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PEANUTS AND
PIGS



ADDRESS
CLARENCE OUSLEY
Director of Extension Service, College Station, Texas

On account of the increase in the peanut industry, stimulated in large degree by the activities of the College during the winter of 1914 and early spring of 1915, it is important at this time to publish the result of an investigation made by Mr. T. O. Walton, chief leader in charge of farm demonstration work, in the growing of peanuts and the raising of hogs as practiced successfully for several years by the farmers of Brooks, Lowndes and Colquitt counties in South Georgia. Mr. Walton's report is contained in the following pages, to which are added some observations on the growing of peanuts by Dr. J. Oscar Morgan, Professor of Agronomy, and by Prof. J. C. Burns, Professor of Animal Husbandry in the A. and M. College. These additions are reprints, in part, from our Extension Bulletin ES-3, entitled "Peas and Peanuts," published in January, 1915, which is now exhausted. As soon as funds will permit, that bulletin will be revised and republished. Meanwhile, those desiring further information on the subject of peanuts are advised to write to the Department of Agriculture, Washington, D. C., for Farmers' Bulletins Nos. 411 and 431 and Circular No. 98. The primary object of this publication of the South Georgia experiences is to exhibit the success of farmers in combining peanuts with hogs. Incidentally, the bulletin shows, also, how peanut-fed pork may be handled to the best advantage; how meats may be cured at home, and how local ice plants may serve the farmers in their neighborhoods at small expense and fair profits.

It is important for farmers who raise peanuts to bear in mind that if both the nuts and the hay are sold from the farm and no system of rotation is practiced, the soil will be rapidly depleted in fertility. The peanut has come to be a fairly staple product, and there is every reason to anticipate that market conditions will demand a large supply in 1916. But it would be a calamity if farmers should be tempted by attractive prices for the nuts and hay to neglect the vital problem of maintaining the fertility of their soils. As will be shown in this bulletin and as has been demonstrated everywhere throughout the history of agriculture the world over, the most profitable method of selling edible farm products is by feeding them to live stock.

The Experiment Station of Texas is now conducting some interesting and promising experiments on the feeding value of peanut cake, and in due time the results will be announced. But at the best, it is not likely that the farmer will find a more profitable method of handling peanut products than by feeding them to hogs and finishing on other feeds to harden the flesh.

CLARENCE OUSLEY, Director.

GEORGIA EXPERIENCES.

By T. O. Walton, Chief in Charge of Farm Demonstration Work

In going into the production of hogs on peanuts, it is well to keep in mind the fact that to produce pork cheaply we must furnish cheap feed in quantities sufficient to keep the pigs growing from farrowing time until the hogs are ready for market. In order to do this successfully the farmer must carefully plan his farm crops and pastures so that he can have grazing throughout the entire year. We must realize that the hog, in his wild state, is a grazing animal, that he will do best on crops that he can graze, and that the most profitable meats are produced from feeds that the hog can harvest himself. Perhaps the crop of first consideration in producing cheap pasture is Bermuda grass. Without question, a combination of Bermuda grass and bur clover, rescue grass and Japanese clover will give the best results for a permanent pasture for hog grazing; that is, in sections of the state where the soil and climate are adapted to growing these crops. If the soil is reasonably good and you have bur clover and Bermuda sod, the Bermuda will furnish grazing throughout the spring and summer months and the bur clover will come in during the early winter months and last until the Bermuda has a start the next spring. On good soils in South and East Texas these two crops should give good grazing for at least nine months each year, and in some sections of the state the grazing period will be longer. If the farm is located in sections of the state where the soil and climate are not adapted to growing Bermuda grass, the farmer will have to depend on some other grazing crop, such as oats, sudan grass, rye, vetch, barley, wheat and rape or some crop adapted to the peculiar section or soil. Not only will such crops as oats and rye sown in the fall produce good grazing crops for hogs throughout the winter months, but they will serve as a winter cover crop and be of material benefit to the soils. Aside from the value of these crops as grazing crops, in sections of the state where we have sufficient moisture to make cover crops profitable they will conserve enough of the soil's fertility to pay for seeding, and whatever grazing they afford is a profit to the farmer.

PLANTING—In planting the peanut for hogs, the nuts should be planted just as soon as the soil is thoroughly prepared and the danger of frost is past and should be ready to graze in from ninety to one hundred and twenty days, the time depending upon the variety planted, soil and the weather conditions. When planting peanuts for grazing the farmer should bear in mind that the number of acres to be planted at each planting should be governed by the number of hogs to be fed. A safe basis upon which to make this calculation is that soils which will produce an average of from thirty-five to forty bushels an acre will graze ten head of hogs, weighing on an average

of one hundred and forty pounds at the beginning of the grazing period, for from twenty-five to thirty days. The number of acres to be planted at each planting can easily be calculated upon this basis. If other feeds are to be used in connection with the peanut to form part of the ration, then the grazing period of the nuts will be correspondingly increased.

