How To Succeed With Hogs

IN THE

SOUTHERN STATES

The Progressive Farmer
Hog Book

How To Succeed With Hogs

in

The Southern States

ILLUSTRATED

THE PROGRESSIVE FARMER COMPANY

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DEDICATED

To the Members of the Boys' Pig Clubs of the whole South as a recognition of the great service they have rendered in the development of our swine industry, by the publishers

—*The Progressive Farmer Co.*

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PREFACE

The first Boys' Pig Club in America was organized by the late W. H. Miller, Superintendent of Schools of Oktibbeha County, at Starkville, Miss., December, 1909.

The originator of the Boys' Pig Club idea was Prof. Hugh Critz, then of the Mississippi Agricultural College and now president of the District Agricultural College at Russellville, Ark.

The editor of The Progressive Farmer, Dr. Tait Butler, assisted Messrs. Miller and Critz in formulating the Rules and Regulations and organizing the first Boys' Pig Club and judged the first exhibit made by a Boys' Pig Club at the Starkville, Mississippi, Fair, October 4, 1910.

Many readers of The Progressive Farmer expressed their appreciation of the subject matter of this book when it appeared in a series of articles in the regular issues of the paper.

Many have also expressed a desire to have these articles in permanent book form for easy and convenient reference. These expressions are chiefly responsible for the publication of this little volume.

The larger number of the chapters, all of which have appeared in The Progressive Farmer, were originally prepared by that successful farmer and able agricultural writer, Mr. A. L. French, who for so many years has been a regular and valued contributor to The Progressive Farmer.

Chapter XVII on Curing Meat on the Farm was prepared by Prof. Dan T. Gray, Raleigh, N. C., than whom there is no better authority on hog raising in the South.

The writer is responsible for the original preparation of several chapters and the revision of the whole series of articles for this publication.

Credit is also due the U. S. Department of Agriculture, Washington, D. C., as well as several breeders' associations for illustrations used in this book.

This little book is not offered the farmers and Pig Club boys of the South as a complete or comprehensive discussion of hog raising, but it is believed that the subject matter will be found accurate and helpful, because it records the experiences and observations of successful hog raisers. The aim has been to deal in a brief and simple manner with most of the important problems of the hog raisers of the South, and it is the hope and belief that it will furnish the boys of the pig clubs and the older hog raisers of the South with accurate, conservative and helpful information.

TAIT BUTLER, Editor.

October 24, 1919.

CHAPTER I

The Place of Hog Raising In Southern Farming

Hog raising in the South must be founded upon reasonable profit first—a profit approximating the average profit to the farmer secured through his other farming operations; and, second, upon necessity.

Sentiment has had very little to do in the past with the business of the average farmer, nor will it have in the future; for the average farmer is in the business to make a living the same as other average humans engaged in other callings or occupations.

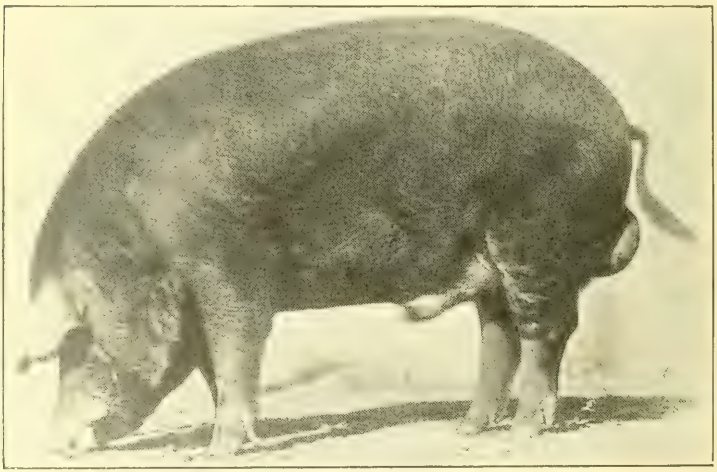
Necessity has compelled farmers to do things in time past that they would not have done from choice, in which cases they acquiesced with about the same grace as do other mortals under like circumstances.

It has been proved pretty conclusively in the past, by farmers and scientific experimenters, that hog raising in the South, if conducted in the light of present knowledge of the business, can be made a business productive of average profit. One of the best proofs we have of this is that many men of average judgment in practically every section, have been growing market hogs for years, and give every indication of continuing in the work. And because of the stable nature of the demand for all hog products with an augmented price, in line very nearly if not quite with the advance in value of other Southern farm products, we can see no reason, from the standpoint of profit, for any change toward a lessened production of hogs by those who have been engaged in the business for some time.

Hog Raising Means Quick Returns

A strong argument that the claim of the South as a pork-producing section is sound is found in the fact that

every ingredient of the feed necessary for the most economical pork production is found within our borders, indeed is present or may be grown on practically every farm in all our Southland. The corn that has been the chief reliance of the hog grown in the Middle West is being produced in the South in rapidly increasing volume. Indeed, the position the South is assuming as a corn-growing section is rather startling to those who have looked upon our section as a market for raw corn products. A

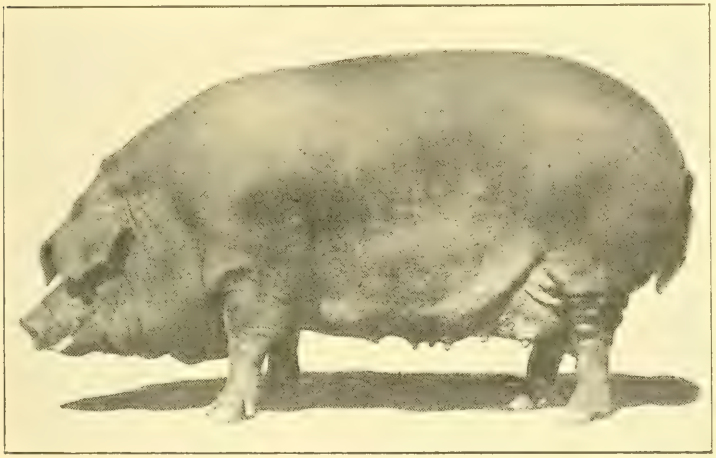


DUROC-JERSEY BOAR

recent sale of Florida corn on the Chicago market is a thing undreamed of ten years ago, and the fact that the shipment topped the market speaks well for the quality of the product. Then the protein balances for the corn finishing ration—the part of the ration which the Western feeders depend upon the packers to supply very largely—may be grown right on the land on which the hogs are fed in the South, in the form of soy beans, cowpeas, velvet beans, or peanuts—one or more of them in every section and all in most sections. And when something

more is thought necessary for the finishing touches, during the last thirty days, our greatest concentrate—cotton-seed meal—is always at hand.

But in the thing to which the hog grower must ever look for the greatest economy in growing hogs up to the finishing period, for example, grazing crops, is where the South exhibits her greatest strength. The West has her clover, alfalfa, grasses and rape for summer use mainly. We have all these and many more, such as soy beans, cow-



DUROC-JERSEY SOW

peas, velvet beans, Bermuda, lespedeza, etc. Then our late falls and early springs make possible several months of slightly cooler grazing weather, when rape, rye, crimson clover, bur clover, and winter oats do valiant service in holding down the cost of production.

And while we are on the subject of grazing crops, it should be noted that corn may be harvested by hogs in the field as well as can other crops that are more commonly used in that way, although we rather object to this method of harvesting the crop when labor is available for its hand-

ling because of the loss of rough forage when such method is used.

If the foregoing be true, and we believe that it is, the necessity for many more hogs in the South and the possibility of their profitable production when conditions are made right for their grazing, is proved beyond question. When considering the question of whether or not it is practical to make our conditions conform to the needs of increased hog production, we must look at conditions as they are at present in our territory and not as they have been in the very recent past or as we individually or as a people might wish them to be.

Machine-grown and Hog-harvested Crops to Solve the Labor Problem

It is undeniably true that there is getting to be a real shortage of labor in many sections of the South, to carry on the cropping system that is so generally in vogue in our country, and it is as true that the shortage of labor affects the harvesting more than it does the planting or tending of our crops; for with machinery a man can plant and tend three times the acreage of our great staple crops that his individual labor will harvest. The grazing hog may to many thousands of our people be the way out of this labor difficulty.

Again, where the invasion of the boll weevil has tended to a greatly increased corn acreage and especially when this bulky crop is produced many miles from a railway or steamboat shipping point, the hog—through his capacity as a food condenser and then his ability under necessity for walking himself a reasonable distance to a shipping point—may prove himself the logical means for marketing the corn crop. This has been a necessity for years past in many sections of the Mississippi valley country, where men have been hauling raw corn from 15 to 30 miles to sell it at a less price than good hogs would have paid for the product at home, and the bulk of the fertility the corn contained could have been left on the farm.

Approaching the might-be position of the hog in what is now the great cotton growing section, his position is not quite so clear, for cotton and its by-products are bringing unheard of prices, producing profits—were there no other factor to be considered—that make even 20-cent hogs look cheap. But conditions as they actually are and bid fair to continue for some time at least, would lead us to consider carefully the possibility that the members of the family that are located on about every thirty acres of this cotton land may be without meat unless the hogs are produced on the plantation, and when one is hungry big profit or little profit doesn't make quite the impression on the mind that it does at other times. Then if the present labor trouble should continue to vex it may be necessary for even the regular cotton plantation owner to so readjust his operations that a family will be able to work more than the regulation 30 to 40 acres of land; in which case an enlarged acreage of machine-grown and hog-harvested crops may commend itself as the solution of the problem. The tobacco-growing farmer can handle so few acres of his money crop with the labor available that there never has been an excuse for him buying meat, for every tobacco farm has surplus land and the labor plenty of time available—when the main crop is not demanding attention—to grow the feed necessary to provide all the meat the farm should require.

CHAPTER II

Selecting the Breeding Stock

With no class of animals does profitable production follow more closely along the line of quality in breeding stock than with hogs. In time past, and not in the very distant past either, this statement would have been questioned but as experience with hogs of improved blood broadens, more men who know and who have learned in the great school of experience give it as their verdict that the hog that has been trained by the brainy men through several generations to do certain things will do those things with greater certainty than will the hog that has "just growed." And it must be insisted that the drive we are making for more hogs be made with a double team, and let us hitch with more, better quality. Then will our grass, clover, corn and other feed be assured the best market that well cared for hogs can provide.

The Grade or Cross-Bred Fallacy

Certain men have always had a craze for the grade or cross-bred animal, their contention being that a grade or cross-bred animal makes a better—more profitable—feeder than does the pure-bred. There has never been any ground for the contention, as the main consideration of the men who have established our standard breeds of livestock has been to provide a more profitable market for our farm feeds, first, by reason of turning said feeds into the highest-class product and, second, making possible a greater number of pounds of the product for a given amount of feed consumed. Hundreds of old cattle men say that they prefer a high-grade steer or a cross-bred animal to a pure-bred of any breed for beef production; but the fact is that steers that are pure-bred or practically so have been topping

the best markets of America for the past half dozen years and winning in carlots at the greatest stock shows.

So we believe it is safe to say, when selecting the hog breeding stock, "be sure of quality animals." Then in almost every part of our territory get the pure-bred animals of both sexes; for the pure-bred sow with all the essential points well defined may be purchased generally at not over 50 per cent above meat prices.

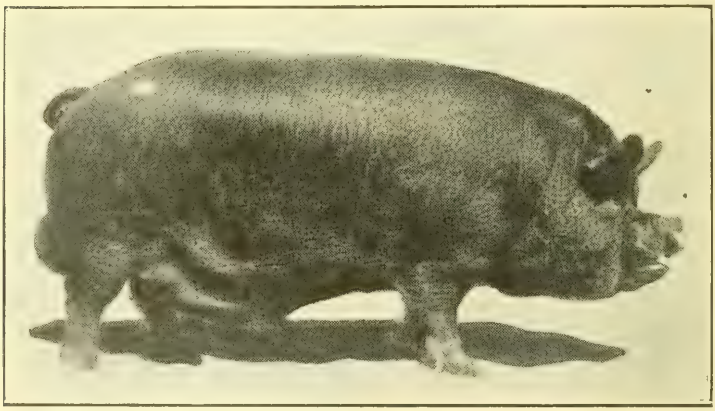
And with pure-bred boars as numerous as they now are in our territory, it seems but folly for the farmers of any community to use anything less than a first-class pure-bred boar. A pure-bred hog can care for twenty to thirty sows during a season, and one pig from each litter, sold at common pig prices, would pay for a much higher-priced hog than it would ever be necessary to purchase when the purpose is to breed market hogs.

But there are hogs and hogs, differing as widely in type as do the ideas of their breeders. And they are any of them more profitable to use than are common grades. But when it is necessary to secure new blood, let us select as nearly as we may the type of hog that the breeders who keep in closest touch with market and cost prices are producing. These men are acquiring a little more experience all the time, and their experience during the past dozen years has caused them to look with favor upon the hog carrying a little more scale and bone than did their favorite of a decade ago. Perhaps this change has come about because of the enlarged place grazing is finding in profitable hog production. The little dumpy hog of 20 years ago was not a great success as a grazer, and his somewhat taller, deeper-bodied, longer cousin of today does much better execution along that line.

However, there is a wide difference between the large, smooth, fine quality hog and the course, big, rough hog. So in selecting our herd boar we would look for both size and quality. We do not mean to secure the biggest hog that may be found, but a hog of good quality that will develop to 600 or 700 pounds about meets our idea of

what a breeding boar should be. Let this hog have a broad forehead, a bright eye, strong straight legs, feet that hold up the weight that comes on them, a deep side, well rounded rib, slightly arched back; good deep hams, and the whole covered with a thick coat of silky hair. Then by all means see that he comes from a litter of not less than eight, and that his dam has a quiet disposition. We do not want to breed wild or vicious hogs. They are troublesome to handle and generally poor feeders.

