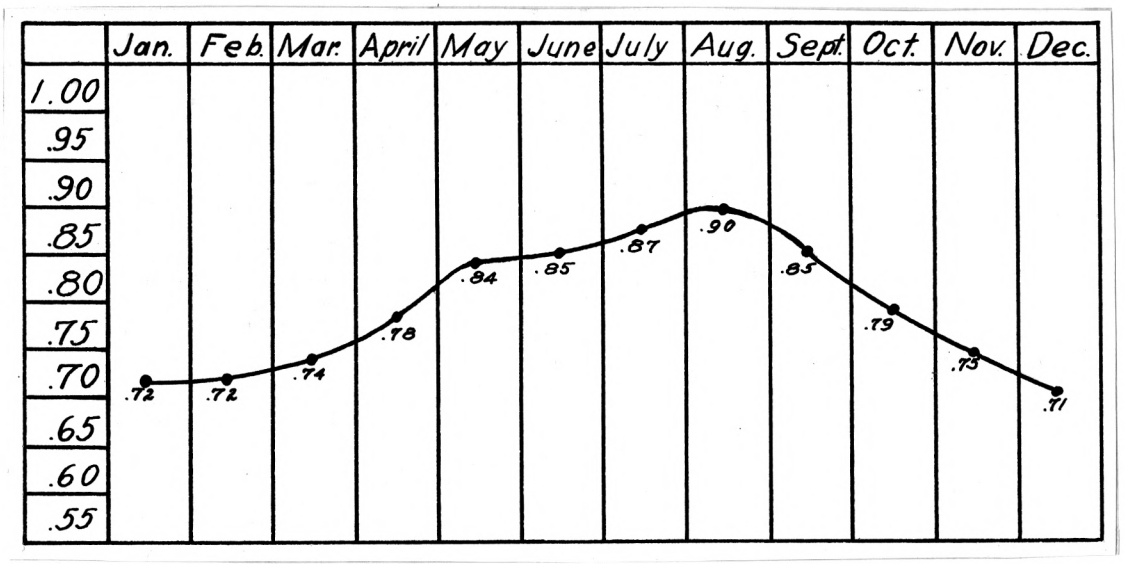

Figure 1

The general monthly trend of corn prices. Average prices of No. 3 yellow dent corn on the Chicago market 1902-1921 (20 years).

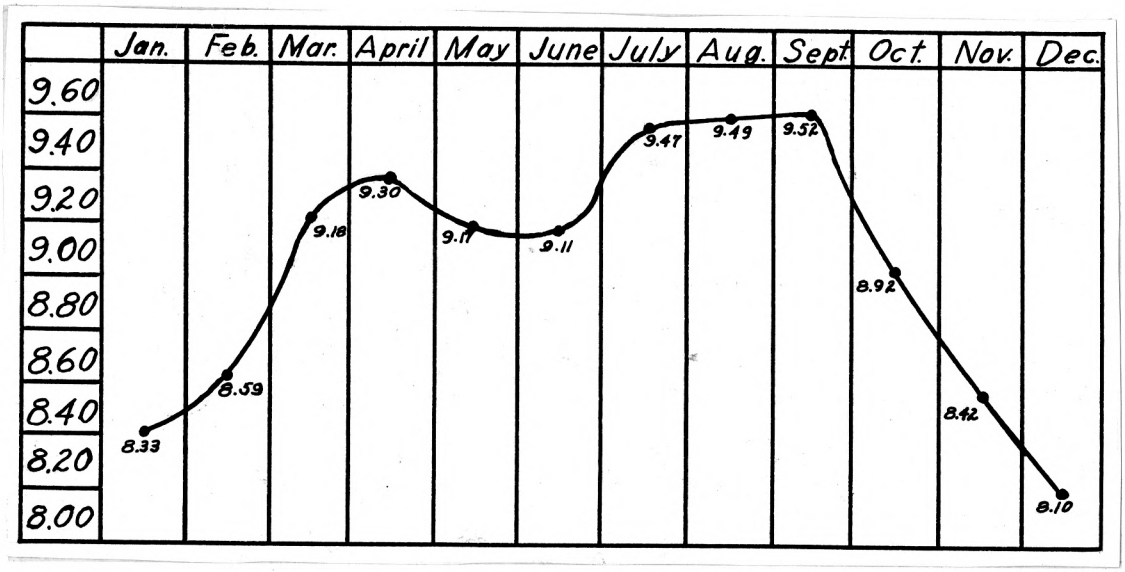

Figure 2

General monthly trend of prices for fat hogs. Average prices of hogs weighing 200-250 pounds on the Chicago market 1902-1921 (20 years).