In general farming, most farmers find it advisable to plant their peanuts and corn in alternate rows—corn rows seven feet apart, with a row of peanuts between the rows of corn. If the practice has been to plant corn in rows three and one-half feet apart, with stalks three feet in the drill, rows seven feet apart with stalks eighteen inches in the drill will give the same number of stalks per acre, and if the stand is good the corn yield per acre will be practically the same. In fact, the experience of practical farmers and results obtained at the Texas Experiment Stations indicate that there is very little difference in the total yield of corn per acre on the thinner soils when this method of planting is practiced. This will give at least half as many peanuts as if the entire acreage were occupied by the peanut crop alone. There is also an additional saving in the cost of cultivation where the corn is planted in wide rows, as the peanuts are usually not planted until the corn is well advanced in its growth. This being the case, it is much easier to keep the wide middles free from weeds and grass than if every row were planted to corn, and this method has the further advantage of giving a partial crop rotation, provided the corn is planted on the peanut row the following year. If we are to maintain the fertility of our soils it is absolutely necessary that we practice crop rotation. Suggestions follow:

FIGURE 1.

<p>NO. 4: Oats, Rye, Wheat, Barley, or Vetch followed with peanuts and sweet potatoes</p>	<p>NO. 5: Oats, Rye, Barley, Wheat or Vetch followed with peanuts and sweet potatoes</p>	<p>NO. 6: Soudan or Alfalfa. If Soudan is used followed with peanuts and sweet potatoes.</p>
<p>NO. 1: Corn and Peanuts Corn in seven foot rows with peanuts between rows of corn.</p>	<p>NO. 2: Bermuda Grass, Bur Clover, Japan Clover and Rescue Sod. Permanent Pasture.</p>	<p>NO. 3: Corn and Peanuts Corn in seven foot rows with peanuts between rows of corn.</p>

Figure No. 1 gives a farm of twelve (12) acres laid out in convenient form for hog growing. As will be seen by reference to this illustration, the crops are so planned that a farmer can carry on a systematic rotation. This will surely give him a decided increase in soil fertility from year to year. This twelve-acre field is planned to care for two brood sows with their offsprings of two litters each a year. These, properly handled, should bring a gross income of

from \$275.00 to \$300.00 a year, which is a very satisfactory return from the acreage.

The table below gives in convenient form the time of planting different crops and time required to produce grazing from the time of planting.

GREEN CROPS FOR HOG RAISING

Crop.	Time to Plant	Seed Per Acre	Number of Days Until Ready to Graze
Alfalfa	Sept. 1, Oct. 15	25 lbs. per a.	90 to 120 days
or Clover	Sept. 1, Oct. 31	36 lbs. in bur	60 to 120 days
Wheat	Sept. 1, Nov. 1	3-4 bu.	60 to 80 days
Oats	Sept. 1, Nov 30	2 1-2 bu. ch.	60 to 80 days
Rye	Sept. 1, Nov 30	3-4 bu. with vet	60 to 90 days
Vetch	Sept. 1, Nov 30	1-2 bu. with oat	60 to 75 days
Rape	Sept. 1, Nov. 1	5 to 8 lbs.	

SPRING AND SUMMER PLANTING

Japan Clover	Feb. 15, Mar. 15	25 lbs. seed	60 to 75 days
Peanuts	Apr. 1, Jun. 30	1 1-2 bu. in hull	100 to 120 days
Rape	Feb. 15, Apr. 1	5 to 8 lbs.	60 to 75 days
Oats	Feb. 1, Mar. 15	2 1-2 bu. per a.	60 to 90 days
Sweet Potatoes	As early as slips are ready		
Sudan Grass	Mar. 15, Apr. 15	20 lbs.	25 to 35 days

The writer has made frequent reference to Circular No. 30, U. S. Department of Agriculture.

FARROWING—It is a general practice of farmers who are growing hogs on peanuts to so farrow their pigs that when they are ready for market they will range in age from eight to twelve months. They plan to keep the pigs growing from farrowing time until the time they are ready to be finished on peanuts on cheap, succulent feeds and farm waste. Many of them use skimmed milk in connection with their green grazing crops. If the crops are properly planned in most sections of Texas, we can have peanuts ready for grazing by July 15 at the latest; and if our plans contemplate caring for the offspring of two brood sows, crops in the above outline will be sufficient to keep them growing with enough feed to finish them before killing time. This is assuming that each sow raises two litters a year of six pigs each.

The farmers of Brooks County, Georgia, find that under ordinary farm conditions they are producing pork on an average cost not to exceed 2¼ cents a pound. Of course, the final cost of the product will be dependent upon the cost of carrying the pigs until the time they are placed in peanut fields, but if cheap feeds have been used in the early growing period the price will not be far in excess of 2 cents a pound, if the hogs are finished on peanuts.

PEANUT-FED PORK—There has been considerable question raised by the packers in regard to the quality of peanut-fed meat

and in a measure their contention seems to be justifiable. It is evident, upon the examination of bacon that has been produced altogether upon peanuts and succulent feed, that it is not quite so firm in texture as the corn-finished product, and the shrinkage is somewhat greater. Therefore, it is advisable for the farmer to use some feeds that will have a tendency to harden the flesh of the animals immediately before slaughtering time; yet it seems doubtful that corn can be used economically for this purpose at present prices; therefore, we must turn our attention to some other feed.