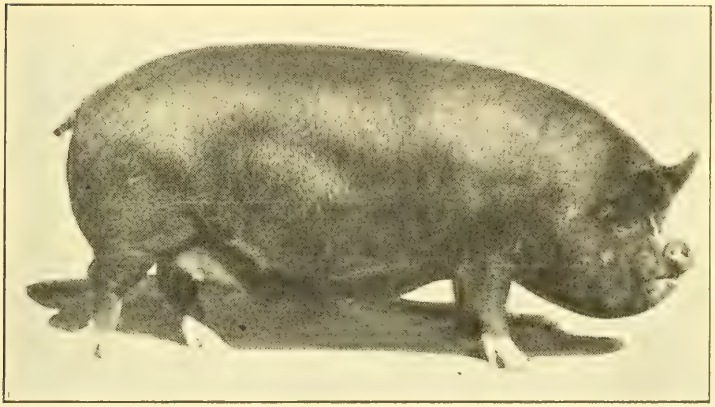
The importance of securing the right sort of boar grows



BERKSHIRE BOAR

out of the fact that his blood may go into 250 pigs per year and, if they be pure-bred pigs, be responsible for one-half of their good or bad quality, and should their dams be grade or scrub, the boar would mean even more to the pig crop. But as important as the boar is to the herd, he is of no more importance to the individual pig of the herd than its dam. Indeed, it is questionable if the boar has as much to do with profitable pig production as has the sow; for while his blood means 50 per cent or more to the pig's breeding, the dam's blood means almost as much in the breeding, and her body provides for safe farrowing of the

offspring and its feeding and care in the main for some two months. So theory shows how very important is the right sort of a sow to the hog-breeding business. And this theory is confirmed by the experience of careful hog men everywhere. On our farm have been individual sows that farrowed and fed to weaning age three times as many pigs within the space of five years as other sows, and the pigs were of much better quality. Where these sows excelled was that they were of quiet disposition and generally saved the majority of the pigs farrowed. Then they



BERKSHIRE SOW

Make Sure of Quality in the Sow

were great milkers and brought a large per centage of the pigs through to weaning age without becoming stunted.

If necessary let the other fellow select the boar for you, if he will select according to your directions; but you have a look at the sow before purchasing if it be possible to do so. Test her disposition, notice her udder, see that she has at least 13 teats; see if she takes to her feed as if it had the right taste. All this has much to do with the profitableness of the breeding sow.

There are, of course, not enough of these great individ-

ual sows in the country to produce all the young sows needed, but where one is found her female produce should be carefully guarded that her blood may breed on. Sows of this character should be kept breeding until old age causes small litters or those in which the pigs lack uniformity. As a general proposition the idea of slaughtering sows after they have produced one or two litters and breeding gilts to replace them is not sound. The pigs out of the aged sows are generally larger and stronger, and as the older sows are likely to be better milkers, the offspring make better development all around.

CHAPTER III

Caring For and Feeding the Boar

Young males require for their proper development and best work, individual attention. This is as true of young boars as it is of young bulls and stallions. Hardly anyone in the range country would think of turning a yearling stallion out with a band of unbred mares to rustle along the best he could; but many think that the proper course to take with a young boar, as regards his relations with the female hog stock.

The practice is all wrong and in the majority of cases will result in a poorly developed hog and a little later in a poor working animal that will beget weak pigs. There is no special objection to running a young boar in the same pasture with settled sows, provided with this practice the male receives the amount of feed necessary to keep him growing as he should and in good strong flesh. This, however, is hardly good hog practice, for a young boar requires more feed than do sows that are not far advanced in pregnancy. So the most practicable method of handling the boar is to have a good pasture, well fenced, and containing a comfortable shelter where the boar may stay at all times, with gates so arranged that sows may be handled in and out with the least work. And when it is necessary to breed a sow, let her be brought to this field, given one service and then removed at once. Handled in this manner, there will be the minimum drain upon the hog's vitality and he will soon learn what control means. Also there will be far less time required for his handling in the long run than when he is allowed to go to every hog lot with the certainty of his becoming breachy, after a time.

Few things pertaining to livestock are more aggravat-

ing than to have an old boar that is breaking fences whenever the mood comes upon him. A shelter for a boar in our territory need not be expensive, a cheap leanto shed with a tight roof and boarded tight on the two ends and rear side being all that is necessary. This shelter should be kept in good sanitary condition through being cleaned once per week, sprayed with some good disinfectant, then rebedded. The bedding is very necessary during the winter months when hogs are kept in individual houses. And the shed should have an eight-inch board nailed across the front at the ground line to keep the bedding in place.

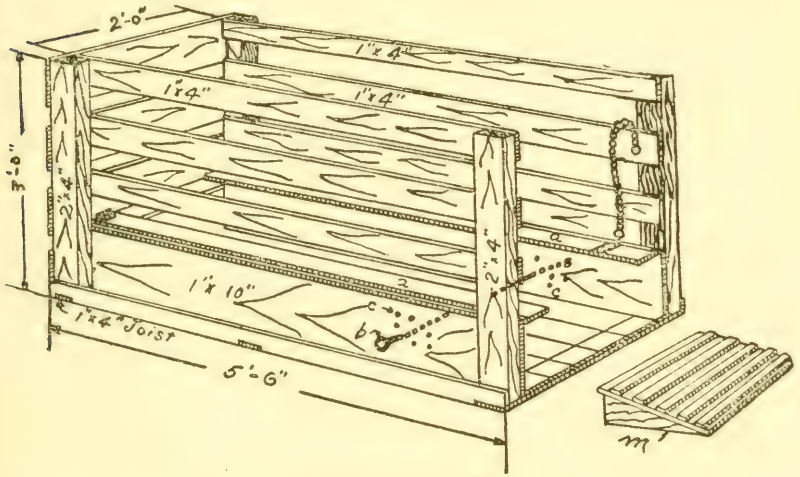
The boar should be sprayed or otherwise treated for vermin once every two weeks, provided there is no permanent vermin-destroying arrangement. We have found a little kerosene oil poured along the hog's back from head to tail as effective and cheap as any temporary measure, although we think spraying with a coal tar dip preparation has a tendency to keep the hog's coat in better condition.

Cutting the boar's tusks is a pretty cheap insurance against damage to men or animals that have occasion to pass through his pasture.

This pasture should be seeded with the most permanent pasture grass that is fitted to the section in which the boar is kept. There is nothing better for this purpose over the most of our territory than Bermuda, reinforced with lespedeza, white clover, and in sections where it does well, bur clover. In the Piedmont section a light seeding of common red clover seeded on the sod in late February will usually make growth enough to pay well for the time and seed required. This pasture feed should be supplemented with rape in its season cut and thrown to the hogs once per day. Turnips, too, and sweet potatoes provide a change that is much relished by the hog. Then an armful once per day of soy beans in the milk stage, buffalo weeds, beggar weeds or any other succulent legume helps the boar to forget that he is a prisoner, and provides the protein that his pasture may lack in the early fall. When

roasting ears come let the boar have two or three stalks of corn with the ears once per day. And as the winter days come on the bur clover and white clover should be supplemented with turnips, alfalfa, clover, soy bean, cowpea leaves or the finer particles of other legumes.

The boar will usually take sufficient exercise to keep him fit, but lest he should become lazy during the winter it is well to have his house located as far as possible



A BREEDING CRATE

A A are 2x6-inch boar supports hinged in front and hung on chains in rear so as to be adjustable both vertically and horizontally.

B is a 1½-inch wooden rod which is placed through the holes C C and behind the ham of the sow to prevent her backing out of the box. The proper hole to use is determined by the size of the sow.

M is a platform to raise a small boar high enough to serve a large sow.

from the feeding place. At all times of the year a couple of ears of corn per day should be fed to help out the other feeds.

Tankage is a good feed to go with the corn as a hog ration and where this feed rich in protein is available there is no especial objection to its use, except that cash is required for its purchase. Economy of production calls for

the use of home-grown feeds entirely for hogs, for they may be grown in almost every case at one-fourth of what a purchased substitute will cost.

When the boar gets heavy—and an aged boar is preferable to a young hog, the use of an aged hog insures stronger pigs usually than those got by a young boar—a breeding crate should be on hand in a pen located in an enclosed corner of the hog lot, for use when gilts are to be bred.

In our territory pasture is the feed par excellence for cheap hog production, and the boar should be made to contribute his "bit" toward keeping down the cost of production, and at the same time the exercise gained and the succulence obtained through the grazing will keep him always "fit."

CHAPTER IV

Care and Feeding of Brood Sows From Breeding to Farrowing

Around the old sow has sprung up many fallacies during the past 50 years, some of the more foolish of which are still going strong in certain sections and doing much to retard profitable pork production.

All have heard men say that a sow should be very thin in flesh—meaning to them skin-poor—when she is bred, if a large strong litter of pigs is desired. But during all these years observation and experience have furnished convincing evidence that best results follow when sows come to mating time carrying plenty of solid hard flesh, acquired through pretty liberal feeding on properly balanced rations supplemented with plenty of succulence and abundant exercise. This is only common sense, after all. The animal that has become emaciated through poor feeding or heavy suckling or both is in a low state of vitality, just the opposite of the condition we should want at mating time. This does not mean that the sows should be penned and fed on corn until they are full of lard; but means, just as stated, that sows should be strong and full of good blood at the time of mating. There is, in my opinion, little danger of making brood sows too fat in the South, when two litters per year are produced. And we have found it good business to drop off one litter in every five and give the sows a chance to rest up and renew their vigor.

Care After Breeding

After the sow has been bred, the feeding should continue as before, only more attention, if anything, given to proper balancing of the ration, supplying succulence and

the absolutely indispensible exercise. Corn is a most handy feed for hogs and may be used at all times of the year as part of the ration for brood sows at the rate of two or three good ears per day per sow when not suckling, and the ration doubled when the sows are hard at work.

People seem to have acquired the notion somehow that corn is a more expensive crop to grow in the South than

POLAND-CHINA BOAR

are other crops that are looked upon as legitimate hog feed. Our experience does not tally with this notion, for with us corn is produced at about the same cost per acre as other cultivated crops. And it is the fact that the corn is generally harvested in the South, while many of the other hog-feeding crops are hogged off, that has caused corn to be rated as high-priced hog feed, and it should be remembered that it is just as feasible to hog off

corn as it is to handle other crops in this manner. However, this is not a job for a brood sow, as under this method of feeding they use this splendid feed in a too liberal portion, and make their feeding more expensive through a too liberal use of concentrate instead of permanent and temporary uncultivated pasture plants—that are produced at less expense because the cost of cultivation is eliminated.

So we believe that the sows should have some corn

POLAND-CHINA SOW

in most sections at all seasons of the year, for it is probably the best fat-producer we have, but that it should always be fed as a part ration, the bulk being made up of feed that the sows may harvest economically themselves.

The sows should always have as the basis of their ration the grazing from a good permanent pasture, and the travel necessary to secure this feed will supply the exercise needed. In this permanent pasture at nearly all times of the year will be secured some nitrogenous feed,

in the shape of clover of different kinds. Sows immediately after being bred, and for two months may secure all the feed needed from these permanent pastures when this feed is supplemented with the light corn feed as noted above. This will depend of course a good deal upon the season, for should the season be unusually dry the permanent pasture plants may make small growth or become so dry as to be unpalatable. Then comes the need for the succulent, rapid growing, temporary pasture crops, such as Dwarf Essex rape, crimson clover, rye, soy beans, velvet beans, cowpeas, etc., that should always be growing to meet an emergency or to do their part in a regular feeding program.

It may always be accepted as a fact that all sorts of hog feed may be grown in the South at much less than some purchased substitute would cost. So it is always the part of economy to produce on the farm all the feed dry sows require to keep them in the very best condition. The proper combining of the feed is a simple matter when we know that all legume plants are rich in protein or muscle-building properties, while feed such as corn, rape, rye plants, oat plants, etc., are energy and fat producers. And with all the pasture on the legume grazing crops the sows will use, supplemented with the small corn feed noted in the foregoing, dry sows will be found to do all right. When rape and corn are used together, either good legume pasture should be available or a light feed of soy bean meal added to the ration. When the permanent pasture is largely legumes the meal will not be found necessary.

During those times in the winter when land is not in the condition that the crop may be grazed, some nitrogenous feed with some bulk must be supplied to balance the corn ration. The entire soy bean plant harvested as hay or bound in bundles we have found to answer very well as a balance and filler and when this feed was not at hand the leaves of the legume hays have been used with success, both dry and moistened. These feed matters will be dealt with more fully in succeeding chapters.

CHAPTER V

How to Care For and Feed the Brood Sows While Suckling Their Pigs

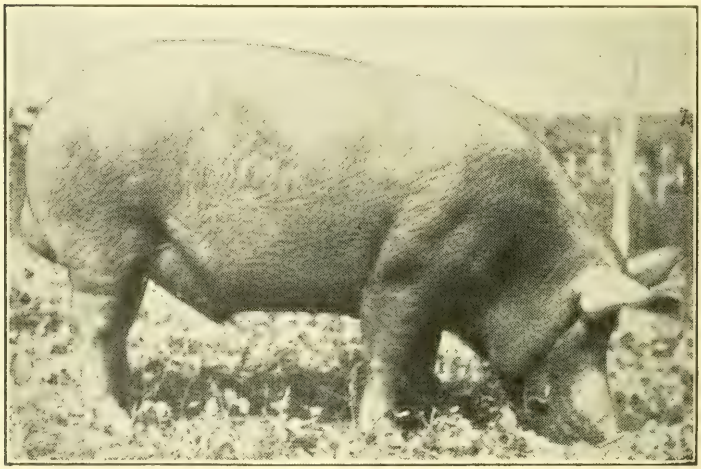
Sows that have been properly cared for during pregnancy should be confined at farrowing time in a private apartment—either a small house or a division of a larger house—and the pigs will find a dam in good flesh, brought about through proper feeding on a well balanced ration, and re-enforced by abundant exercise, secured, in the main, by hustling after the part ration of succulent feed that they have been privileged to partake of when land and weather conditions were such that they could graze.