SHIFTING THE FARROWING DATES

In a mild climate with year round pasture, pigs may be farrowed any month of the year. If gilts are used for producing one litter, they may be bred to farrow the first of December. Pigs may be weaned early enough for their dams to be fattened for a good market in March or April before the heavy spring runs start.

The pigs will make cheap gains by utilizing pasture. Here, limited feeding might prove its worth. The pigs can be easily finished for the September market which is usually the highest in the year.

Corn in the Southern States is also mature enough to feed at this time. Summer pigs can be farrowed successfully in spite of the general opinion against such a practice. These feeder pigs might be shipped to the corn belt or fattened locally. Again, marketing can take place before the heavy spring runs.

PART II

LIMITED FEEDING VERSUS FULL FEEDING ON PEANUT PASTURE

The purpose of the experiment herein reported - limited feeding versus full feeding on peanut pasture was to determine the following facts:

1. The amount of concentrates that should be fed on peanut pasture.

2. Can hogs be finished on peanut pasture for the early fall market?

3. The possibilities of using December farrowed pigs to meet the demands of an early market.

4. The possibilities of utilizing a long grazing period with a limited amount of concentrates before finishing on peanut pasture.

5. Whether or not immature peanuts can be used successfully as a hog pasture.

PROCEDURE OF EXPERIMENT

Description of Pigs Used

The pigs were born during the month of December, 1932. Their dams were farrowed about the same time of the year in 1931. In breeding, the pigs ranged from three-fourths to

pure bred Duroc Jerseys. Both sex were used. Since a limited amount of feed was available for the young pigs, weaning was delayed until they were twelve weeks old. At this time, they weighed about 35 pounds each.

Since corn was not available, garbage from the school dining hall was used for feed. Pasture was available at all times. It consisted of barley and oats during winter and early spring. The pigs also had access to native pasture which was mainly Bermuda grass. Vetch and burr clover were abundant in the early spring. The latter two disappeared with the coming of hot weather.

The pigs were wormed and vaccinated after weaning. The limited feeding no doubt was responsible for the unusual variation in size and condition among the animals as weights will show later.

A mixture of sudan grass, sorghum, and soybeans was planted for summer pasture. The soybeans made very little growth. The pigs grazed on the sudan grass and sorghum in its early growing stages but later they preferred native pasture.

Beginning of Experiment on Peanut Pasture

On August 27, 1932, the first weights were taken. The animals were re-weighed the two following days, and an

average of the three weights taken as the initial weights. During these three days, the pigs were fed a 2 per cent corn ration.

The animals were divided into three groups of 10 each. Care was taken to divide the animals equally as to size and condition in the different lots. The pigs were then ear tagged for identification.

Weighing was done on platform scales placed in the alley-way of the hog house. A crate that could be opened at each end was placed on the scales. The hogs were driven on and weighed individually. The original plan was to weigh the hogs every 10 days but after the first 10-day period, weekly weighings were made. The reason for numerous weighings was to check the rate of gain against a variation in amount of peanuts available for feeding.

Feeds

Eight acres of peanuts were planted the first of May. The stand was poor and the yield of seed rather low. A great deal of Bermuda grass was mixed with crops. In order to prepare the hogs for an early market, it was necessary to turn the hogs on the crop before maturity and the maximum yield of seed. This is one of the difficulties in the early pasturing of peanuts.

At the end of ten days, most of the peanuts, that is, the seed, had been consumed. Part of the vines remained alive and continued to produce seed. The tender, young growing leaves were also eaten after the first ten days. It was mainly an experiment on peanuts and Bermuda grass as forage crops rather than one as peanuts serving as a concentrate. The gains for the first ten days will verify this fact.

Description of Concentrates Fed

Corn was fed in the shuck. Several hundred pound samples were weighed and the amount of grain determined. A moisture list was made at the beginning of the feeding period. The grain contained 16 1/2 per cent moisture. Three weeks later the moisture content was 16 per cent, and at the end of the experiment 15 1/2 per cent. A Duval moisture tester was used.

Tankage containing 45 per cent protein was fed. It was purchased from a local packing plant in Houston. It was of such poor quality that very little was consumed by the hogs when fed free choice since all the animals did not consume over 100 pounds during the feeding period. This feed probably had no effect on the results. The tankage perhaps was more of a fertilizer or chicken feed than

a protein concentrate suitable for hog feeding, but this was the only kind that could be secured since tankage is very scarce in this section of the country. Towards the end of the feeding period, tankage was refused altogether.