The Georgia farmers are using sweet potatoes, velvet beans, and cowpeas to a good advantage for this purpose. They take, as a basis for the acreage of these crops, one acre of potatoes, or the other crops mentioned, for every four acres of peanuts. These are very cheap feeds and are giving approximately as good results to the farmers using them as the more expensive feeds, such as corn. I believe that from the experience of the farmers in that community a combination of these crops will practically solve the problem of cheap feeds for hardening and finishing during the last thirty to fifty days of the feeding period.

It is proper to state in this connection and as bearing upon statements elsewhere in this report that the Texas packers discriminate sharply between peanut-fed and corn-fed hogs. No doubt they do so for good business reasons, and until such time as experience may develop the higher value of peanut-fed pork or until such time as other rations for finishing may be found to take the place of the more expensive corn, the Texas farmer should base his calculations upon the certainty that the peanut-finished pork will be discounted in the market. This report contains some interesting observations on this point and the hope is indulged that experiments and further testing may result in a higher price for peanut-finished pork than it now commands. However, until such demonstration is made, the Texas producer must accept the conditions as they exist.

The Georgia packers and wholesale dealers who handle peanut-fed products are of the opinion that it is not so much a question of the peanuts producing such inferior meat, as it is the method of handling the hog until the time he is ready to be killed.

Mr. C. L. Brooks, the superintendent of the packing house at Moultrie, Georgia, gives it as his opinion that if the farmers will keep the pigs growing steadily from farrowing time until they are placed on the peanut fields, so that the muscles and tissues are evenly and uniformly developed, the shrinkage of the peanut-fed meat will be very little more than in corn-fed products. The difficulty comes largely from the fact that the farmers do not keep the hogs in thrifty condition until the time they are placed on the peanut fields. As he stated it, the hogs are allowed to run on the range until they are a "stack of bones and hide," and then they graze the

hogs for ninety days on the nut field, which causes the hogs to put on a very soft and oily fat without a proper proportion of muscle and tissue development; therefore when this product is subjected to the curing process the shrinkage is much greater than it should be.

From the Texas packers' standpoint the peanut-fed hogs are seemingly not as desirable as the corn-fed products, but when it comes to a question of handling hogs for profit, and when it costs the farmer from 8 to 10 cents a pound to produce his product, which will surely be the case if his hogs are fattened on corn altogether, his profits will not be satisfactory. The Georgia farmers have solved this problem by producing their hogs on peanuts in combination with the grazing crops mentioned, and are selling their products through wholesale dealers and jobbers and are getting very satisfactory returns.

Mr. F. J. Faircloth, a jobber of Quitman, Georgia, makes a specialty of handling peanut-fed meats. He sells the sides at the same price that Swift and Armour get for their dry salt, and the hams he sells at a premium from 2 to 2½ cents a pound over the highest grades of packing house products. During the last year this concern alone sold over 250,000 pounds of peanut-fed meat, shipping it to a number of different states—some of it coming as far west as Texas. There is at least \$500,000 worth of this product shipped out of Brooks County each year, and that section where the farmers have been in the hog and peanut business longest shows the greatest evidence of prosperity.

This great industry has not grown up there in a year, but the farmers of that section have made a study of this problem for a long while, and we can profit materially by their experiences. In the first place they have made a very careful study of the economical production of hogs, keeping well in mind such cropping systems as are herein recommended, and they are building up their soils from season to season. Furthermore, they have made a careful study of the question of handling the meats during the curing process, and of the very important question of standardizing and marketing their product.

HOME SLAUGHTERING—When the hogs are ready to kill it is well not to kill too many at once, as the best results in cleaning will be obtained if all the dirt and hair is removed from all parts of the body before the surface gets cold. Should a scalded part once get cold it is very difficult to clean, and meat not well cleaned does not look attractive to the buyer. After scraping and dressing, the meat should be cut in uniform sizes and carefully trimmed. This is a part of the work that is too often neglected. It is not every farmer who knows how to trim meat so that it will sell to the best advantage, and when the product is to be handled by a jobber it must be uni-

form throughout, and for many farmers to have uniform meat they must all cut and trim just alike.

The Georgia farmers solved this problem by hiring an expert trimmer from the packing house to come and teach them through their farmers' clubs. Every man that is to sell to the jobbers of that part of the state must know the rules for trimming meat and must live up to them, or his products will not be handled at the same price that is paid for the uniform product. It will pay any group of farmers who contemplate going into the meat business to hire an expert from a packing house to come and teach them how to trim their meats.

After the meat is properly trimmed it must all still be handled in the same careful way, so that the entire output of a community will be uniform. The Georgia practice is to sprinkle with salt and bulk for from two to four hours, after which the meat is ready to take down and spread during the night, so that all the animal heat will get out of the meat. The first salting should be done in the early period of the evening, so that it can be spread before too late at night. The next morning the meat is ready to salt and pack. If you are using the home plant it is ready to pack in the plant; otherwise pack in box or bin which you have prepared for the purpose. The best results will be obtained from the use of about 300 pounds of salt to every 1,000 pounds of meat. Let the meat lie in salt from 20 to 30 days, depending upon the size of parts and upon weather conditions, after which it is ready to scald, hang and smoke.