This full-flesh condition of sows at farrowing time is very important as an insurance against weak pigs at birth and poorly nourished pigs at three to four weeks old. It is very seldom indeed that a sow very low in flesh at farrowing time will farrow large strong pigs, for the simple reason that the sow's feed has not been sufficient to properly nourish the sow's body and her young. And it is as uncommon too for a sow in poor flesh at farrowing time to properly feed her three-weeks-old pigs—when the litter is as large as the greatest profit requires—for the reason that she cannot digest enough feed to maintain herself in strong condition while eight to ten lusty pigs are demanding any number of square meals per day. So instead of being in gaunt but strong condition, with the pigs even in size, lusty and growing, four weeks after farrowing, she will, nine times out of ten, be found somewhat wabbly in the hind legs and running away from a squealing bunch of hungry pigs, about half of which are securing practically all the milk she furnishes.

So, coming back to the starting point, of the young pig's life, we hope to find the sow carrying good flesh,

dwelling in her private apartment from which all cold drafts or hot sun has been excluded, grunting her satisfaction with a fine, even bunch of lusty day-old pigs lying close to the table. And this is about all she requires for the first 36 hours, except plenty of good water, in which has been mixed just enough soy bean meal or wheat shorts to keep her hog nature satisfied, and her body cool.

After the second day let the feed be gradually increased,

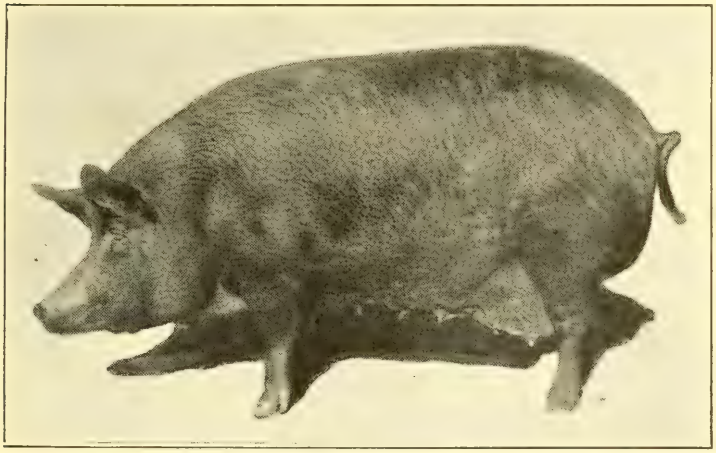


TAMWORTH BOAR

adding to the slop a couple of ears of corn daily. The sow will now begin to move about more, seeking the succulent pasture feed that should be the part of every suckling sow's ration, and within a week the pigs will begin to follow the sow, taking the exercise that is absolutely essential to the health of nursing pigs.

Never under any condition should this privilege of exercise be denied little pigs for a longer period than one week after farrowing, else the fat little fellows will begin to have thumps, and when they get into this condition

their time of usefulness is practically over. Pigs kept in a nice warm bed look more comfortable than do pigs that follow their dam about the pasture; but experience proves that such treatment is death to the well fed suckling pig. The more good grazing the sow has after farrowing the less her feed will cost the owner and the more healthy will her pigs be. For this reason, among others, we want the pigs farrowed in the South when there may be something green for the sow; not too early in the spring—



TAMWORTH SOW

generally around March first—and not too late in the spring either—so the little fellows will be bothered with the hot sun and flies. The fall litters—and there generally should be fall litters when the proper winter and early spring grazing is provided—should come during the last of September and during October.

As a general proposition we do not favor summer farrowed pigs unless an abundance of shade is available, for the hot sun and the pestiferous flies are both very harmful to little pigs. Then, too, where the hogs are produced

for market these summer pigs grazed on late fall crops and fed on corn into January or February are liable to strike a low market. Where the meat produced is to be consumed at home, the late summer pig should be a prime favorite, save for the fly trouble, for it cannot be denied that a hundred-pound shoat ready to do his own harvesting from September 1 on is a very desirable citizen.

Later Care of the Sow

After the pigs are a week old the sow's feed should be increased gradually to about what she will clean up, and she should be encouraged all the time to secure as much of this as possible from the pasture by having the most nourishing and palatable of these pasture plants in abundant supply. With rape, rye, and crimson clover available, a nursing sow will make a much larger percentage of her living off the land than she will if her grazing is the grasses and small clovers found in a permanent pasture. Because of the extremely high prices of the by-products of wheat, which are probably our best feeds for nursing sows, in connection with pasture—we of the South may make a greater dependence upon corn for our sows, especially if clover makes up a good percentage of the pasture, and one who has seen three-weeks-old pigs picking up grains of corn as "Old Mammy" wastes them in her haste can hardly make himself believe that the pig considers this grain hurtful to him.

As the pig nears the age at which his dam begins to tire of his too earnest solicitation—four to five weeks—a creep should be provided where he may receive a moderate grain ration of his own, preparatory to weaning time; for every pound of grain should be carefully looked after that it be made to produce the greatest profit it is capable of producing, and the pig that is getting the bulk of the grain as weaning time approaches is making better use of it than can a sow making milk that she will soon have no use for.

CHAPTER VI

Care and Feeding the Pigs From Weaning to Five Months

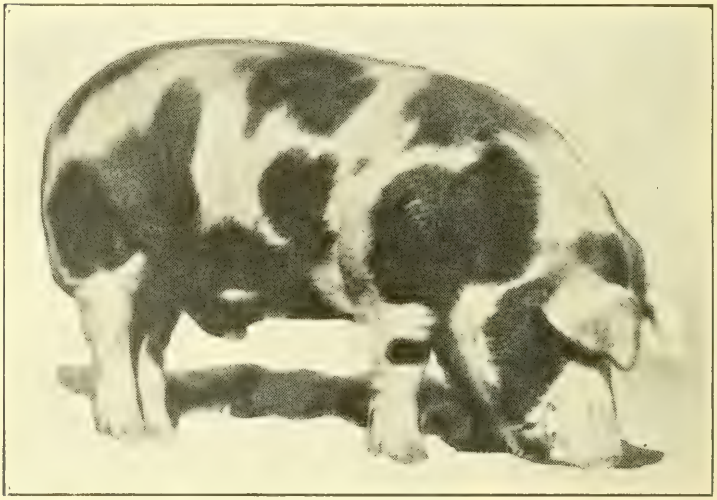
The pig that has been taught to eat during the second month of its life, while still suckling its mother, is easily weaned. That is, with proper feeding it goes on growing with little disturbance caused by the removal of its mother's milk. But neglect or insufficient or improper feeding at this time may seriously affect the future growth of the pig and the financial results of his production.

We believe the best time to wean pigs is when they are about two months old and the best method, to cut down the feed of the mother to a very low point for about three days and then separate the sow and pigs completely, so that they do not see each other again for at least two or three weeks. The sow should be fed very sparingly for a week or ten days on dry feed. It is also important that the sow be bred again within a week after the pigs are taken away. She is almost certain to come in season within a week or less after the pigs are taken away, and if bred at this time is more likely to get in pig from this service than at any other time. There will be less difficulty in getting the sows in pig and less "shy breeders" if care is taken to see that the sows are bred at the first "season" after the litters are weaned.

Careful and Liberal Feeding Highly Important

There is no time in the life of the pig when careful and liberal feed is quite so important as at weaning time. At no time during the life of the pig will he make so good use of the feed given him as from weaning time to four or five months of age. He consumes less because smaller, and makes better use of the feed, or gains more in weight

on a given quantity of feed than at any later period of his life. For these reasons there are those who believe that it pays best to feed the pigs to about the limit of their capacity from weaning time to marketing. This is pretty certainly true if much the larger part of the feed to be consumed by the pig during its entire life is to be high-priced concentrates, fed without pasturage or grazing crops. On the other hand, the farmer quite generally

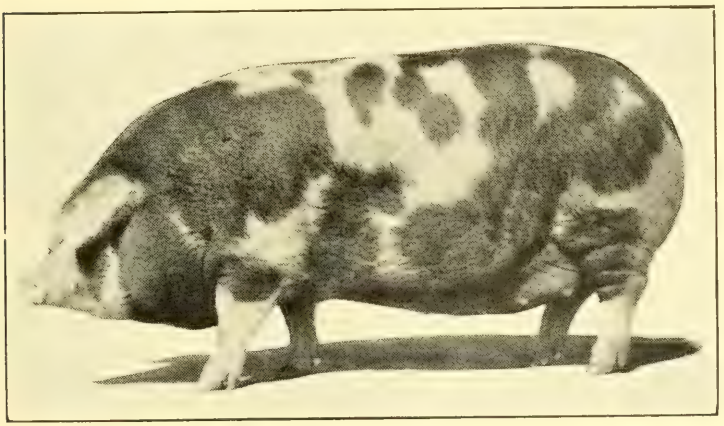


SPOTTED POLAND-CHINA BOAR

allows the pigs to go along on rather light feed from weaning time until corn or other fall crops are ready for feeding or grazing.

Under this method the pigs are marketed at an older age, and as stated have generally consumed more feed for 100 pounds weight than when they are pushed more rapidly from weaning time. But when the pigs are largely grown on crops which they harvest, or on grazing crops, it may be most profitable to let them run a few months on light feed and make small growth at a period when feeds are

scarce and high-priced if a little later there will be available an abundance of much cheaper feeds. In other words, if by August 15 to September 1 there will be ready for the spring pigs to graze, cowpeas, soy beans or other such crops, it may be just as economical to allow them to go along on rather light feed and make rather small growth from weaning time in April or May up until the time the best grazing crops mature. But it is pretty certain that it will not be found most economical to starve or seriously stunt the



SPOTTED POLAND-CHINA SOW

pigs because of the scarcity or the high price of feeds during the early period of their life. As stated, they do not consume large quantities of feed at this period—and they make good use of what they consume. Therefore, although the period—two to four months after weaning—is the most difficult one, either for the spring or fall pigs, to furnish them cheap feed or suitable grazing crops, it will pay to supply them sufficient concentrates to keep them in good vigorous growing condition.

If the weanling pig can have a little skim milk and corn with a pasture it will keep growing right through this

period until its age and the season is right for the best use of grazing crops; but skim milk is scarce and few pigs can have it. In these cases a substitute must be found. There is nothing which will quite take its place, but fairly satisfactory substitutes may be found. We believe that the substitute should be produced on the farm and some legume for grazing with soy beans or peanuts, or velvet beans to mix with the corn, will do the work. But if it is found more profitable to sell the soy beans and peanuts and buy something else for the young pigs, there is no objection to that. Perhaps on the whole there is nothing better than a legume pasture and one part of tankage to six or seven parts of corn for these growing pigs. These will make good growth and produce economical pork even at present high prices, if the right sort of grazing crops are to be furnished the pigs later. Shorts also furnish an excellent feed at this time, but is is usually high-priced, even higher than tankage and corn and is probably no better.

When the production of peanuts and soy beans shall have developed in the South to the extent which their value justifies, then we shall have in soy bean and peanut oil meals concentrates for furnishing protein and balancing the corn, which will be a very great aid to economical pork production in the South.

Aim at a Variety of Feeds

It is pretty certain that it is poor economy to make the weanling pigs get along on pasture alone, but it is equally certain that he must have some green feed, or much care must be taken to give him a suitable variety of feeds that will furnish a balanced ration. If given a ration of some variety which he relishes and it is properly balanced the weanling pig will get along very nicely without grazing, for at this period of his life, especially, he can use comparatively small quantities of bulky feeds; but it will nevertheless usually be found most economical to furnish even the weanling pig with green grazing.

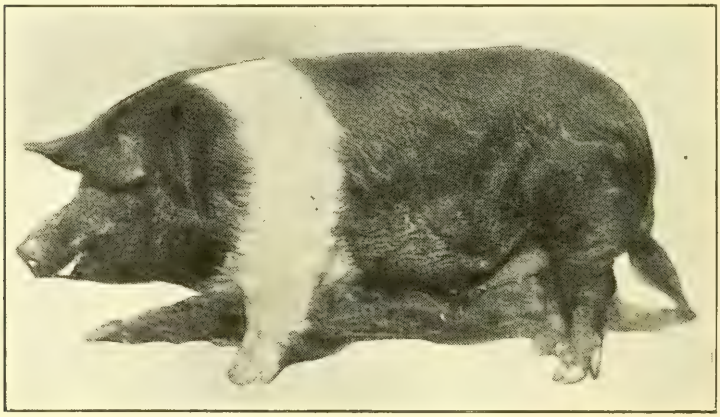
The pig requires a certain amount of mineral matter to develop his frame or bony structure. If fed on a ration containing sufficient nutrients, that is, a balanced ration or one containing sufficient protein, he is apt to get all the mineral matter required, but to remove this common excuse for the failure of our pigs to make proper growth and to guard against the improbable contingency that there may not be enough mineral matter in the full, well balanced ration, a mixture of ashes, ground phosphate rock, or acid phosphate, 8 parts; charcoal or soft coal 8 parts and copperas and common salt one part each should be mixed and kept under shelter so that the pigs can run to it and consume as much as they desire.

The weanling pigs are often put with dry sows, larger shoats and other hogs, when removed from their mothers. We doubt if anything is much worse for the weanling pigs than to be put with and fed among a lot of older hogs. The weanling pigs should be kept only with pigs about their own age, until at least four or five months old.