A mineral mixture containing 1 part salt, 2 parts bone meal, and 2 parts lime was used. It was available at all times but very little was consumed.

RESULTS OF THE EXPERIMENT

The following tables show the result of the experiment after the hogs had been fed on peanut pasture for 45 days.

Table 5. Peanut Pasture Alone

Lot 1

Individual	Initial weight	Final weight	Gain per hog	Gains squared
1	153.17	180.25	27.08	733.33
2	152	179.67	27.67	765.63
3	164.83	188.67	23.84	568.35
4	149	166.33	17.33	300.33
5	179	197.50	18.50	342.25
6	147.83	173.50	25.67	658.95
7	191	218	27	729
8	135	163.67	28.67	821.97
9	172.33	195.83	23.50	552.25
10	149.33	181.33	32	1024
Total	1593.49	1844.75	251.26	6496.06

Table 6. Peanut Pasture plus One-half Full Feed

Lot 2

Individual	Initial weight	Final weight	Gain per hog	Gains squared
1	151	182.67	31.67	1002.99
2	151.67	200.17	48.50	2352.25
3	195.33	235.67	40.34	1627.32
4	133	173.67	40.67	1654.05
5	161.17	208	46.83	2193.05
6	181.83	225.83	44	1936
7	135.33	155.67	20.34	413.72
8	150.33	197.17	46.84	2193.99
9	159.83	202.17	42.34	1792.68
10	175	210.67	35.67	1272.35
Total	1594.49	1991.69	397.20	16,438.40

Table 7. Peanut Pasture plus Full Feed

Lot 3

Individual	Initial weight	Final weight	Gain per hog	Gains squared
1	188	267.5	79.5	6320
2	140	203	63	3969
3	155.17	220.5	65.33	4268.01
4	170.33	257	86.67	7511.69
5	169.17	240.5	71.33	5087.97
6	150	204.5	54.5	2970.25
7	130.33	171	40.66	1653.24
8	163.17	219.5	56.33	3173.07
9	144.83	201	56.17	3155.07
10	151	209	58	3364
Total	1562.00	2193.5	631.04	41,472.30

Statistical Analysis of Lots

Lot 1

Mean $M = \frac{\Sigma X}{N} = \frac{251.26}{10} = 25.126$

Standard Deviation $S.D. = \sqrt{\frac{\Sigma(X)^2}{N} - (M)^2} = \sqrt{\frac{6496.06}{10}} = 631.52$

Standard of Deviation $= 4.27$

Probable error of the mean $= .6745 \frac{Q}{\sqrt{N}} = .6745 \frac{4.27}{\sqrt{10}}$

$$.6745 \times \frac{4.27}{3.1623} = \frac{2.880115}{3.1623} = .91$$

Probable error of the mean $= .91$

Lot 2

$$\text{Mean} = M = \frac{\Sigma X}{N} = \frac{397.20}{10} = 39.72$$

$$\text{Standard Deviation} = \text{S.D.} = \sqrt{\frac{\Sigma X^2}{N} - M^2} = \sqrt{\frac{16438.40}{10} - (39.72)^2} =$$

$$\sqrt{1643.84 - 1577.69} = \sqrt{66.15} = 8.13$$

$$\text{Standard Deviation} = 8.13$$

$$\text{Probable Error of the Mean} = .6745 \frac{Q}{\sqrt{N}} = .6745 \times \frac{8.13}{\sqrt{10}} =$$

$$.6745 \times \frac{8.13}{3.1623} = 5.4836 = 1.74$$

$$\text{Probable Error of the Mean} = 1.74$$

Lot 3

$$\text{Mean} = M = \frac{\Sigma X}{N} = \frac{631.04}{10} = 63.1$$

$$\text{Standard Deviation} \sqrt{\frac{\Sigma X}{N} - (M)^2} = \sqrt{\frac{41472.30}{10} - (63.1)^2} =$$

$$\sqrt{4147.23 - 3981.61} = \sqrt{165.62} = 12.87$$

$$\text{Standard Deviation} = 12.87$$

$$\text{Probable Error of the Mean} = .6745 \times \frac{12.87}{3.1623} = \frac{8.6808}{3.1623} = 2.75$$

Probable Error of the Difference between Lots

Probable Error of Difference $M_1 - M_2 = \sqrt{(P.E.M_1)^2 + (P\ E\ M_2)^2}$

Lots 1 and 2

$\sqrt{(1.74)^2 + (9.1)^2} = \sqrt{3.028 + .8281} =$ 1.96 P.E.of Diff.