Be sure to scald and wash in boiling water. After the meat is hung in the smokehouse it should be smoked from five to eight days --smoked from hickory wood. If hickory wood is not to be had, then the next best wood would be maple or oak. In smoking be careful not to have too much heat directly under the meat, as excessive heat will cause excessive waste from dripping. Many farmers find it profitable to place their fires on the outside of the buildings in which the meat is hung and convey the smoke into the building by means of pipes. This method will give excellent results. After the meat is smoked until thoroughly brown on the outside, the sides are then ready for the market. However, the hams receive a further treatment, generally as follows: After the hams are carefully wrapped with cheese cloth or some similar wrapper, they are dipped in a paste made of four pounds of lime (air slack) to three pounds of flour; add water enough to make paste and dip the hams after they have been wrapped. The other treatment used is hickory ashes, syrup, and black pepper. Take enough syrup to make a thick paste of the hickory ashes, season with black pepper to suit the taste, and cover the outside of the hams with this paste. This is applied to the surface of the meat. The hams may then be wrapped in cheese

cloth or brown paper if the farmer so desires, but it is not necessary to do this.

Peanut-fed hams handled in this way are much in demand, as the peanut-fed meats have a very pleasing flavor that can be obtained only from the feeding of nuts. It is well for us to remember, however, that every ham is handled in the same way, and that it is standardized just as the packer standardizes his product. The farmers and business men take a pride in advertising these products. Some of the farmers' clubs brand their products "Brooks County Peanut-Fed Bacon," or "Brooks County Peanut-Fed Hams."

The lard from peanut-fed hogs is said not to be as good as lard from corn-fed hogs, as it melts at a lower temperature, but the Georgia farmers have solved the lard question as far as home consumption is concerned. They use beef fat along with their peanut-fed fat at the rate of one pound of beef fat to four pounds of peanut-fed fat. This makes a nice white lard that will not melt at a lower temperature than our corn-fed lard and that will keep indefinitely. The housewives use this from one season to another, and it is as fresh at the expiration of the year as is the corn-fed lard. It is equally as white. This product does not bring quite as much on the market as pure corn-fed lard, but it will answer all the needs for home consumption and is surely to be preferred to buying compounds at the store.

The surplus that is to be sold to the jobber brings as much on the market as corn-fed lard. This, of course, does not have the beef fat in it, and is sold and used before the hot summer sets in. If the farmer cares to wait for the higher prices that are to be paid later in the season, by the addition of beef fat to his peanut-fed fat he can have a product that will stand the heat equally as well as corn-fed lard and that can be sold as a compound at any time during the summer.

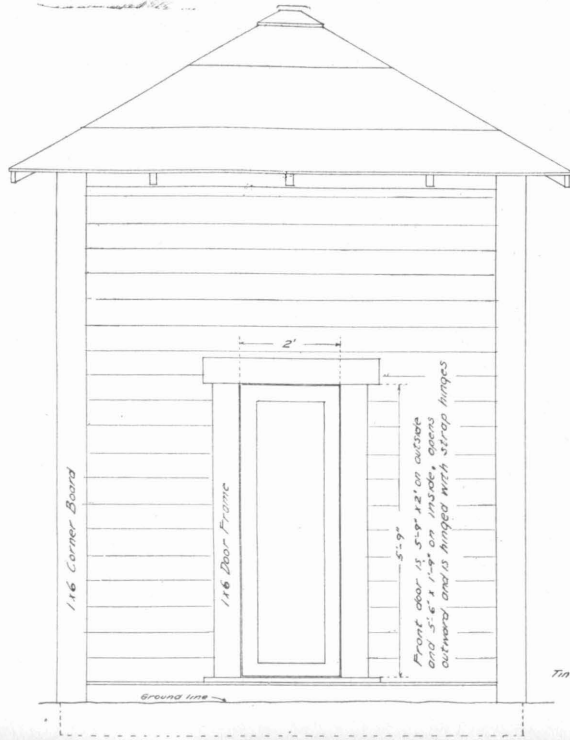
HOME CURING PLANTS—The farmers of South Georgia are using three methods in handling the peanut-fed meats: First, the home curing process; second, where the ice plant cures the meat for the farmer, and third, where it is sold direct to the packer.

In order that they may be enabled to handle their hogs to best advantage, that is, that they may market them at any time they see fit, they have insured their products against fluctuation in markets by arranging to cure their meats at home if necessary. This they do by the means of the home curing plant, illustrated in the accompanying drawings. This house may be enlarged to serve the needs of a community.