CHAPTER VII

Grazing Crops for Hogs—Temporary

The combination of crops in the table below will furnish almost twelve months good grazing. It is not possible in the northern half of the Cotton Belt to fur-



HAMPSHIRE BOAR

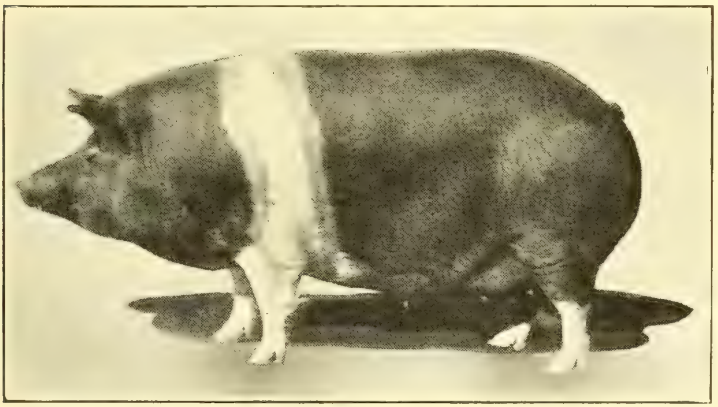
nish grazing for hogs the entire year when the winters are the most severe; but in the southern half of the Cotton Belt grazing can be furnished for the hogs every day that the land is dry enough to graze and even in the northern half of the Belt grazing can be furnished most of the time that the land is dry enough to graze during the average winter.

For doing this four or five fields for grazing special crops and a permanent pasture are necessary. Cowpeas or velvet beans in every corn field will also prove profitable. The permanent pasture should have Bermuda grass, bur

clover, white clover (if it will grow), and Japan clover, with such other pasture plants as may do well in the section where grown.

The fields may be cropped as follows, at about the middle of the Cotton Belt:

Field No. 1.—Oats, barley, wheat sowed from September to November according to the latitude and when the land is clear of other crops. This field may be grazed during the late fall and winter and spring and may be planted to early soy beans between April 15 to May 15, and these grazed August and September.



HAMPSHIRE SOW

Field No. 2.—Fall-sowed rape, and red clover, or rape and crimson clover sowed from the latter part of August to October 1, according to the location. If the rape alone is used, then spring rape may be sowed in February or March, followed by soy beans. If rape and crimson clover are used, the crimson clover may be grazed in April and May and soy beans planted in May or early in June. If rape and red clover are used, then the clover may be grazed up into July and the field used for the early seeding of some crops for late fall and early winter grazing.

Field No. 3.—Oats, barley or wheat, with or without a mixture of vetch. These may be grazed during the winter, the hogs removed early in the spring and then grazed again during May and the first half of June, and followed by seeding to soy beans or peanuts.

Field No. 4.—Spring-sowed rape in February or March, followed by sweet potatoes.

Field No. 5.—Oats, wheat, barley, rye or rape, according to which does best and the season at which they can be sowed. This field may be grazed during winter and spring and planted to peanuts or soy beans in June.

We regard oats, rape, soy beans and peanuts as the best grazing crops for average Southern conditions, but where conditions, soil and climate are suitable, wheat or barley will produce more grazing than oats. Rape, barley and wheat require rich soils. Sorghum may be substituted for any of the spring-sowed crops, but is perhaps less valuable than any of those mentioned. These crops may be changed on the fields, or rotated, as conditions will permit to avoid growing any one crop or set of crops on the land year after year. The table on the next page will be of service in planning these grazing crops for hogs.

It must be remembered that while a large use of grazing crops is essential to economical pork production, a variety and a balanced ration are nearly as necessary as when dry feeds only are used and it is generally best to feed some concentrate or grain to all animals from which rapid and economical growth is desired. This is especially true of suckling sows and young pigs.

GRAZING CROPS FOR HOGS

Crop	When Planted	How Planted—Seed per Acre	Grazing Period
Alfalfa	Sept., Oct., Mar.	Broadcast, 20 to 25 lbs.	12 to 18 months after seeding. March to October.
Melilotus	Feb. and Mar.	Broadcast, 10 to 20 lbs.	60 days after seeding at any season when growing.
Red Clover	Aug. 15 to Sept. 30	Broadcast alone—	60 to 90 days after seeding.
Crimson Clover	Aug. 15 to Sept. 30	12 lbs. of seed	Best grazing March, April and May.
Bur Clover	Aug. 15 to Sept. 30	15 lbs. of seed Two to three bushels	Red clover all summer.
Cowpeas	May 1 to July 1	1½ bushels seed broadcast; ½ bushel in drill	75 to 90 days after seeding. Last from 30 to 90 days.
Soy beans	April 15 to July 1	1½ bushels seed broadcast; ½ bushel in drill	75 to 90 days after seeding. Last from 30 to 90 days.
Velvet beans	May 10 to June 13	1 to 2 pecks in drill	150 to 180 days after seeding. After frost last all winter.
Peanuts (Spanish)	May 1 to July 1	1 to 2 bus. not hulled, in drill	100 to 120 days after seeding. Last 60 to 90 days.
Lespedeza	March and April	1 bushel or 24 lbs. seed broadcast	75 to 90 days after seeding. Grazed any time during warm weather or while growing.
Vetch	Sept. and Oct.	With oats or some other cereal —2 pecks seed.	Grazed during winter and spring but does not make much growth until March, April and May.
Oats	Sept. 1 to Nov. 1	2 to 3 bushels seed broadcast	60 to 90 days after seeding. November to June.
Wheat	Oct. 1 to Nov. 15	1½ to 2 bus. seed broadcast	
Barley	Sept. 15 to Oct. 15	2 to 2½ bus. seed broadcast	
Rye	Sept. 1 to Nov. 15	2 to 2½ bus. seed broadcast	
Sorghum	April 15 to July 1	Broadcast, 1 to 2 bus. seed	60 to 90 days after seeding. Last 30 to 60 days.
Chufas	Mar. 15 to June 1	2 to 4 pecks in rows	120 to 150 days after seeding. Last all winter.
Sweet Potatoes	Plant sets in May	7,000 to 9,000 plants, 3 ft. rows, 1½ to 2 ft. in row	150 to 160 days after planting. Last 60 to 90 days
Rape	Sept. and Feb. 15 to Mar. 10	In rows, 3 to 4 lbs. seed; broadcast, 6 to 8 lbs. seed	50 to 60 days after seeding. Last all winter. Spring seeding until May 15.

CHAPTER VIII

Grazing Crops for Hogs—Permanent Pastures

Hog raising, if it is to be a stable, permanent, profitable business, should be entered into with the idea of continuing for a term of years, or better, as a regular part of the farm business for the life-time of the farmer. This does not mean that the man who strikes it lucky may not make some money with hogs as a one-year or a two-year venture, but there are ups and downs in the hog business the same as any other line of farming, and occasionally, if not oftener, the transient hog raiser strikes bumps that leave a bad taste in the mouth. These times come to all alike, and the advantage that the regular hog raiser has over the man who drops in once in a while with a view of reaping a fat harvest is that the good times that always follow the bad times have a tendency to wipe out the bad taste.

The writer has in years past sold 40-cent corn and good clover grazing to three and one-half cent hogs. Then 6-cent hogs have been fed on 50-cent corn, and another time hogs fed 50-cent corn sold at 10 cents, and the past year $1 to $2.25 corn sold in live hogs at $17.75. So the business covering the 25-year period as a whole has been quite profitable, while if it had been an in-and-out business it quite likely would have been a losing game.

Profits Doubtful Without Permanent Pastures

Permanent hog raising means for the most of us raising pigs from sows that were selected from litters raised on the farm in previous years, and to keep brood sows year after year a good permanent hog pasture is a prime necessity, for such pasture insures the cheapest aged hog feed and at the same time insures—other things being

equal—the most healthy hogs, and good health in breeding stock is one of the requisites of profitable hog-raising.

One of the big reasons why we of the South have not in years past raised hogs more extensively is the fact that we have not as a rule provided ourselves with good permanant hog pastures. Nearly all the men we have known who have abandoned hog-raising because of lack of profit are of the class that depended upon purchased mill feed and hand-harvested home-grown feeds to maintain their breeding stock and feed out the young stuff. It is a fact that over much of the South country permanent pastures do not come naturally as is the case in much of the country North and West, but have to be planted like any other crop. But it is another fact that good Southern permanent pastures when once established on good soil and then properly cared for, provide enough more feed than do pastures on the same quality of soil in other sections, devoted to real permanent pasture grasses, to pay well for the extra expense incurred in their establishment.

Take for instance a Bermuda and bur clover pasture in the sandy Coastal Plain section. We are confident that pastures of this sort have come under our observation that will provide double the hog feed in a year that a good bluegrass pasture of the North will produce—because of the more vigorous growth of the Southern plants and the much longer period during the year that they may be grazed. In the warm Coastal Plain section a really good pasture set in Bermuda, bur clover and white clover will provide grazing during almost the entire twelve months, and this is the sort of a permanent pasture we would recommend as a standard for all the Coastal Plain section and well up into the sections farther North.

These pastures in this part of our territory may well be supplemented with alfalfa pastures in sections where that fine legume is a profitable grower, and this means as a general proposition the sections where the soil contains a goodly portion of lime. Higher up Bermuda is not quite so good a pasture as it is in warmer sections, and bur

clover is hardly worth the trouble it costs. However, until north of the Cotton Belt is reached we would not abandon the use of Bermuda and would supplement with orchard grass on the moist rich alluvial soils and add to this mixture common red clover and white clover.

Land that is to be seeded in permanent pastures to be grazed by hogs should be made rich, as plants that are to be the most profitably grazed by hogs must be succulent and this means they must grow rapidly.

Some grain will always be fed to hogs grazing on such pastures and this will help to maintain the fertility of such soils when they have once been made rich. An occasional dressing of lime and acid phosphate added to the fertility drawn from the air by the legume plants growing on the land will cause such pasture fields to increase in fertility from year to year and they will in time become the most fertile of any fields on the farm and be found to produce as great a net profit as any of the cultivated lands.

Allow no Robber Plants in Pastures

It goes without saying that the rich sodded fields should be allowed to produce no robber plants as bushes; briars and weeds have no value as hog feed and so should not be allowed to cumber the fields that have been sodded and fenced at much epense.

An excess acreage of permanent hog pasture, that is an acreage that will provide ample grazing under the most adverse conditions that ever come upon our section should be provided for it is an easy matter to turn in a bunch of calves or horses to make use of any surplus feed at any time. And horses and calves will make use of pasture plants that may have become too woody to furnish the best grazing for hogs.

Water is as necessary for hogs as is feed, and the more convenient it is to the hogs the less the labor expense there is involved, and the more regularly will the hogs' needs be supplied in the majority of cases. When running

water can be had in the permanent hog pasture, and good sanitary conditions be maintained, an ideal condition is obtained.

The all-spring stream that originates on the farm and that flows through the permanent pasture provides splendid watering facilities at the minimum expense, and, too, the moist soils that usually border such streams insure a constant supply of succulence all summer long. We do not favor, however, making hog pastures along larger streams that originate on lands not under control of the hog grower because of the danger of the hogs becoming infected with disease that may be present on the lands that lie along the upper water-shed, and that may be and often is brought to the hogs by the water flowing through the hog pastures. Another objection to the large stream flowing through the permanent hog pasture is the trouble there is to maintain water gates that will restrain the old hogs. It is very irritating, as the writer knows from experience, to awake in the morning after a rainy night and find a bunch of old sows have gone out on the flood and are frantically engaged in tearing down a field of fine corn that is just in the roasting-ear stage. When a large stream is the only one available run the hog lot fence so as to fence the stream out of the pasture and provide water from wells or springs for use of the hogs.

Good bathing facilities for hogs in the permanent pasture are desirable, and where the small spring stream is not available the concrete bathing pool, well built, will last for many years and cost little when its long years of usefulness is considered. (See illustration on page 64.)

CHAPTER IX

Grains, Concentrates and Other Dry Feeds for Hogs

Thinking upon the matter of grains for hogs, our thoughts turn naturally to corn—the greatest of all hog-feeding grains. That this great cereal will always hold a prominent place in the hog-feeding business few will have the wish to attempt to deny, when it is remembered that the great hog-raising business of the world found its inspiration in the bountiful corn fields and bulging cribs of the natural corn growing sections of the New World.

True, hogs have been raised in limited numbers for thousands of years, but it was only when the rich soils of Ohio and other Middle Western states began to send up their great harvests of corn that the hog came into his own and made for himself a place in the sun. His natural adaptation to a corn diet and the efficient use he makes of this grain—a more economical use than any other of our meat-producing animals—accounts in a great measure for his popularity as a corn condenser.

The ease and economy with which corn may be fed to hogs has had its part in making this grain the great universal hog feed. Hogs make economical use of corn when they are allowed to go afield and pull down their rations from the stalks of the "giant grass." Again when the wagon brings the great loads of grain from the field or crib and it goes direct to a clover or grass sod and is shoveled out to the hogs, the last particle of it is made good use of. Then, too, when the hogs gather around the self-feeder, in which the shelled corn or ears work down as the troughs are emptied, much pork results for the feed and labor expended. And when the feeder brings the ears of corn from the crib and throws them on the dry ground, the clean sod, or the feeding floor, pork is always assured, pro-

vided the hogs in every case have been properly grown and are in good health.

But modern feeding directed by the light thrown upon the subject by modern science, demands that an if enter into the matter of corn feeding to hogs, where any of the above methods are used, if the best results are sought. The hogs that find their corn feed right at hand in the field will make far more economical use of the precious grain if they find an abundance of soy beans growing in the rows with the corn or planted between the rows. And when the corn goes to the sod land to be fed the hogs will be on the lookout between times for a fresh bite of clover in the feeding field, or will be wandering at regular times out into the adjacent field where soy beans or cowpeas are growing in all their freshness or waiting in their matured richness. Then the same thing is true where the hogs secure their corn feed from a self-feeder, or when it is furnished in a more conservative manner from the crib.