39.72 - 25.126 = 14.594 Mean of Diff.

Lots 1 and 3

$\sqrt{(2.75)^2 + (.91)^2} = \sqrt{7.5625 + .8281} =$ 2.91 P.E. of Diff.

63.1 - 25.126 = 37.974 Mean Diff.

Lots 2 and 3

* $\sqrt{(2.75)^2 + (1.74)^2} = \sqrt{7.5625 + 3.028} =$ 3.26 P.E.of Diff.

25.38 Mean Diff.

* Holsinger's Table 54.

Table 8. Summary of Results

Lots	1	2	3
Method of feeding	Peanut pasture alone	Peanut pasture plus one-half full feed	Peanut pasture plus full feed
Number hogs per lot	10	10	10
Number days on test	45	45	45
	Pounds	Pounds	Pounds
Average initial weight per hog	159.349	159.449	156.250
Average final weight per hog	184.475	199.169	219.350
Average gain per hog	25.126	39.720	63.100
Average daily gain per hog	.558	.883	1.400
Average daily ration per hog:			
Corn	----	3.282	6.564
Meatscraps	.075	.075	.075
Peanut pasture	Ad lib.	Ad lib.	Ad lib.
Feed required per 100 pounds gain:			
Corn	----	372.55	468.146
Meatscraps	13.41	8.85	5.23
Peanut pasture	Ad lib.	Ad lib.	Ad lib.

Gains were practically the same in all lots for the first 10 days, indicating very little advantage of supplementing peanuts with concentrates as long as peanut seed was available as feed.

In grazing, the hogs would eat the seed without destroying all the plants. These remaining plants were able to continue the development of seed. Native vegetation was grazed along with the peanuts.

The criticism of peanuts for early finishing of hogs is their late maturity. They reach their maximum development a month or six weeks too late.

The hogs that were full fed were in excellent market condition. The lots receiving the 2 per cent ration were not uniformly finished, while in lot receiving no grain, only one-half the animals could be considered ready for market. They were somewhat thin and flabby in appearance. Variation in flesh was very noticeable in individuals of the last two lots mentioned. Some animals apparently responded to limited feeding much better than others.

The amount of concentrates for 100 pounds of gain decreased as the ration was limited. A much longer feeding period would have been required to secure a desirable finish in the groups fed the limited rations.

STATISTICAL ANALYSIS

Ten hogs in each group are not enough for an accurate statistical evaluation. At least 35 in each group would be necessary. However, the differences between all lots are so much greater than the probable errors of the differences as to indicate the results are significant, and not due to chance.

In every case the difference is much greater than four times the probable error which is considered significant.

The difference in gains are also significant in the individual gains between lots with the exception of one case do not over lap.

CONCLUSIONS

(1) Hogs will make satisfactory gain on peanuts alone as shown in the early part of the experiment. Supplementing peanuts with corn reduces the softness of pork but does not completely eliminate this condition.

(2) Peanuts are not suitable for finishing pigs for an early market because of their late maturity. An attempt to pasture peanuts early is a wasteful procedure. A large number of plants are destroyed before maturing seed. A crop of soybeans or cowpeas would be more suitable for the

early finishing of hogs.

(3) Limited feeding produces a lean type of carcass which should meet the market demand. There is a greater proportion of higher price cuts such as loin and ham. Limited feeding is to be recommended when the feeder wishes to carry his hogs through periods of low prices.

(4) Less concentrates and more pasture is required to produce 100 pounds of gain. The rate of gain is in direct proportion to the amount of concentrates fed.

(5) Market conditions usually favor full feeding.

(6) Limited fed pigs grow more rapidly for their weight when placed on full feed than pigs that have been on a continuous full feed.

(7) The farmer's individual condition will determine whether he shall follow the full feed or hunt feed system. The important factors to be considered in choosing between full feeding and limited feeding are:

1. Relative cost and availability of grain and pasture.
2. General trend of corn prices.
3. General trend of market prices of fat hogs during the year.
4. Climatic conditions.
5. Other farm operations.

(8) In mild climates, the changing of the farrowing

period from early spring to early winter will aid in overcoming the disadvantage of marketing limited fed hogs.

(9) Statistical analysis associated with extreme difference in average gain per lot indicate the results are significant and not due to chance.

ACKNOWLEDGMENT

The writer hereby wishes to acknowledge the assistance of the following men: Dr. C. W. McCampbell in planning the experiment; Prof. A. D. Weber in securing reference material; and Prof. M. C. Moggie in statistical interpretation of results.

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