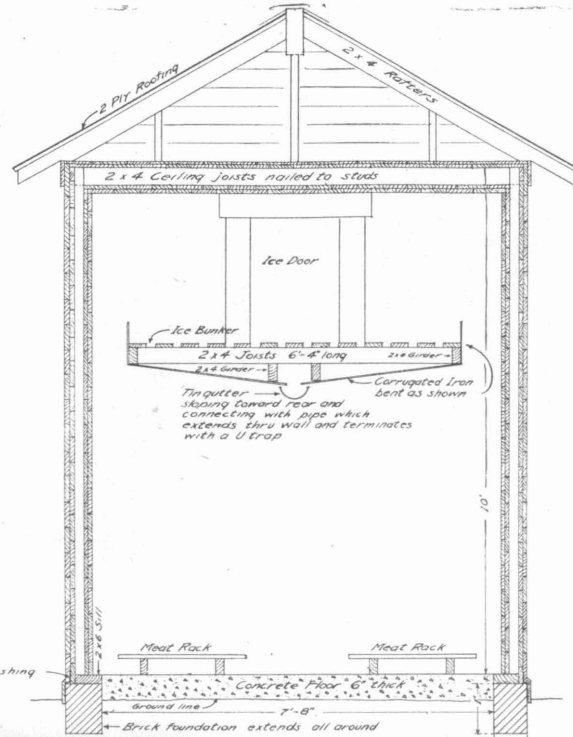
These plants are erected by a number of farmers on their individual farms, and are built of such capacity as will enable them to care for the number of hogs they expect to grow on their farms. This is a very satisfactory method of handling the product, but with

WORKING DRAWINGS OF A FARM MEAT CURING PLANT

By the Extension Dept. of the A. and M. College.



FRONT ELEVATION



SECTION THRU BOX

the home curing plant we find the very best results can be obtained by the farmers co-operating and building a plant of this kind sufficient to care for the products of an entire community. If ten farmers will unite and build a plant of sufficient size to care for the meat of the entire neighborhood, and hire one man to take care of it and pay him for his services, it will be a more economical way of handling the products than if each farmer should plan and build his own plant. The meat can be cured in an individual plant for an average of $1\frac{1}{2}$ cents a pound, while in the co-operative plant the cost can be reduced to $\frac{3}{4}$ cent a pound, if the plant is properly handled.

As will be seen from the illustrations, the home curing plant is nothing more than a large refrigerator, built on correct principles, and if a plant of this kind is convenient to the farmers they can kill hogs at any season, knowing that their meat is insured against change in weather conditions. Of course, if it is planned to save meat in one of these plants during the hotter months of the year, the total cost of curing the product will be materially increased. Figures above given are based on condition that the meat is killed during the winter months. Meat that is handled through the storage plant is treated in the same way, until it is ready to salt in the plant, as if it is to be cured by the old method. Salt down in the plant just as you would in the box, after the meat has been spread for the night, or after the animal heat is out of the meat. Ice is then placed in the bunkers and the temperature is kept down as low as 36 to 40 degrees F. Temperatures may run above this without doing any damage, but it is best to keep them just as low as possible. The meat is left in the plant for from 25 to 45 days, depending upon the size of the animal. After it has thoroughly taken salt it is then ready to take out, scald, hang and smoke in the same way as described for home curing.

ICE PLANT CURING—The second process is that of curing the meat in the local ice plant. In most instances I am of the opinion that this is the safest and most economical way of handling the meat, especially if the ice plants are prepared to care for the meat that is killed at any time during the year and the farmers do not live too far from the ice plant. The ice and light plant of Valdosta, Georgia, has been curing meat for the farmers of the county for the past three seasons. The plan adopted is to use the summer storage rooms for the purpose of curing meat during the winter months. Aside from the building of the storage rooms, any ice plant can prepare to take care of from 200,000 to 300,000 pounds of meat at any time at a cost not to exceed \$75.00. In fact, the only additional cost after the rooms are built is for lumber and labor to make the bins to separate the different lots of meat. They can be built of cheap material and any carpenter can build them. Bins are built in sections 2x4, 4x4, etc; material 1x3—rough lumber can be used.

As will be seen, the bins are constructed of different sizes. This is in order that the manager can care for any sized lot of meat that the farmer might bring at one time. If he has only 200 or 300 pounds, a bin of small size will answer just as well as a large one.

After the bins are built in the storage rooms and the salt is secured, the ice man is ready to begin curing meats. When the farmer brings in his meat it is weighed, pieces counted, and the meat is salted in the bins. The bin is numbered and the farmer is given a duplicate receipt calling for so many pieces of meat of a certain weight, located in bin No. 1, 2, 3, etc. After the meat has lain in salt until it is thoroughly cured or has taken salt, the farmer is notified and upon his return with the duplicate receipt his meat is weighed back to him, giving him the same meat he brought to the plant, the same number of pieces and pounds. The ice company furnishes everything and makes a charge of 1 cent a pound for this work.

If the customers desire the company will smoke the meat for another cent and wrap it for still another; it is optional with the farmer whether he has it wrapped or smoked, or both. If he would rather do this work he can take the meat to his smokehouse and do the work himself. If he does this his cured product will cost him only 1 cent a pound, with whatever additional expenses he is put to in hauling the meat to and from the ice plant.

