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OFFICE OF THE SECRETARY.—Circular No. 30.

HOG RAISING IN THE SOUTH.[1]

Hog raising is one of the most profitable lines of animal husbandry in the South if wisely managed, and one of the most unprofitable if conducted in the ordinary way; that is, if the hogs are raised without care and fed without knowledge or judgment.

Two methods of hog raising are common in the Southern States, both equally objectionable:

(1) When managed by the first method the hogs are allowed free range in woods and swamps, fenced or unfenced; subsist on grass, roots, acorns, and grubs; breed indiscriminately, and the survivors are slaughtered at two or three years of age, weighing net from 50 to 125 pounds. Such animals furnish inferior hams and shoulders, provide scarcely any lard, and do not make a compensating return for the use of the land. The owners are liable to heavy losses from diseases, storms, and other causes, and the product does not meet the requirements of the general market.

(2) The second plan is to keep the hogs in small lots and feed corn mainly. This has been proven unprofitable with corn at the average price in the South. Hogs thus fed show a fevered condition, are restless, and are generally found rooting in the fresh earth.

The cost of raising hogs when fed on corn alone is generally estimated at 5 cents a pound, live weight, when corn is worth 50 cents a bushel, and 7 cents a pound when corn is worth 70 cents a bushel; that is, a bushel of corn will usually make 10 pounds of gain, live weight, when carefully fed to thrifty hogs. This agrees with the results at experiment stations. But corn is not usually fed with care, and when raised on corn alone hogs are seldom very thrifty; consequently the cost will average much greater than this. Investigations show that 7 pounds of gain to the bushel of corn is nearer the result when corn is fed on the cob without other food. This would place the cost of live gain at 10 cents a pound with 70-cent corn.

The best way to make hog raising profitable in the South is to graze the hogs upon pastures prepared especially for them, supplementing the green food by the addition of a small grain ration. Upon this plan hogs can be raised at an average cost of 1½ to 3 cents a pound, depending mainly upon the management of the sows and pigs and upon an economic plan of fattening.

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[1] In the preparation of this circular, the writer has been assisted by three excellent bulletins on pork production in the Southern States: Bulletin No. 73, Arkansas Agricultural Experiment Station, by Prof. R. L. Bennett; Bulletin No. 143, Alabama Agricultural Experiment Station, by Prof. J. F. Duggar and others, and Bulletin No. 107, Mississippi Agricultural Experiment Station, by Prof. J. W. Fox. Mr. W. B. Mercier, of this Office, assisted in the preparation.—S. A. K.

CROPPING PLAN FOR ECONOMIC PORK PRODUCTION IN THE SOUTH.

GENERAL FEATURES.

Prepare a central pasture of Bermuda grass. Adjoining this central pasture should be several small pasture fields—or they may all be in one field, with movable fences for partition, as required. (See fig. 1.) The pastures required in addition to the Bermuda are, for winter and spring grazing, wheat and hairy vetch, chufas, Early Essex rape, and red clover (where red clover will grow)—or crimson clover may be used; for summer and fall grazing, sorghum, cowpeas, soy beans, peanuts, and alfalfa. Adjacent to the central pasture should be a field of corn in which cowpeas are planted at the time of the last cultivation. The following plan shows the general field arrangement for a hog-breeding establishment where the hogs are mainly fed on green crops.

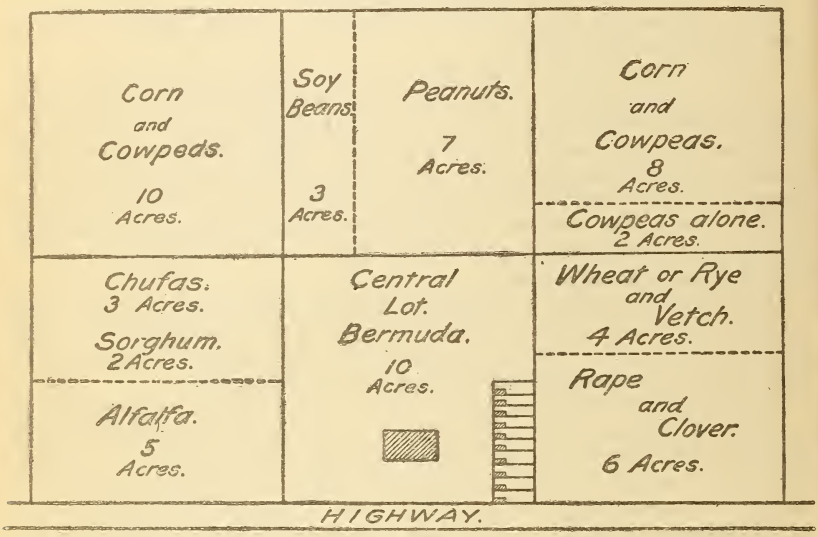

FIG. 1.—Showing central lot with necessary buildings. Convenient outlets to all adjoining lots from central lot.