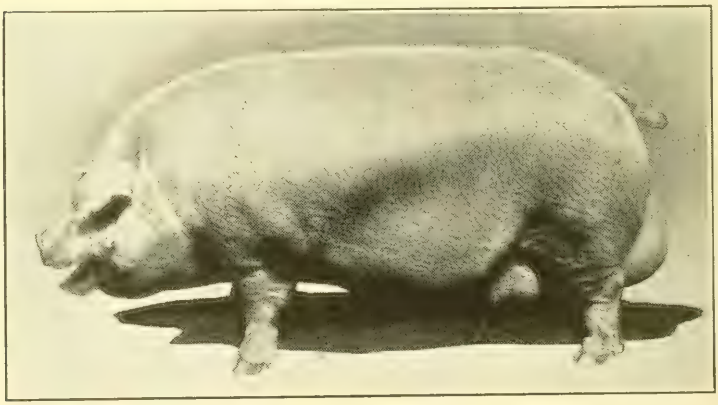
The why of all this is that corn, while it is our greatest carbohydrate or fat producer for hog-feeding, is lacking in the protein or muscle builder that is a most necessary part of a well-rounded economical hog feed. And as young growing hogs require more of this muscle and bone builder than do the more mature feeding hogs, it naturally follows that the farther the hog is from slaughtering time the more of this protein feed he should be required to consume in proportion to the corn he uses.

For this reason we do not approve of hogging down corn or using the self-feeder for pigs under 100 pounds in weight; preferring rather to furnish such proportion of corn as our judgment warrants us in feeding, and allowing the pigs to gather from the fields enough of the protein feeds to satisfy their desires. And there is the other reason, too, that the protein feeds that are produced wihout cultivation make less expensive pork than do those feeds that require cultivation for their growing.

This last applies equally well to the breeding hogs that are being carried along from year to year; their needs be-

ing the retaining of a strong, hard, muscular condition maintained at the least expense. And this is an indication that there should be established in many sections of our territory where corn is not as economically grown as in others, great pig breeding grounds from which the half-grown hogs could be shipped to sections that are better adapted to the growth of the great finishing cereal.

Little difficulty need be experienced in providing dry grains for the use of hogs during the fall and early winter months, for during this season soy beans and cowpeas



CHESTER WHITE BOAR

come to their fruiting and may be harvested direct from the fields. Later in the winter, and during the early spring and summer months, more difficulty and expense is experienced in providing a balanced dry grain ration for hogs. This would indicate that the logical time for growing the pigs is late summer, fall and early winter, and the best finishing time late winter, spring and early summer; for during these times enough of green protein feeds can be produced, during average seasons, to furnish sufficient protein to balance the corn ration, especially if cottonseed meal be used for the last 30 days of the finishing

period. But while this would seem the logical arrangement for the most economical hog production, the great bulk of the hogs in our territory are still being finished during the fall and early winter. And to handle the shoats during the spring and summer provisions should be made for dry grain rich in protein with which to supplement the corn and pasture ration to the necessary extent. In sections where wheat is being grown to any great extent some shorts is available for this purpose, although the amount available was never of large volume.

CHESTER WHITE SOW

It is of interest, however, to know that we have a feed of known value, that may be produced in practically every section of our territory at small cost for seed and cultivating, that produces grain in paying quantities and that may be harvested at small expense. Reference is had to the soy bean, and we believe this grain should be grown so extensively in our section that ample stores of the threshed grain would be available to act as a running mate with corn for use as pig feed during the early part of the year following that in which the crop is produced. These two, corn and soy beans, we consider the two great uni-

versal hog grains of our territory. Another that perhaps has not as yet fully proved itself is the velvet bean, and it is hoped that ways will be worked out to make this great largely grown legume one that can be recommended unconditionally as a hog grain.

Peanuts for Sandy Land

The peanut, in sections where it is being produced commercially, has proved its value as a fall and winter protein grain, and giving the best account of itself when supplemented with corn. But the growing of peanuts for hog-harvested feed will ever, I believe, be confined to the sandy sections of our territory, because of the fact that the crop is not at home on clay soils, and the harvesting of the crop by hogs on such soils is not practicable save during the dry early fall season. Considerable trouble has come to my notice in the hogging out of peanuts through the hogs acquiring the dirt-eating habit. This trouble might be overcome by supplying the hogs with plenty of lime and phosphorus, when in the peanut fields, and also feeding more corn. In spite, however, of some loss from the above cause, peanuts, in the sandy sections, are proving to be a great hog grain, and the field of their use may be widely extended in our territory. Our greatest present need, however, aside from that of a larger number of hogs, is for a greatly increased acreage of hog feed, rich in protein, that may be harvested and the grain stored for use in supplementing corn and pasture during the late winter, spring and early summer. And nothing now in sight can quite so well meet this condition, in our opinion, as the soy bean.

CHAPTER X

Growing the Pigs for Pork

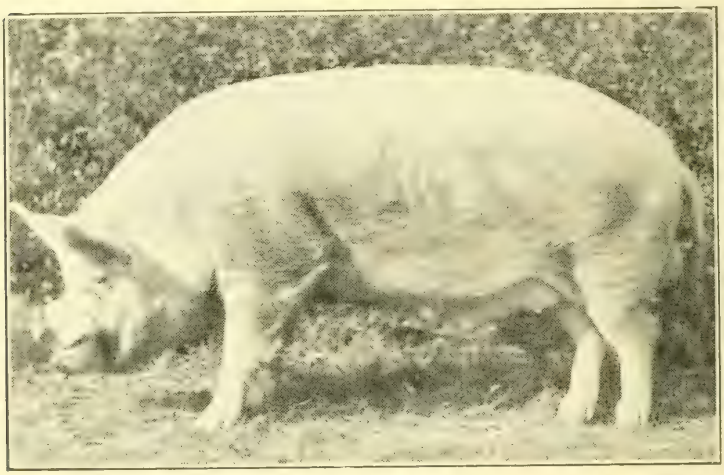
The growing of pigs for pork production is quite a different proposition from growing them for breeding stock, in that a somewhat closer looking after costs is required in the former case than is required in the latter. Breeding stock sells generally at a considerable advance over the price that market pigs command and, taking the two classes of pigs at the same age on the farm, it is readily seen that extra expense that would not mean loss to the grower of pigs for breeding stock would mean disaster to the pork producer from the standpoint of immediate profit.

In other words, the pig that is being produced for breeding purposes is a higher-class product and the business can stand some added expense in the way of care and high-priced feed. This added expense may not be required in the proper growing out of breeding stock under ordinary conditions, and when this is the case larger profits follow this line of work as a matter of course. But there are times that for the proper development of the breeding pigs extra expense is required, and this necessity tends to balance the two lines of business, giving to those engaged in the two lines of work an equal chance at a fair profit for the labor and feed used.

Fancy Points May Be Eliminated

In all breeds of livestock there are certain fancy points that the producer of breeding stock must give attention to that make for more expensive females and that mean very little to one whose interest lies only in the profitable production of only one generation of meat-producers. The wide-awake grower of market pigs takes advantage of this fact, and when it is necessary for him to purchase pure-bred sows

his main attention is devoted to securing in the sows he buys only the **essential** points that go to make up a profitable breeding sow, such for example as size, length, depth of side, development of ham, udder development, disposition, etc. If the sow under consideration has a nose a half-inch too long, dips a wee bit in the top line, is a trifle off in color, etc., this doesn't concern the buyer greatly if by reason of these non-essential points, he may purchase at 50 per cent less than he would be obliged to pay for an

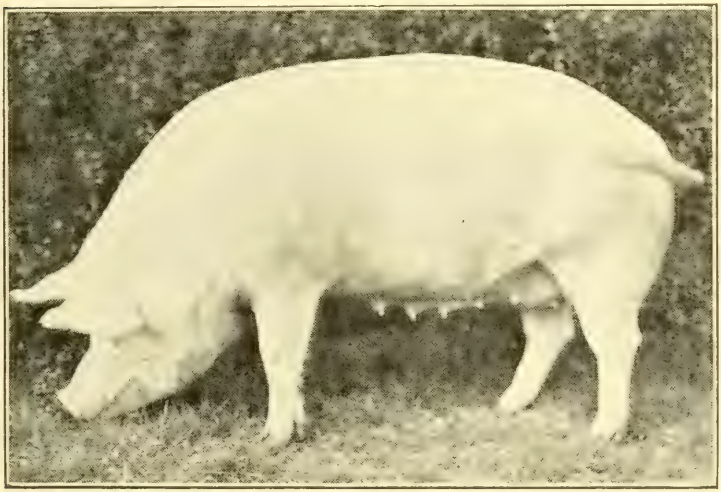


YORKSHIRE BOAR

animal not showing these minor defects. He takes the sow home figuring correctly that he has saved three or four dollars per head on the cost of the pigs produced in the sow's first litter.

Again, he saves labor cost when the pigs are small in that individual attention is not such a necessary factor in the handling of the pig that is to go on the open market before he is one year old; for minor accidents, that would disqualify a pig for breeding stock, will not bother his porker when he is ready for the butcher. So the market pigs

may be handled in large droves generally, which means economy of labor. This means far more to the average farmer at times than the mere cost of the time involved at day wages; for there are many times on the farm when an extra hour's time taken from the farm work may mean $50 to $100 loss to the farmer.



YORKSHIRE SOW

CHAPTER XI

Growing the Pigs for Breeding Stock

What are the differences in the care and feeding of pigs to be used for breeding purposes and those for pork making? Both must be produced on the same economical basis, that is, largely on feeds grown on the farm and as largely as practicable on grazing crops which the pigs harvest. Many breeders of pure-bred hogs lose sight of this fact, and consequently find the business unprofitable and quit it. Up to the time the pigs are, say, five months old, there is perhaps no need for or advantage in making any material difference in the kind or amount of feed which is given to breeding stock and that given to pigs raised for pork. The different "standards" all pretty well agree that pigs two or three months of age, or the first month after weaning, require a narrower ration or one containing a larger per cent of protein—about 1 part of digestible protein to 4 or 4½ parts of carbohydrates and fats. This applies to stock for pork-making as well as that to be used for breeding purposes. Also from three to five months of age, while the pigs need a little smaller proportion of protein, about 1 to 5, both pork and breeding stock require about the same amounts and kinds of feed.

Feed After Five Months

But when the pigs reach the age of about five months, then differences are possibly necessary, or at least are permissible.

In the production of pork two courses are open. The pigs from five to eight or ten months of age may be carried along on just enough feed to keep them growing a little without any attempt to push them or finish them by the time they are ten or twelve months old. This plan is

often most economical when feeds at this particular time are scarce and high-priced; if a little later, cheap feeds in abundance, which the hogs may gather themselves, will be available. For instance, in the South, during June, July and August only the general pastures may be available for grazing the hogs, and if they are to be pushed at this time large quantities of high-priced and often purchased feeds must be used. In such a case it may be more economical in pork production to feed only just enough grain to keep the pigs growing a little and wait until soy beans, peanuts, cowpeas, velvet beans and corn are available for hogging down.

But with breeding stock to be sold for breeding purposes it is the best policy and the most profitable to keep the pigs from five to eight or ten months of age growing rapidly. We often hear the young breeder cautioned against overfeeding, or against pushing the breeding stock too rapidly; but this warning is not often necessary in the South, nor, in our observation, anywhere else if the pigs are fed a balanced ration and get the necessary exercise. In fact, we doubt if it is possible to push young breeding stock too fast if they are fed the right sort o, feed in the right way. If the ration has sufficient protein and mineral matter, sufficient but not too much bulk, furnished by either grazing or roots, and the pigs get a liberal amount of exercise, there is no danger of either pushing them too fast or getting breeding hogs under a year old too fat. There are a thousand pigs injured in the South by not getting sufficient protein, to one that is injured by getting too much feed. A pig may get too much corn, although corn is a good feed when balanced with legume grazing and tankage or some other protein concentrate. It is not often, however, that pigs get too much corn, but very frequently they get too little protein feed to balance the corn.

In order to insure the growth and size, so hard to maintain in any livestock, and at the same time get or maintain the desired quality, it is necessary that the producer of

hogs for breeding purposes push the growth of his pigs during the first year of their lives. He cannot afford to allow them to stand still or make little growth during any of the first year.

Many believe that the same is true of the pork hog, but the writer is convinced that from an economic standpoint, which is the all-important one in pork production, that a period of slow growth, provided it occurs after the pig is five or six months old, may be justified in pork production if by so doing the use of high-priced concentrates may be lessened and cheaper grazing crops utilized later.

Of course, the aim in both pork production and the growing of breeding stock should be to have the pigs come at such a time that when the largest quantities of feeds are required there shall be the largest possible quantity of cheap feeds available for them. But the point is that the grower of breeding stock must feed well during the entire first year, while the producer of pork can ease over periods of scarce and high-priced feeds, if the hogs are over five or six months of age, and cheaper feeds are available a little later.

During the first month after weaning is perhaps the most critical period of the pig's development, or at least this is probably the most difficult period to get good growth, and the next two months, or the period from three to five months of age, is only a little less important or difficult.

To get good growth the first month after weaning without skim milk requires a master hand in the art of pig-feeding. The Northern feeder has depended largely on wheat shorts. The Southern feeder has also bought shorts shipped from the North at too high a price. Now when obtainable shorts are much too high-priced.

Soy Beans the Best Protein Concentrate

As stated elsewhere, we are convinced that for the South the soy bean must be the protein concentrate for pig-feeding.