There are certain points of co-operation in the handling of meat in this way if we are to get the best results. First, the farmers should all kill as nearly at the same time as possible; that is, they should arrange to carry as much meat to the plant in two or three days as the plant can conveniently handle, as bringing in small lots from day to day will increase the expenses that the ice plant will incur in handling the meat and will correspondingly decrease the profits. The farmers should see that their meats are uniform and that they are carried to the plant just as soon as all the animal heat is out of the body. Do not make the mistake of waiting until the meat has begun to sour, trusting to luck and the weather, but carry the product to the ice plant immediately after slaughtering. That this method is satisfactory to the farmers is evidenced by the fact that during the first season the plant at Valdosta cured meat for the farmers it handled about 90,000 pounds, the second year 150,000 pounds, and this year it will handle 250,000 pounds. Of this vast amount of meat handled the plant has a record of not having turned out a single piece of meat that spoiled.

When the meat is delivered at the plant it is immediately salted with the flesh side down and left this way for a period of five days. This is done in order that the water and blood that is drawn out by the salt can run off without soaking into the pieces of meat immediately under it, for it will be seen that the hide on the lower

piece forms a covering that turns the water. After it has lain this way for five days it is taken up and re-salted with the flesh side up this time. It is allowed to lie in salt for ten days, when it is again taken up and re-salted. After this it is allowed to lie in the salt from 20 to 35 days, depending upon the size of the meat, the room being kept at a temperature of from 33 to 35 degrees F. It is then ready to take up, hang and smoke. In handling the larger pieces, such as hams and shoulders, it is best to give an injection of brine around the bone. This will hasten the time necessary to get it to take the salt thoroughly.

It is the opinion of the owners of the ice plant at Valdosta that any plant in the warmer sections of the South can well afford to arrange to care for the farmers' meat at the very low price of 1 cent a pound. This plant has found it profitable. Some ice men may advance the argument that there are not enough hogs to justify them going into the business, and such an argument was made at Valdosta, yet it has paid at that plant from the very first year and the volume of business has more than doubled in three years. If the local ice company will erect a cooling room, especially for curing meat, the farmers can slaughter at any time the hogs are ready. This will insure better prices for the farmer, as he can usually finish his hogs to best advantage during the late summer or early fall. As a rule, this is the season of high prices for cured meats. If the farmer can be assured that he can slaughter his hogs at any season of the year it will encourage him in going into the hog business, as he will be assured that by this method he can market his products gradually and obtain the highest market prices at all times.

LOCAL SLAUGHTERING PLANT—The third method that the Georgia farmers are using in handling peanut-fed products is through the packing plant at Moultrie, Ga. This plant is owned and operated by the people of that town, and has a capacity of 850 head of hogs a day. The plant cost \$150,000, and \$150,000 are required for operating expenses during the period of a year. The hogs are shipped from a radius of about 150 miles. This packing house buys directly from the farmers through local buyers at different points throughout the hog growing section. If the farmer so desires, he can accompany his shipments to Moultrie and deal directly with the packers themselves. This is a very satisfactory method of doing business, as the farmer has an opportunity to see his hogs weighed and can receive his check before leaving the plant.

This company is paying the same price for peanut-fed hogs as for the corn-fed product; however, this price is somewhat lower than is paid at some of the central markets throughout the country. On the 17th of January the packers at Moultrie were paying from \$5.25 to \$6.85 per 100 pounds for the hogs they were receiving. The bulk of sales on that date at this plant were from \$6.55 to \$6.70. On the

same date the markets at Chicago were from \$5.60 to \$7.45, bulk of sales at \$6.95; the St. Louis market, \$6.00 to \$7.30; the Kansas City market, \$6.25 to \$7.20, bulk of sales \$6.90 to \$7.15; the Fort Worth market, \$6.10 to \$7.25. However, as this market is very much closer to the farmers the shipping shrinkage is considerably less. In fact, the shrinkage from Moultrie to St. Louis, if the hogs were shipped, would be from six to nine pounds per 100 pounds, while the shipping shrinkage from a radius of from 50 to 150 miles of the Moultrie plant would not be more than an average of three pounds per 100 pounds; therefore, it is more economical for the farmer to sell his products at slightly reduced prices at Moultrie rather than ship them long distances to central markets.

The packing house people at Moultrie are of the opinion that peanut fed meats are not quite so desirable from the packers' standpoint as the corn-fed products, due primarily to the fact that the dressing and curing shrinkage is somewhat greater in the peanut-fed hogs than in meats that have been hardened on corn. The manager, Mr. C. L. Brooks, says that this will amount to approximately $\frac{1}{2}$ cent per pound of live weight. However, he does not agree that the meat is of an inferior quality, but contends that when it is standardized it is as good as the corn-fed product. This company has no trouble in selling at a satisfactory price all peanut-fed meats that they are able to cure and store.

A further contention has been made that the lard from peanut-fed fat is not equal to the lard from corn-fed products, as it melts at a lower temperature than the corn-fed lard, but this concern claims that by its process of handling the lard it will stand up equally as well as the corn-fed lard. However, Mr. Brooks makes the further statement that in case the lard would melt at a lower temperature, by extracting 20 per cent of the oil from the peanut-fed fat the remainder of the fat will carry just as well as the corn-fed product, and he has a ready sale for all the oil that he can extract at 3 cents per pound more than he gets for the lard.