DETAILS OF CROPPING SYSTEM FOR A HERD OF TEN SOWS DROPPING TWO LITTERS A YEAR.

The central field, containing the buildings, breeding pens, and water, should be quite rolling, so as to thoroughly drain at all times; sandy loam land preferred, well set in Bermuda grass, with some trees for shade.

Sow a mixture of burr and white clover on the Bermuda sod in the fall. This will greatly improve it for winter grazing. This lot should contain 10 acres.

On one side of the central field lay off another 10-acre lot, 6 acres of which should be planted in Early Essex rape and red clover; if too far south for red clover, use crimson clover or Japan clover (lespedeza). The remaining 4 acres should be in wheat or rye and hairy vetch.

On another side of the central field lay off a 10-acre lot, 7 acres for Spanish peanuts and 3 acres for soy beans (large yellow).

On a third side should be another 10-acre field, allotting 5 acres to alfalfa, 3 acres to chufas, and 2 acres to sorghum. This will leave two 10-acre fields, one at each corner, for corn and cowpeas. This plan can be enlarged without material modification by including the peanut and soy bean field in the central pasture and adding other fields for forage crops. There should be some movable fence so as to divide the pastures for the most judicious grazing.

SOWING AND GRAZING SCHEME.

The following table gives in convenient form the time of planting, rate of seeding, and length of time required to produce grazing from the crops recommended.

Green crops for hog raising.

FALL PLANTING.

Crop.	Time to plant.	Seed per acre.	Number of days after planting when ready to graze.
Alfalfa	Sept. 1 to Oct. 15.	25 lbs	90 to 120 days.
Burr clover	Sept. 1 to Oct. 1.	20 lbs. clean 36 lbs. in burr	90 to 120 days.
White clover	Sept. 1 to Oct. 1.	3 lbs	90 to 120 days.
Wheat	Sept. 1 to Nov. 1.	⅔ bush	90 to 120 days.
Rape	Sept. 15 to Oct. 20.	6 lbs	75 days.
Red clover	Sept. 15 to Oct. 20.	10 lbs. with rape	120 days.
Oats	Sept. 1 to Nov. 1.	2 to 3 bush	75 to 90 days.
Vetch	Sept. 1 to Nov. 1.	⅔ bush. with wheat	90 to 120 days.
Rye	Sept. 1 to Nov. 1.	¾ bush. with vetch	90 to 120 days.

SPRING AND SUMMER PLANTING.

Red clover	Feb. 1 to Mar. 1.	25 lbs	120 days.
Japan clover	Mar. 1 to Mar. 15.	24 lbs	75 days.
Chufas	Mar. 15 to June 15	1 bush	120 to 150 days.
Cowpeas	May 1 to June 30.	½ bush. in drill 1½ bush. broadcast	75 to 90 days.
Spanish peanuts	May 1 to June 30.	1½ bush. in hull	100 to 120 days.
Rape (Early Essex)	Mar. 1 to Mar. 31.	6 lbs	60 to 75 days.
Sorghum (Orange)	Apr. 1 to June 30.	½ bush. in drill 1½ bush. broadcast	60 to 90 days.
Soy beans, large yellow	Apr. 1 to June 30.	½ bush. in drill 1½ bush. broadcast	90 to 120 days.
Oats, rust-proof	Feb. 1 to Mar. 15.	2 to 3 bush	75 to 90 days.
Sweet potatoes	Mother potatoes, put out in March. Sets planted in June.		Oct. 20 to Nov. 1.

HOW TO PREPARE THE FIELDS FOR GRAZING.

The fields for grazing should be made rich and thoroughly prepared, or there will be a disappointment. Deep break them in August, if possible; follow the same day with the disk, and finish with a section harrow. Broadcast a thousand pounds of ground or air-slaked quicklime per acre before using the section harrow.

The fields to be planted in wheat and vetch, in rape and clover, and in alfalfa should receive 300 pounds per acre of raw bone, or 500 pounds of high-grade acid phosphate, or 10 loads of well-rotted stable manure, broadcast ten days before planting. The wheat should be rust proof and beardless.