Soy beans may be too high priced, but this can only continue if we continue to grow them in insufficient quantities. If they are grown in large quantities and still remain high-priced because of the demand for the oil, then they should still be grown and sold or exchanged for soy bean meal or other protein concentrates. We think every acre of land good enough to grow 25 bushels of corn—and no other should be planted to corn—should have soy beans planted along with the corn in every row. Poorer lands should be planted in soy beans without the corn or with corn and velvet beans or some other suitable legume.

We think every pig from two to five months old intended for breeding purposes should have either some skim milk or a little tankage, along with corn and soy beans, and grazing in summer or when practicable, and when no grazing is available a small amount of some kind of roots. With these and mineral matter, supplied in the form of wood ashes or ground phosphate rock, good growth may be made. This is not a difficult schedule:

Tankage.
Corn.
Soy beans.
Grazing or roots.
Ashes.
Exercise.

The tankage alone should be purchased, and it may be omitted if a little skim milk is available.

After the pigs are five months old the tankage or skim milk may be omitted, if the other feeds are supplied, although it may be advisable to feed a little tankage at all times.

Of course, there are other feeds, some of them just as good but none better, but we have not the space to discuss them and these we are convinced are the most economical for the Southern breeder. Moreover, if these feeds are given in abundance and the pigs fail to make good growth it will not be due to the feeds, but to some fault in the manner of feeding and care or in the breeding.

Three other essentials may be mentioned:

First, too large numbers of pigs should not be kept together if the best growth is to be obtained, and, particularly, pigs of different sizes should not be fed or housed together, while boar and sow pigs should be separated early.

Second, lots should be changed and houses moved if not such as can be thoroughly disinfected. The best protection against worms and disease is fresh lots and clean, dry sleeping quarters.

Third, the dipping vat and concrete or other sanitary wallow, or some other means of keeping the hogs free of lice and their skin in good condition, may be regarded as essential where more than the smallest numbers are kept.

But the Southern breeder's success in producing acceptable breeding stock depends most of all on feeds—feeds in abundance, feeds of the right kinds, and produced on the farm, not purchased.

CHAPTER XII

Fattening the Hogs

Pork production with the great majority of farmers and professional feeders is and will ever be based upon profit, and profit should be come at from several standpoints. With the professional feeder there is generally only one fact on which profit hangs, namely, turning feed into partly grown hogs in such a manner as to secure as many or more dollars than the feeds are worth on the market during the feeding period. This is always more or less of a gambling operation under any condition, and is a business that should not be undertaken by one who has not a reserve of capital to draw on in case the game should go against him for some reason.

With the farmer the case is somewhat different, for he generally grows the hogs he feeds and the feed the hogs consume, and this is almost always a safe business; for if the feed consumed runs too high in price to make the feeding operation profitable he has the profit on growing the pigs and also the profit derived from growing the too high-priced feed. Then the farmer feeder too has the fertility left on the land after the feeding period to partially recompense him for any loss he may have sustained in turning the feed into pork. And this is no inconsiderable item when viewed in a broad sense; for every bushel of corn fed on the farm under proper conditions leaves—at the present price of plant food—around 25 cents worth of fertility in the form of available plant food, and too, an added amount of nitrogen is left in the soil that was drawn from the air through the growth of the legume plants produced for the use of the hogs and that were only partially consumed by the animals.

Young Hogs Give Biggest Returns for Feed

Unless, as sometimes happens, the hog-grower finds himself long on pasture crops and very short on finishing

feeds, the writer believes in fattening pigs; that is, taking the good growthy 100-pound to 150-pound shoat and in about 90 to 120 days making him into the finished hog of from 180 to 225 pounds. Any one of three methods may be used in hog finishing. The method that the average farmer makes use of more than any other is to have the shoats running on good legume and grass pastures, then carry or haul to these pastures what corn the hogs will clean up and still feel able to eat just a little more.

The only suggestion added to make such a pasture a little more profitable would be to add to the corn feed a light feed of soy bean meal during the first 60 or 90 days, or if this product be not available, substitute 1 part of tankage to 10 parts by weight of corn, then for the last 30 or 40 days of the feeding period substitute cottonseed meal for the other protein feeds, as this is generally somewhat cheaper considering the protein furnished and, too, is more available in almost every section of our territory at all times of the year. The fattening hog, as the end of the feeding period approaches, becomes too lazy to harvest sufficient protein feed in the shape of legume pasture to supply this ingredient in the right proportion to enable him to make the best use of the corn he consumes, while if it be furnished him in more available form he will generally use it along with the corn.

We always prefer to feed hogs in a pasture rather than in a pen, first because we believe meat so produced to be more wholesome; and, second, that by such a method of feeding the manure produced is scattered over the land and saved, while when fed in the pen on ninety farms out of a hundred the greater part of this valuable by-product is wasted. When, however, hogs are fed during January and February the best method is probably to pen the hogs, providing comfortable sleeping quarters and a solid floor on which to feed the grain. We have never practiced feeding hogs in the mud, for it never appealed to us as being a common sense practice.

Another method of feeding that is becoming more

popular as labor becomes more high-priced is to provide self-feeders in the fields and, after the hogs have been gradually brought up to about full feed, allowing them to help themselves from the feeders whenever the desire is upon them. In this case the same balanced ration should be supplied as when the feeding is done twice per day by hand, the additional protein feed being supplied in a separate apartment of the feeder, thus allowing the hogs to do their own balancing. (See Chapter XIII.)

Let the Hogs Do the Harvesting

A method of finishing that will appeal to the large corn-grower and hog-feeder and one that is giving good results, considering the feed consumed and the labor saved, is to allow the hogs to harvest corn and soy beans right in the field, helping themselves from the standing stalks. This method when practiced on land of a clay nature requires that the shoats be ready to turn into the fields just as soon as the corn becomes hard and have the finishing complete by January 1, for the tramping of the hogs is very injurious to the land during the winter months, and too, much feed will be tramped in and wasted after the land becomes muddy. In sections having sandy soils this objection does not hold, and hogs may do the work of harvesting all winter provided warm sleeping quarters are furnished for the hogs in times when work in the field does not demand their attention. When planting corn to be harvested in this manner, it is well to plant the corn and then with a shoe planter go over the rows again within two or three days planting about five to six quarts of soy beans. We have used this method of planting a number of times with good results every time. Or, if thought best, when land is not very fertile a one-horse planter may be used, planting a row of corn and then a row of beans, thus spacing the rows of corn seven or eight feet apart. Many are now using a planter which will drop the corn and the soy beans in the same row at the same time but at different points and depths.

To harvest these crops to the best advantage the necessary amount of temporary fencing should be on hand to

enable the farmer to feed off the crop in blocks, running about 10 hogs to the acre until a block is cleared up, then moving to another block. By this arrangement, too, the wetter parts of a field can be handled first, leaving the dryer portion for use later when the land is not in quite so good condition. Our main objection to this method of harvesting—an objection that has kept us from the use of the method to any great extent up to this time—is that a vast amount of valuable fodder is wasted when crops are hogged down—fodder that we have up to this time been able to save in shock and cock with very great profit for our cattle feeding. Of course when the corn is husked from the standing stalk no fodder of any account is saved, and there is no good reason for husking such crops when the grain is to be fed to the hogs.

Fattening the Hogs Cheaply in the Fall

If the hogs are to be fattened cheaply in the fall, they must be well bred and carried along until fall in a strong, growing condition. While the kinds and amounts of feed are probably the most important factors in fattening the hogs cheaply in the fall, breeding is also of importance, and the condition of the hogs when fattening begins must be such as will enable them to use the cheap feeds economically.

If the hog is to be fed exclusively or even mainly on harvested or purchased concentrates, it is pretty well established that the more rapidly his growth is pushed from start to finish, or from the beginning to the end of his life, the more economically is the pork produced. But if the hog is fattened or fed the last three or four months of his life largely on feeds which he himself harvests or gathers, or if he can be fattened on very much cheaper feeds than can be provided for making rapid growth at other times, it may pay to carry the pigs along making small or slow gains until the cheaper feeds are available for finishing. In other words, slow growth with a minimum of high-priced concentrates and a maximum of cheaper grazing crops from the

time the pig is four to seven months of age may be justified if very much cheaper feeds for finishing will be available later.

Don't Let the Pigs Stop Growing

But it is doubtful if it will ever be found profitable to allow the pigs to stop growing at any period of their lives if economical pork is to be produced.

The fall litters that are carried through the winter may be pushed throughout their entire lives until ready for market, or they may be fed liberally until spring, and then grazed and fed only a small amount of concentrates during the spring and early summer until cheaper early fall grazing crops like corn, peanuts, soy beans, cowpeas, velvet beans, etc., become available. This is probably the most economical method of handling the fall litters.

For the spring litters, however, liberal feeding and rapid growth from birth to marketing is almost certainly the most economical method of handling. In so far as the spring litters are concerned, they should have an abundance of feed all the time, but the problem is to furnish this abundance of feed suitable for making rapid growth at the least cost. Unquestionably grazing crops are essential to this purpose, but concentrates must also be used rather liberally at all times. But if the pigs are brought through the summer in a good growthy or thriving condition on an economical basis and are well bred, that is have a pure-bred sire, then the problem of fall fattening is not a difficult one in the South, for the finishing can probably be done more economically than in any of the large hog-producing sections of the country.

Suitable Feeds Harvested by Hogs

In short, the greatest difficulty in economical pork production in the South is in bringing the pigs up to the time of fall fattening in a condition to make economical growth, rather than in fattening or finishing economically. Southern hogs, especially the fall litters or those approaching a

year old, should be marketed in the late fall or early winter in order that they may get on the market ahead of the hogs fattened on the large corn crops of the Northern states. The spring litters should be run on the grazing crops later on until weather conditions or the exhaustion of the crops makes grazing no longer practicable. After this, they may be fed for an additional period of four to six weeks on corn and cottonseed meal.

It may be set down, first, that when the hogs gather or harvest their own feed, growth is produced more economically. But it is essential that they be given an opportunity to gather an abundance of suitable feeds. In other words, the crops which they are to gather must be easily gathered by the hogs and must be suitable for producing rapid growth. Of these about the only ones we need to consider for fattening the hogs in the fall are peanuts, soy beans, corn and possibly sweet potatoes. In the extreme South, or the lower third of the Cotton Belt, velvet beans may be added and when grown in corn cowpeas may also furnish good, economical feed. As to whether the hogs should be allowed to gather the corn is a debatable question. It is pretty well established that hogs make more economical gains if, while they are on soy beans and peanuts, the corn is limited to one-fourth or one-half of a full ration; but if corn and soy beans are being grazed in the same field, that is if corn and soy beans are being hogged off together, it is pretty certain that the hogs prefer the corn and make it more than half their ration as long as it lasts. For these reasons some good hog producers prefer to gather the corn and feed it sparingly, say not over one-fourth the ration while the hogs are grazing the peanuts or soy beans.

On stiff lands and in the northern half of the Cotton Belt, we think there is no doubt but soy beans in corn, either in the same rows with the corn, which we think preferable; or in alternate rows, which is preferred by some, is the most satisfactory crop for the economical fattening of the hogs in the fall. And we would gather enough of the corn to continue the feeding of the hogs for from four to

six weeks on corn and cottonseed meal after the soy beans have been consumed. It is quite possible that sweet potatoes may be profitably added to the corn and soy beans, because of their succulence. In the lower South, or the southern half of the Cotton Belt, especially on the lighter or sandy soils, peanuts, corn and velvet beans are perhaps the crops most valuable for fattening the hogs cheaply in the fall or early winter. In short, for fall fattening, peanuts and corn in the lower South, and soy beans and corn in the upper South, must be the chief reliance of the Southern farmer from the standpoint of economy. While these feeds have pretty well established themselves as the most economical for finishing or fattening hogs in the South, the fact that both peanuts and soy beans tend to produce soft pork, when used as a large part of the ration, has caused some doubt as to the economy of their use in hog production. But if a small amount of corn—one-fourth to one-half the ration—is used while the hogs are grazing peanuts and soy beans, and they are then finished with corn and cottonseed meal—two or three parts of corn to one part of cottonseed meal—for four to six weeks, there is little doubt but peanuts and soy beans are our cheapest feeds for fattening hogs in the fall.

If, therefore, the hogs are to be cheaply fattened in the fall the crops must be grown for them, and spring is the time to arrange for planting them. The weight of opinion probably favors planting soy beans in the same rows with the corn at the time the corn is planted; but there are those who prefer to plant the corn and soy beans in alternate rows. When corn and peanuts are planted in the same field they are usually planted in alternate rows, but it is not necessary that the corn be grown in the same field with soy beans or peanuts. As previously stated, some prefer to harvest the corn so that it can be fed to the hogs in limited quantity, because soy beans and peanuts are cheaper feeds as these crops are grown in the South. But there is little doubt but more feed is produced per acre when the crops are grown together, either in the same rows or in alternate rows.

If a substitute for corn can be furnished at less cost, this will tend to cheapen the fattening process. Corn is a high-priced and high-cost feed in the South, because of the small yields made per acre. And to still further reduce the necessity for corn for furnishing carbohydrates, many have found sweet potatoes an economical substitute for a part of the corn. They are worthy of a thorough trial, for with soy beans, peanuts and cottonseed meal to supply the protein required, they furnish a large amount of carbohydrates at relatively low cost. It is doubtful, however, if they should entirely take the place of corn in fattening the hogs when peanuts or soy-beans form the larger part of the ration. Of course, in those sections where the grain sorghums actually do or should take the place of corn, the grain may be ground and used to balance the soy beans or peanuts just as corn is used for that purpose. Next in importance to these economical feeds used to form a balanced ration for the fattening hogs is an abundant supply of good water for drinking. Fattening hogs should also be supplied with ample mineral matter—soft coal or charcoal, wood ashes or ground phosphate rock, slaked lime, etc.