This company seems to be satisfied with the profits obtained from the handling of peanut-fed products up to this time, as they have doubted the capacity of their plant after having operated it for two seasons.

CONCLUSION—It was the purpose of the writer, in all investigations upon the subject of producing and handling peanut-fed hogs, to make a thorough study at each point and in the light of the conditions that he found in that part of Georgia visited it is very evident that the farmers are getting profitable returns from their soils through handling their products by the methods outlined. A large per cent of the lands of Texas are well adapted to the growing of peanuts, and our farmers will make no mistake in going into the hog and peanut business, provided they are willing to carefully plan

their farm operations and be content with a reasonable profit. It is well, however, for the farmer to remember that he is apt to make some mistakes, even though he may plan operations as carefully as possible, but he can safely hope to get reasonable returns from the very beginning.

I should like to stress the importance of co-operation among farmers in communities where they are growing a large acreage in peanuts for the purpose of fattening hogs, as it will be necessary to reduce the cost of production and handling to the minimum if the greatest profits are to be received. The farmers of a community contemplating the growing of a large acreage in these crops to be marketed through hogs should first confer among themselves and ascertain whether they can have a local organization for marketing their products. It is not absolutely necessary to have such an organization, but the best results can always be secured where the farmers of a community are working together. The next step will be to enlist the co-operation of the local business men of the nearest towns for the selling of these products. This, however, will not be a difficult matter, as the jobbers in any community are willing to handle such meats when the meats have been properly cured, so that **they can secure as much as a carload for shipping to the trade at a time.**

THE PRODUCTION OF PEANUTS.

By J. Oscar Morgan, Professor of Agronomy, A. and M. College of Texas.

The peanut will grow on a rather wide variety of soils. It will not thrive on low, wet soils or soils that are distinctly acid. Nuts of the highest market quality are produced only on rather light colored sandy or loamy soils. Highly colored clay soils stain or discolor the nuts, thereby reducing their market value. When grown as stock foods, however, the color of the shell is of no importance and high yields are often obtained from the heaviest clay soils.

PREPARING THE SEED-BED—Clay soils or soils on which there is considerable vegetable matter are preferably plowed in the fall for peanuts. This permits the vegetable matter to decompose before the crop is planted. Soils thus plowed should be thoroughly disced in the spring before planting.

Sandy or loamy soils are usually plowed in the late winter or early spring. It is best that they be plowed at least a month before planting. This permits the seed-bed to settle and also hastens the germination of weed seeds which can then be easily and cheaply destroyed by means of the harrow before planting. The depth of plowing will depend somewhat upon the character of the soil and the time of plowing. In general, clay soils should be plowed deeper than sands. Care must be exercised, however, to see that an excessive

amount of inert subsoil is not plowed up at any one time. Clays that have been plowed shallow in previous years should be deepened gradually by plowing from one to one and a half inches deeper each year than was practiced the preceding year until the proper depth is reached. Very deep plowing should be avoided if done a short while before planting. See that the soil is thoroughly pulverized by means of the harrow before the crop is planted.

BARNYARD MANURE—It is usually unwise to apply stable or barnyard manure directly to the peanut crop for two important reasons:

1. Barnyard manure usually contains large quantities of weed seeds which greatly interfere with peanut production.

2. The use of manure also has a tendency to produce a too rank growth of tops and also a large percentage of "pops" or poorly filled pods. The best practice is to apply the manure to the preceding crop, thus giving it time to thoroughly decompose and become a part of the soil in which form it is very beneficial to peanuts.

FERTILIZERS—On sandy and loamy soils the peanut responds readily to the use of commercial fertilizers. It must be remembered, however, that the peanut is a legume and consequently the fertilizer should contain little or no nitrogen, as this element is secured from the air. On very poor soils it has been found advisable to add a small quantity of nitrogen, say 30 or 40 pounds of Nitrate of Soda per acre, at the time of planting to nourish the plants until they develop sufficiently to secure their nitrogen from the air.

In general the fertilizer mixture that gives best results for peanuts is 250 pounds of acid phosphate and 50 to 75 pounds of muriate of potash per acre.

All fertilizing materials should be applied before or at the time of planting the crop. The best method is to apply them in the drill and thoroughly mix them with the soil before planting.

LIME—A considerable amount of lime in the soil is necessary for peanuts. Soils deficient in lime produce low yields and also a rather large percentage of unfilled pods. Most sandy and loamy soils are deficient in lime and for this reason soils of this character usually receive an application of from 600 to 1,000 pounds of slacked lime per acre at least two weeks before planting the crop. This lime should be spread broadcast and thoroughly harrowed into the soil.

PLANTING—On well drained soils, peanuts should be planted level. The usual practice is to open furrows 30 or 36 inches apart in which the fertilizers are drilled, if these materials are to be used. The fertilizers are best distributed by means of a common fertilizer distributor. They are often distributed by hand. It is well to have a cultivator or some other suitable implement follow the fertilizer distributor to better mix the fertilizers with the soil.