The fields for sorghum, chufas, soy beans, cowpeas, and peanuts should be sown to oats (where oats are hardy in winter, and where not to wheat for winter grazing) and plowed under in the spring, before planting the main crops. The foregoing directions are for the first planting of the fields. After this the farmer can rotate according to maturity of crops.

Break, plant, and cultivate the cornfields according to the best methods. (Send to the Special Agent in charge of Farmers' Cooperative Demonstration Work, Washington, D. C., for circulars.) Plant cowpeas in corn at the time of the last cultivation. Sow broadcast thickly and cultivate in. Use Black, Unknown, or Clay peas, 1 bushel of seed per acre.

In the field where cowpeas are planted alone use New Era or Whippoorwill, as the main object is to get an early crop.

Soak the peanuts in cold water thirty hours before planting. Plant in drills 2½ feet apart and drop seed 12 inches apart in drill. Cultivate three or four times.

Use 6 to 9 pounds of rape per acre, depending on fertility of soil, and 10 pounds of clover seed.

Use the Orange variety of sorghum. Plant in drills 3 feet apart, using one-half bushel of seed per acre.

FATTENING VALUE OF CERTAIN FOODS GATHERED BY THE PIGS.

	Pounds of pork.
An acre of peanuts (good stand)	1,252
An acre of chufas	592

Where pigs were fed half rations of corn 1 acre of green crops carried 10 pigs the following number of days:

	Days.
Peanuts (very poor stand)	53
Soy beans	34.4
Chufas	32.3
Sorghum (cut and fed in a dry lot)	152
Sorghum (pastured)	46.6

COST OF MAKING A POUND OF PORK, LIVE WEIGHT, AS DEMONSTRATED AT ALABAMA EXPERIMENT STATION.

Ration:	Cents per pound.
Corn only, valued at 70 cents per bushel	7.63
Corn two-thirds, cotton-seed meal one-third	5.75
Corn one-half, cowpeas one-half	5.11
Corn and peanut pasture	2.28
Corn and peanut pasture	1.85
Corn meal two-thirds, cotton-seed meal one-third (peanut pasture)	1.97
Corn and sorghum pasture	5.36
Corn and chufas pasture	3.81
Corn and soy bean pasture	1.96
Corn meal two-thirds, cotton-seed meal one-third (sorghum cut and fed)	3.39

RESULTS OBTAINED FROM HOG FEEDING AT ARKANSAS EXPERIMENT STATION.[1]

March 3, sow dropped five pigs.

January 3, pigs slaughtered, ten months old, average weight 243 pounds each.

Amount of grain and area of green crops fed.

Grain.	Cost.	Green crop.	Acres.
Wheat bran, 31.2 pounds	$0.20	Clover	¼
Corn, shelled (before 6 months old), 5 bushels	1.50	Sorghum	¼
Corn, shelled, 19 bushels	5.70	Peanuts	⅝
Total	7.40	Total	1 1/10

[1] Report of Prof. R. L. Bennett.

Cost of pork per pound, 1½ cents. It will be noted that corn is valued at only 30 cents a bushel in this experiment.

EXPERIMENTS AT THE MISSISSIPPI AGRICULTURAL EXPERIMENT STATION.[1]

One hundred and twenty-two pigs were fed on corn and shorts and grazed on rape, red clover, wheat, hairy vetch, sorghum, and peanuts. Thirty-two pigs averaged at ten months 175½ pounds each; 85 pigs averaged at ten months 135⅜ pounds each; 5 pigs averaged at ten months 196 pounds each. Cost of the pork, live weight, 3.2 cents per pound.

In this experiment the corn is estimated at 65 and 70 cents a bushel. If it had been valued at 30 cents a bushel, as in the Arkansas experiment, the cost of the pork would have been 2½ cents a pound.

If the corn in the Alabama experiments had been valued at 30 cents, the cost of pork production in some cases would have been less than 1½ cents per pound.

MANAGEMENT OF THE HERD.

In the central lot should be a building for storing grain, and near to it an abundant supply of water.

FARROWING HOUSE.