CHAPTER XIII

The Self-Feeder for Hogs

The use of the self-feeder is rapidly becoming popular, especially for the fattening or finishing of hogs, or when it is desired to full feed the growing pigs on concentrates. It does not solve feeding problems in hog production, but in finishing hogs it saves labor and by a little daily care in looking after the self-feeder the inexperienced hog feeder can get as good and economical gains as the most experienced feeder.

At the experiment stations where accurate weights and other data are kept, the use of the self-feeder appears to result in larger daily gains and a larger consumption of feed than when the hogs are hand-fed. In some cases the amount of feed consumed per pound of gain has also been less, but on the whole probably good hand-feeding will produce a pound of growth or gain on about the same quantity of feed as is required when the self-feeder is used. But it requires good experienced hand-feeding and much more labor to equal the results obtained by the self-feeder. But the self-feeder must also have daily attention to see that it contains all the feeds in sufficient quantity and is working properly.

If a proper variety of feeds are put in the self-feeder the hog will balance his own ration, to suit his individual taste and needs, probably better than can be done in hand-feeding. He will, with suitable feeds, eat more and make faster gains than when hand-fed two or three times a day, but a proper variety must be placed in the self-feeder and the feeds must be acceptable to the hog and of such a nature as to enable him to make a balanced ration for himself. Almost any feed commonly used in hog feeding may be used in a self-feeder, but shelled corn is more suitable

than ear corn. Ear corn may be fed, but it requires a large self-feeder with special adjustments for allowing the coarser material to come down where the hogs may get it. Most self-feeders will give a continuous supply of shelled corn, but some of them will not work satisfactorily with tankage, cottonseed meal, shorts, or ground grains. In any case some care must be taken to regulate the supply for if any one feed does not come down fast enough the hogs may suffer, while if the feeds come down too fast they are likely to be wasted by the hogs rooting them out on the ground.

Some users of the self-feeder mix the feeds in the proportions which experimental evidence shows to be about right; and if a suitable variety is used and the feeds balanced according to the best information and experience entirely satisfactory results are obtained. But probably the best plan is to use a self-feeder with two or three separate compartments, placing each feed by itself and allowing the hog to suit his own taste and balance his own ration, which he will do in an entirely satisfactory manner. In fact, if the feeds are equally palatable to him, or if he likes all of them, he will balance his ration, as a general rule, pretty nearly as the best hand-feeders balance them.

One of the strong points of the self-feeder is that it enables the pig to balance his feeds according to his varying needs, for his requirements change as he increases in age and weight. A good illustration of this is given in circular No. 218 of the Illinois Experiment Station in recording the amounts of shelled corn and tankage eaten per day, per pig during different periods of their growth, as follows:

	Shelled Corn Pounds	Tankage Pounds	Ratio of Tankage to Corn
1st Period (4 weeks)	2.1	.40	1 to 5.25
2nd Period (4 weeks)	2.7	.47	1 to 5.74
3rd Period (4 weeks)	3.8	.54	1 to 7
4th Period (4 weeks)	5.6	.44	1 to 12.7
5th Period (4 weeks)	7.2	.36	1 to 20
5th Period (24 days)	7.3	.26	1 to 28

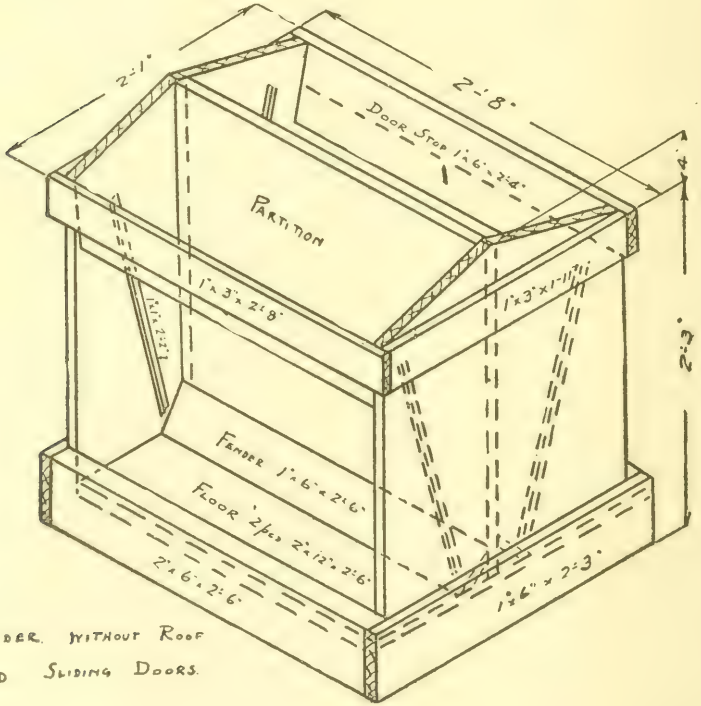
These pigs weighed 47 pounds each when the feeding test started and after 164 days averaged 259 pounds each, thus making a gain of 1.29 pounds per day. Each pig ate an average of 4.72 pounds of corn and .425 pounds of tankage per day and gained 1.29 pounds, or it required 3.65 pounds of corn and .328 pounds of tankage to make a pound of gain, which must be regarded as very satisfactory results for a feeding period of 164 days.

When grazing crops are abundant and cheap the self-feeder as a means of supplying the concentrates may not give the most economical results. If, however, it is desired to give a full feed of grain while the hogs are on grazing crops the self-feeder proves most satisfactory. For brood sows or other breeding stock the self-feeder should not generally be used. But for young, growing, breeding stock, which it is desired to push in growth, a ration with a liberal allowance of protein and mineral matter might be mixed and placed in a self-feeder and much labor in feeding saved. If, however, the feeds be put in different compartments of a self-feeder and one of these feeds is corn, the pigs are likely to eat too much corn because of their greater fondness for it, and some of them may thereby put on too much fat instead of making the growth best for breeding stock. Moreover, young breeding stock allowed all the feed they will take from a self-feeder may not get the exercise which is necessary for the best growth, even though the feeds be properly balanced for the making of growth.

In starting hogs on a self-feeder they should be gradually brought up to a full feed before being given free access to the self-feeder. Sudden changes in the kinds of feed when the animals are given all they will take, or suddenly changing from light rations to full ones should always be avoided in feeding all animals.

Plans for a self-feeder furnished by Prof. Daniels Scoates, Texas Agricultural College, are herewith given. It is shown with two compartments, one on either side. It is capable of feeding four hogs at one time, as shown, two on each side. It is also capable of holding two different kinds of

feed, and about one bushel of each. This feeder can be built in any length that is wanted, to accommodate any number of different feeds and any number of hogs. It can also be built in just half the size shown, using only one compartment.



FEEDER WITHOUT ROOF AND SLIDING DOORS.

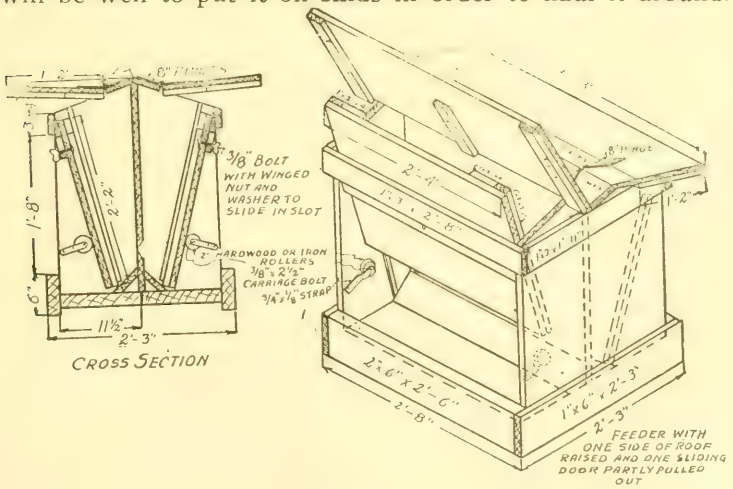
To enable the farmer to build this without much trouble, there are three views of it given. One view shows a cross-section, which is a view of the feeder cut in two. In this view the floor, sills, partitions, doors, roof and rollers can be seen in their true position. Another view is of the feeder without the roof and the sliding doors; while the third is

a view of the completed feeder with one of the doors in the roof opened and one of the sliding dors pulled partly out.

In building this feeder, it will be better to use all dressed and sound lumber and to give it a couple of coats of paint before using. This should be done, as the feeder must be weather proof, and to last long under this condition it must be well made.

The door is made of 2x12's, the partition, sliding doors, roof and sides are made of flooring. The sliding doors are made adjustable by having a slotted hole put in the door stop and a hole through the door; a bolt with a winged nut is put in these holes and the sliding door can be adjusted to allow the feed to flow out at the desired rate. The idea of the hardwood rollers is to allow the sliding door to be moved with ease. If two strips are placed one on each side of this door instead of one strip and a roller as shown here, the door will be hard to move in wet weather due to the swelling of the wood.

If the feeder is built in larger sizes than shown here it will be well to put it on skids in order to haul it around.



Be careful not to have such skids project at the sides or ends, and be dangerous to brood sows. The feeder as shown can be easily handled by two or three men.

Below is given a bill of material for the feeder. Credit is due the Iowa Experiment Station for the plans.

Floor	2 pieces 2x12x2′ 6″
Sill	2 pieces 2x 6x2′ 6″ 2 pieces 1x 6x2′ 3″
Fender	2 pieces 1x 6x2′ 6″
Plate	2 pieces 1x 3x2′ 8″ 2 pieces 1x 3x1′11″
Sides	⅞x4″ T. & G. flooring
Partition	⅞x4″ T. & G. flooring
Roof	1 piece 1x4x 8′0″ ⅞x4 T. & G. flooring 1 piece 1x2x 8′0″ 3 pieces ⅞x4 T. & G. flooring
Braces	1 piece 1x2x14′0″
Strips	1 piece 1x1x 8′0″
Strips	4 pieces 1x6x 2′4″

4 2″ hardwood rollers
4 ⅜x2½ carriage bolts
4 ⅜x3 carriage bolts
4 ⅜ washers
4 ⅜ winged nuts
2 pair 8″ strap hinges
Nuts.

CHAPTER XIV

Keeping Hogs Free of Lice and Worms

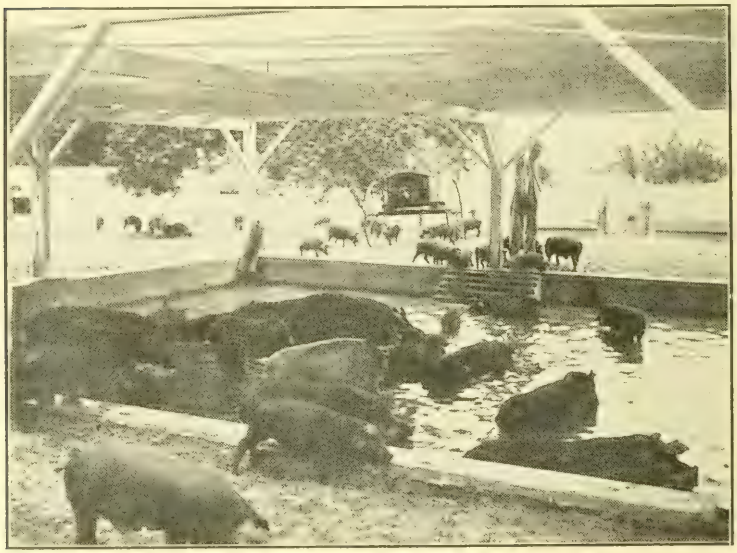
How important it is to keep hogs free of internal and external parasites all practical hog men know; indeed, all recognize that hog-growing cannot be made profitable when both of these troubles are present with the animals of the herd. And the cases are rare when great profit is derived from hog-raising when one of the above troubles is present to a marked degree.

These are two troubles of hogs that generally go together, and both are due mainly to the same reason, namely, neglect. And the worst form of neglect, so far as these two hog troubles are concerned, is filth or insanitary conditions. Month-old hog-beds made up of broken bits of straw or leaves reinforced with dust, is a condition that may be depended upon to render first aid to hog parasites in their warfare against hog profits, and it is well nigh useless to endeavor to do away with such destroyers of hog profits while such insanitary conditions are allowed to exist.

So the first condition we would emphasize as absolutely essential to clean herds of hogs is clean sleeping quarters. Once per week is none too often to thoroughly clean the hog bed-rooms; removing all litter and providing clean, fresh bedding. Clean wheat straw, leaves, broom straw or shredded corn stover all make good bedding for hogs, and some one of these should be provided under cover during the winter months so there will be no excuse for using old bedding that has become finely broken and dusty. Then the same care should be exercised during the warm months that the hogs' bedding places be kept free of dust. During this period the floors of the sleeping quarters should be scraped and swept clean at least once a week. Then at all times of the year—oftener during the summer than in the

winter months—the floors and walls of the hog houses should be well sprayed with a 1 to 50 solution of some good coal tar dip, and the addition to the solution of some strained whitewash will help greatly in keeping everything clean and sweet. All this takes only a few minutes of time and will pay big for the labor and care expended.