Soils that are not well drained are usually ridged for peanuts.

This is done by means of a small turn-plow or other suitable implement. The ridge is formed immediately over the fertilizer and should be partially harrowed down or flattened by means of a fine-tooth harrow before planting. The peanuts may be planted by hand or by means of a community planter which can be bought for \$15.00.

The large podded varieties should be hulled before planting. Small podded varieties such as the Spanish variety are usually planted in the pod. When planted in the pod, germination may be hastened by soaking the peanuts in water for a few hours just before planting. Approximately two bushels of unhulled seed or one-half bushel of hulled peanuts are required to plant an acre. The plants should be left from seven to twelve inches apart in the row, depending on the variety. The large podded variety should have the greater spacing. Planting should not be done until the soil has become thoroughly warm in the spring. Little is to be gained by planting peanuts in a cold soil.

CULTIVATION.—The cultivation of the peanut crop may well begin before the plants are up by running a weeder or section-harrow diagonally across the rows. After the plants are well up, tillage by separate rows begin. There is little difference between the cultural methods for peanuts and for such crops as corn, peas, etc. It is especially important that such implements be used as will keep the soil thoroughly pulverized close to the plants. This facilitates the entrance of the fruit stems or "pegs" into the soil. Cultivators with small points on the side next to the row are quite satisfactory for this purpose. Hoeing should be done only when necessary to keep down weeds and grass.

HARVESTING.—The greatest value of the peanut crop to Texas farmers is as a pasture crop for hogs. When used for this purpose the hogs should be allowed to harvest the crop. When grown for the market, the crop should be dug before frost. The proper stage of maturity for harvesting is indicated by the tendency of the pods about the base of the plant to shed, and the vines to turn yellow.

Various methods of harvesting peanuts for the market are practiced. In many cases the plants are merely plowed from the ground with a one-horse turning plow and afterwards separated from the soil by hand. Another and very common method is to remove the moldboard from a turning plow and run the plowshares under the row on each side at a sufficient depth not to sever the pods from the vines. The side from which the moldboard is removed is kept next to the row. The plants are lifted by hand or by means of forks, and the dirt carefully shaken from them. They are then thrown in small piles to dry. The potato digger may be very satisfactorily used in harvesting peanuts.

STACKING.—As soon as the plants have sufficiently dried, which requires about three or four hours, they are put in small stacks.

Poles about seven feet long are driven securely in the ground. Around the base of each pole a few pieces of short poles are placed to keep the peanuts off the ground. The peanuts are stacked with the vines out and nuts in next to the pole. The stacks should be made rather slender and tapering toward the top to shed water. Each stack is usually capped with grass to protect the nuts.

PICKING.—Peanuts should not be picked from the vines until the pods have become dry and the peas firm. A better grade of peanuts will be secured if picking is deferred until late autumn. The greater part of the crop is picked by hand. Machines are in use for picking peanuts. They are profitable where the crop is grown extensively. Most machines have a tendency to crack a portion of the pods. Names of manufacturers of picking or threshing machinery will be furnished on application.

The picked pods should not be exposed to dampness as this discolors them, reducing their market value.

FEEDING VALUE OF SPANISH PEANUTS

By John C. Burns, Professor of Animal Husbandry, A. and M. College of Texas.

There can be little doubt that one of the most profitable methods of marketing the peanut crop is to dispose of it through livestock raised on the farm. Peanut vine hay, which may be obtained by mowing the vines after the nuts have matured, and curing them by the ordinary method of making hay, is in the class with alfalfa and cowpea hay in feeding value. Its nutrients are even better proportioned from the standpoint of forming a balanced ration in itself than are those of alfalfa or cowpea hay. It forms a very satisfactory roughage for horses, cattle and sheep.

The seeds, or peanuts, themselves, constitute one of the richest feeds produced on the farm. They are especially valuable as a feed for hogs, and, being very rich in digestible fat or oil, they are used to the best advantage during the fattening period. However, they also contain a high percentage of digestible protein and, therefore, prove very satisfactory for growing hogs, too.

In order to make an accurate determination of the feeding value of Spanish peanuts for hogs, the Texas Experiment Station conducted a test in 1908 in which six pigs averaging 43 pounds at the start were fed exclusively on Spanish peanuts for a period of 91 days, the nuts being separated from the vines in order to ascertain definitely the quantity fed. The results of this test show that the amount of peanuts required per 100 pounds of gain in live weight was only 296½ pounds. This remarkably good showing is further emphasized when we consider that the average results of tests at nine different stations in the United States show that 537 pounds of

shelled corn were required to produce 100 pounds of gain, and that in no instance was the requirement for such gain less than 479 pounds.

According to the above figures, an acre of Spanish peanuts of a yield of 40 bushels, allowing 30 pounds to the bushel, would produce approximately 405 pounds of pork, which, if valued at 7 cents a pound, would amount to \$28.35. These results seem to be entirely in accordance with those obtained by other Southern Experiment Stations, that have made experiments along this line.

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