For farrowing there should be a separate house and yard for each sow. A house 6 feet by 8 feet made of boards, covered and floored, will answer; roof 7 feet high at front end and 4 feet at rear. The floor foundation may be made of 2-inch pine or oak, floored with 1-inch boards. Two by four studding will answer for sides. The roof may be made of boards battened. The front should have a board 1 foot wide for the roof to rest upon; then a door 2 feet wide should be hung to this top board. This door should extend across the front end and be propped open except in very stormy weather. In sheltered places the door is generally omitted and the door space left open. Within this house on one side and the rear end a bench should be fastened 10 inches above the floor and 8 inches wide. This is to prevent the sow from accidentally killing the young pigs by squeezing them against the side. Two 2 by 6 inch runners should be placed under the pen, upon which to draw it when change of location is desired. A yard, using wire or board, 16 feet by 33 feet, will answer for exercise.

SEPARATION OF MALES AND FEMALES.

The males should be kept in a separate lot with pasture. During the winter the sows should graze upon the wheat and vetch and the rape and clover fields, or on alfalfa. They should also have access to the chufas.

SPRING LITTERS.

The sows should be bred to farrow some time between February 20 and March 15. About one week prior to farrowing the sow should be separated from the herd and penned at nights in the yard and house she is to occupy, so as to become accustomed to the place.

The sow should not have a heavy feed just before farrowing, and after the pigs are dropped only water should be given for from six to eight hours, and only a small ration, a pint of wheat bran or less of scalded corn meal, should be fed for twenty-four hours. More injury is done at this time by overfeeding than by some neglect.

[1] By Prof. J. W. Fox.

Until the pigs are weaned, the sow should be fed twice a day a thin slop of corn meal and wheat shorts or rice polish. When the pigs are two weeks old the sow is to be turned out to pasture for a few hours, and soon the pigs may follow. Some hog raisers feed the sow only soaked corn after she is fully accustomed to grazing; generally, however, it is better to continue the slops till the pigs are weaned, about eight or ten weeks. The pigs should be fed a slop of equal parts corn meal and shorts twice a day till they are twelve or fourteen weeks old, so as to give them a vigorous start, and they should receive all the soaked corn they will eat up till they are turned into the early cowpea pasture in July. This may be done when about half the pods begin to turn (from July 15 to August 1). Prior to this time the pigs are pastured on rape and clover.

About August 20 turn the pigs into the corn, and after September 20 give them full range of the corn, peavine, and peanut pastures. If soy beans are planted, turn on them also.

FALL LITTERS.

The management of the fall litters, which are usually dropped in October or early in November, is similar to that of the spring litters, except the winter grazing, which is mainly on alfalfa, wheat and vetch, and rape and clover.

The farmer must decide whether to market fall pigs in the summer or carry them over and fatten in the fall. Usually the latter plan is adopted.

GENERAL SUGGESTIONS AS TO MANAGEMENT.

Each sow, after she is one year old, should have two litters per year, one in the spring and one in the fall. It is not advisable to keep sows over three years, and many advise slaughtering at the age of two years.

The breeding houses should be kept clean and free from dust. The doors and sides should be sprayed thoroughly at least once a month with kerosene. Crude petroleum is better if it can be obtained. Whitewash occasionally. See that the herd has no lice. For keeping the herd free from lice there should be several posts near where they feed, to each of which is attached a gunny sack wound into a roll. Nail one end to the post just above the ground. Then wind the roll around the post in coils far enough apart to permit the other end to be nailed 2 feet above the ground. Keep this gunny sack saturated with crude petroleum. If the hogs have lice they will rub against these posts and destroy them.

Any hogs purchased from other herds should be placed in quarantine two weeks for the development of any possible disease or vermin.

Avoid all mudholes in yards or pastures. Access to pure running water is desirable, but low wet swamps and mudholes are just as dangerous for hogs as for men. Much of the so-called hog cholera is only typhoid fever resulting from wallowing in foul mudholes.

MINERAL MIXTURE FOR HOGS.

The following mixture should be kept constantly in supply in a dry place and accessible at all times to hogs and pigs. This mixture aids digestion and tends to keep the hogs in perfect health:

Charcoal	bushels	1½	Hardwood ashes	pounds	10
Common salt	pounds	4	Slaked lime	pounds	4

Fresh water, shade in summer, grain food when on grass, a dry bed free from dust, shelter in winter, and when confined an area sufficient to prevent it from becoming foul with droppings or mudholes, are some of the essentials of successful hog raising.

NOTES ON EQUIPMENT.

It is important to have things convenient where many hogs are raised. There must be an ample supply of fresh water at hand. If obtained from a well there should be a small windmill to pump the water into a tank raised about 5 feet above the ground, so as to draw the water into barrels if necessary.

A light lumber wagon, with a bed full width, 10 feet long, made of 2-inch oak plank, with one end bolted under the rear axle sufficiently low to be 1 foot from the ground, is very desirable. The front end should be hung to the center of the front axle with a swivel or eye bolt, so that the front wheels can turn. Where the front wheels hit the bed, a notch should be cut in on either side about 3 inches deep and heavy band iron should be put on it. Thills should be attached so that the wagon may be drawn by one horse or mule. On such a wagon barrels of water and grain for 100 or more hogs can be conveniently loaded and distributed to the various pens.

For feeding pigs, there should be a slatted trough to prevent the more greedy getting into the food. It is constructed as follows: A bottom board 1 by 12 inches and 8 feet long, edges beveled, end piece 2 by 6 inches, a center board 8 inches wide nailed to the ends, the lower edge standing 2 inches above the bottom of the trough—the top edge would be 10 inches above the trough. On the two edges of the bottom nail 1 by 4 inch strips 8 feet long, and nail slats 2 inches wide from the top of the 4-inch sides to the top of the center board, far enough apart to allow the pigs to eat—6 inches will answer for small pigs; 8, 10, and even 12 inches may be required for larger.

A sweep grinder for making corn meal and a large kettle set in a stove are great conveniences where large herds are to be managed.

A better plan than to put water for the pigs into troughs is to set one-half of a kerosene barrel on brick or stone so as to raise it 3 inches from the ground. Place the barrel between two posts planted opposite to each other; then wire it in position. Insert a pipe near the bottom, with an automatic valve which will let the water flow into a small trough without overflow. There are special devices on the market which accomplish this purpose. Fill the half barrel with water and fasten on a board cover. In this way the drinking water is always kept clean and accessible.

An open shed, floored, is advantageous for feeding. The hogs are thus protected from the sun in hot weather, and the soaked corn can be scattered on a clean floor. Never throw corn for hogs on the ground. It forces them to eat too much dirt.

It is emphatically necessary to avoid all wallowing holes if the herd is to be kept healthy.

BREEDING TYPES.

It is not the object of this paper to discuss the relative value of breeds of hogs. The important point is to have long, vigorous sows. Select the brood sows from the best dams, and especially from those

that have a good flow of milk, are good feeders, and have large, even litters. The importance of this can not be overestimated.

Use thrifty, square-built, short-limbed, well-bred males. Keep the males in medium flesh and give them plenty of exercise.

Use shelter houses for winter with some bedding (leaves or straw), to avoid piling of hogs, which may occur where no protection is given, and from which is sure to result considerable loss.

Feed in a place protected from winds during severe cold weather or a cold storm.

It is important to finish all hogs pastured on peanuts, acorns, and all succulent food, by feeding on corn alone for about three weeks. It hardens the flesh and improves the flavor of the meat.

PRESERVING THE PRODUCT.

Farmers have sustained great losses in the South because of the impossibility of depending on steady cold weather at killing time. A few warm days at that time will spoil the meat supply of a year. Since public attention has been turned to the importance of producing a home supply of pork, there has been a strong demand for central packing houses. These will be totally unnecessary for a number of years, or at least till there is an ample home supply. What is imperatively required is for every market town to establish a small killing and storing plant, which shall have, in connection with the ice plant, two or three rooms that can be cooled by ammonia pipes to a winter temperature.

A few yards and sheds for holding and feeding hogs will be needed, besides a room for killing, provided with a scalding vat and a table for scraping and removing bristles, and an overhead trolley for suspending the hog, removing the entrails and vitals, and then conveying into the cooling room, where the dressed hogs hang upon rods. When sufficiently cooled the carcasses are removed to another room not quite so cold, where they are cut up. The parts to be cured are conveyed to a third cool room for salting and processing. The entire plant, including engine, ice machine, complete apparatus for handling hogs quickly, and cooling rooms should not cost more than four or five thousand dollars.

There are plenty of good Southern farmers who know how to kill, dress, and cure meats to perfection, provided they can be sure of the weather. These cooling rooms make the weather to suit at a small cost.

Better than this, send to Virginia and get some farmer who knows how to cure Virginia hams, shoulders, and bacon. They bring prices far above those received for any packing-house products. If this plan be adopted it will leave all the profits in the hands of the farmers.

S. A. KNAPP,
Special Agent in Charge of Farmers' Cooperative Demonstration Work.

Approved:
JAMES WILSON,
Secretary of Agriculture.

WASHINGTON, D. C., *September 18, 1909.*

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