A good cheap spray pump we deem a necessity on every



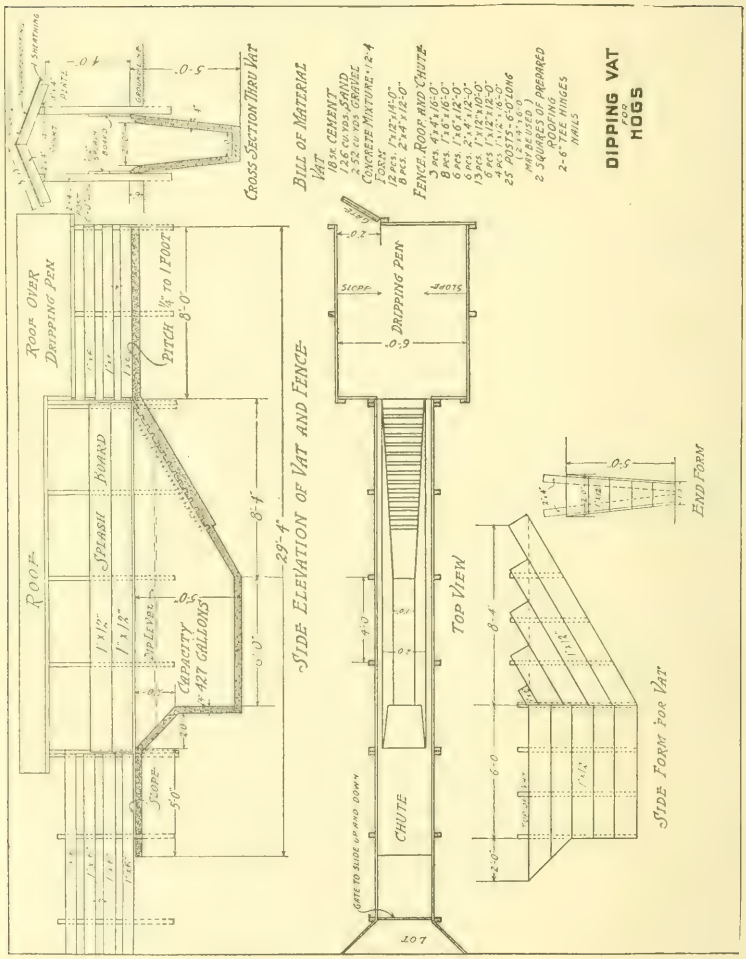
WALLOWING TANK

stock farm. The cost of a thoroughly reliable pump is only five or six dollars, and one will do good service for ten years if given reasonable care. This pump is just the thing to use in disinfecting the hog quarters, as noted above, then will do equally good service in spraying the same disinfectant on the hogs themselves; only in this case a little kerosene or crude oil should be substituted for the whitewash in the mixture.

Sleeping quarters kept in the condition suggested and the droves of hogs sprayed once every two weeks with the disinfectant will practically insure hogs lice-free, and the work necessary to so handle a hundred hogs need not consume more than one hour's time per week. It goes without saying that the spraying of the hogs during the winter should be done during mild spells of weather and in the middle of the day, so the hogs will dry off quickly without chilling. When cold spells of weather are long continued, we have found it profitable to rub a little cheap grease or oil over the hogs' necks and on the inside of the legs. This is for the breeding sows and tender little pigs. For thrifty stock, shoats, dry sows, boars, etc., a small stream of kerosene or crude oil poured from the oil can along the backs of the hogs, from head to tail, we have found a reliable remedy for the lice trouble during long cold spells.

Many patent hog oilers are on the market and do good service for those who care to invest money in them. A new wrinkle that appeals to me as being practical is to build a roof over a foot deep box filled with sand, over which has been sprinkled enough crude oil to give the sand particles a thin coating. To accommodate 20 or 25 hogs this box should be around 10x12 feet on the ground; for the hogs use this box for their resting quarters during the warm months and the oily sand cures them of their external troubles while they sleep.

No one in whom a man of intelligence could have confidence has ever claimed to know all the agencies that are responsible for the "hundred and one" different sort of worms with which hogs, and especially growing shoats, become infested; but it is a safe guess that insanitary conditions that are conducive to thriftlessness is one of the contributive agencies. And it is almost equally certain that an ill-balanced ration that, too, causes lack of thrift is another of the causes. Worms love the weakling in all classes of livestock and, too, work the greatest harm to animals in a low state of vitality. So we may be quite sure that keeping hogs in good sanitary condition outwardly and providing an


DIPPING VAT FOR HOGS
BILL OF MATERIAL
VAT
1.8 BBL CEMENT
1.26 CU YDS SAND
2.52 CU YDS GRAVEL
CONCRETE MIXTURE 1:2:4
FORMS
12 PCS. 2"X6"X14'-0"
8 PCS. 2"X4"X12'-0"
FENCE, ROOF AND CHUTE
3 PCS. 4"X4"X16'-0"
8 PCS. 1"X6"X16'-0"
6 PCS. 1"X6"X12'-0"
6 PCS. 2"X4"X12'-0"
13 PCS. 1"X12"X10'-0"
6 PCS. 1"X12"X12'-0"
25 POSTS - 6'-0" LONG
MISCELLANEOUS
2 SQUARES OF PREPARED ROOFING
2-6" TEE HINGES
NAILS
CROSS SECTION THRU VAT
SIDE ELEVATION OF VAT AND FENCE
ROOF OVER DRIPPING PEN
ROOF
SPLASH BOARD
PITCH 1/4" TO 1 FOOT
CAPACITY 427 GALLONS
SLOPE
TOP VIEW
DRIPPING PEN
CHUTE
GATE TO SLIDE UP AND DOWN
SIDE FORM FOR VAT
END FORM

abundance of palatable food that is so balanced as to properly nourish the animal will help greatly in reducing the losses incident to worm infection.

The properly balanced ration includes, of course, the mineral elements required by the animal's body, and these will usually be obtained in abundant supply from the regular farm feeds that comprise a well balanced ration. However, no harm can come from making assurance doubly sure by supplying certain mineral elements that the hogs can make use of if they feel so inclined. Among the best of these that may be obtained on practically every farm where hogs are grown are salt, hardwood ashes and charcoal mixed at the rate of a pint of salt to a bushel of the ashes and charcoal; the mixture kept under cover where it will remain dry and where the hogs may have free access to it.

Worm symptoms are unmistakable. There is the lusterless upstanding coat of hair, the sick sad look in the animal's face, and the desire to root the world up every time the land gets in condition so the hog can dig. Should your hogs be in this condition, you may be very sure they are making mighty poor use of the feed they are consuming, and you should lose no time in providing a well balanced ration and plenty of it, getting rid of lice, and supplying additional mineral matter. Then let the experience teach that the wise course is prevention rather than cure.

Since worms are responsible for so much injury to hogs, perhaps a word more may be added to the above discussion of a balanced ration and a supply of mineral matter as a means of lessening the injurious effects of the internal parasites of the hog.

Rotate the Hog Lots

Sufficient is known of the life history of many of the worms and other internal parasites of the hog to justify the statement that he gathers up many of these parasites through his habit of wallowing in mud holes and rooting in and eating off the ground.

It is because of these facts that the use of small movable houses and the changing of lots are advisable. The ground over which hogs run year after year becomes contaminated with the eggs or larvae of many parasites, but if such ground is cultivated for one year these are killed. It is practicable to so arrange the hog lots that half may be cultivated and the other half used each year, which is a great protection against infestation with worms. Moreover, worms are so common in hogs and it is so difficult to keep the herd entirely free by preventive measures, no matter how well it is fed and cared for, that we think some agents, as santonine, turpentine and copperas, should be given to poison or cause the worms to be expelled if any find a home in the intestines of the hog. Turpentine and copperas are two common, well known remedies, and at the same time they are two of our best worm medicines. Of these, 10 grains copperas or 40 to 60 drops of turpentine for every 100 pounds of hogs may be given in some slops once a day for two or three days every two or three weeks. Or the copperas may be put in the mixture of ashes, charcoal and salt recommended. One pound of powdered copperas in a bushel of such a mixture would be ample.

CHAPTER XV

Preventing Cholera and other Infectious Diseases

Cholera, worms and lice are the greatest enemies of the hog. Of course he has other diseases, but when you prevent the ravages of these three arch enemies of the hog you have prevented the larger part of all ills to which his flesh is heir.

The United States Department of Agriculture is reported to have stated that in the past about 90 per cent of the hogs that have died of disease in this country have died of cholera. Whether this is quoting correctly or not, or whether such a large or a smaller percentage of deaths have been due to cholera, it is certain that what is popularly known as cholera has been the most serious disease of hogs and caused the death of more animals than all other diseases combined.

As the first means of keeping cholera out of the herd, we want to again stress the importance of carefully following the directions given for keeping the herd healthy and the hog lots and houses clean and sanitary. Too much importance cannot be attached to every item in those directions, if the herd is to be kept healthy, vigorous and making profitable growth.

The hog is the most important factor in the spread of cholera. In other words, hogs most frequently bring cholera into herds. Therefore any hog brought onto the place should be kept out of the hog lots and pastures and away from all members of the herd for not less than 30 days. That is, all hogs brought on the place should be quarantined or kept by themselves, separated from the members of the herd.

If this precaution is justifed, and it certainly is, even though it may be a little troublesome, then it follows that precautions should also be taken to prevent stray hogs entering the herd or coming in contact with them. It also follows that when any member of the herd leaves the place it should be treated exactly as a newcomer when it returns to the farm.

Other Carriers of Hog Cholera

To what extent other agencies spread cholera may be uncertain, but there is little doubt that anything which may carry the discharge from the body of a cholera-sick hog may be a means of occasionally spreading the discase. The shoes of men are probably frequent means of carrying the disease from one hog lot to another, and dogs, buzzards, or other animals, especially if they carry portions of the carcass of a hog dead from cholera on to the farm or into the hog lots, may be the cause of an outbreak of cholera. The neighbor who has cholera on his farm should not be regarded as a welcome visitor, nor is it wise to pay such a neighbor a visit. In other words, every precaution should be taken to prevent anything, however small, being carried from a place where sick hogs exist to other farms or to the lots or pastures of healthy hogs.

Running Streams a Menace

There is a popular belief that running water is desirable in the hog lot. This may or may not be true. Usually it is not true, for too often the running water is a stream which runs through other farms and becomes polluted or infected when the nearby farms above experience an outbreak of hog cholera. Moreover, the hogs too often make wallows along the sides of these streams which become cesspools and furnish conditions more or less favorable to the development of the diesase. Hog wallows of the right sort are good, although good shade and a sand box treated with crude oil to destroy the lice will take the place of a wallow. If a wallow is allowed it should be one made of concrete with every facility for draining and disinfecting.

Now, good feeding, good care and the best of sanitary conditions with all the precautions mentioned above carefully taken will not protect the hogs from cholera in all cases, no matter what the condition of the hog nor the care and feeding. The razorback, the ordinary farm hog living on grass and the best pure-bred are all alike when active cholera infection is introduced into their bodies—they contract cholera in a large percentage of cases and many of them die. Serum treatment alone is the known method of practically complete protection. But the use of serum does not justify the neglect of the precautions mentioned above any more than the taking of all these precautions should take the place of the use of serum under certain conditions.

The man who is breeding pure-bred hogs, where there is likely to be more traffic in hogs and where the investment is relatively large, should in our judgment use the double treatment, serum and virus, on all members of the herd. With all the breeding stock immunized the pigs should be given the double treatment just before weaning. Some have advised giving the serum alone a week or so before weaning and then following with the double treatment when the pigs are three to four months old. This is a good method, except that the cost and trouble is greater and in some cases the immunity covered by the single serum treatment may disappear before the double treatment is given and cases of cholera develop in the meantime. Only one objection has been urged against giving the double treatment or both the serum and virus at weaning time, and that seems not well founded. Some have thought the double treatment given to young pigs stunted their growth more than in older hogs, but if the work is done right and the pigs properly cared for it seems that the losses of all sort are no greater, if as great at this time as any other.

The farmer who is producing hogs for pork on the usual small scale of the farms of the South need not bother himself about the serum treatment if he takes the precau-

tions outlined above until cholera develops in his neighborhood or say within a mile. If, however, he is a very large producer of pork hogs or is dealing or trafficking in hogs, he had better have his herd treated by the double method and give the same to every hog brought on the place, while it is being kept separated from the herd or quarantined for 30 days, as advised for the breeder of pure-bred hogs.

When cholera develops in the neighborhood or whenever the herd is exposed to any conditions making it more likely to contract cholera, the wisest plan is to use the serum treatment on every hog on the farm.

One other general condition may be considered. There must always be a first case in the neighborhood or cholera may be introduced onto a single farm in a community. In such cases the important matter is to recognize the disease for what it actually is as early as possible. This is not always easy, but if hog-raisers could once understand that such a small "germ" as that which produces cholera may be introduced in many ways not generally thought probable and would treat every case of sickness as suspicious, fewer serious mistakes would be made.

The sick hog, no matter what the cause or nature of the disease, should be removed from the herd, or better still, where that is possible, the well hogs removed to fresh, clean quarters. If one case develops and then in a few days another one or two show up, it is time to become seriously aroused. It is not easy to always recognize cholera in the living animal. But if along with dullness, a disposition to remain in the sleeping quarters, there is swelling of the ear tip and general evidence of fever, one should always be suspicious of the cholera. If the hog be white or red and more than four or five months old, red spots may frequently be seen on the skin of the ears, belly and inside the thighs. These are almost positive evidence of cholera. If the disease be cholera, it is not usually necessary to wait long for a dead hog on which to hold an examination. In fact, if more than one be sick and one is seriously sick so that death in a short time seems probable, it is a good plan

to kill it for purposes of examination. For the trained person it is not usually difficult to recognize cholera on an examination after death. Only in young pigs is this likely to be difficult. For the untrained farmer it may sometimes be quite difficult to recognize cholera in pigs under four or five months of age and occasionally even in older animals, but as a general rule in older animals it is not difficult to tell cholera, even for the average farmer, if he will remember just two or three facts.

When the first hog dies or is killed we advise scalding and scraping the skin just as when the hog is to be dressed for meat. If the skin on the ears and neck, belly or inside of the thighs show round, red spots with well defined edges, the case is probably cholera. These red spots are entirely different from the redness of the skin produced by injuries before the death of the hog. The latter are usually lighter in color and shade off gradually into the skin instead of having their edges well defined as in cholera. After the skin is carefully examined the hog should be cut open and the kidneys, heart and intestines carefully examined. If small red spots or specks—much smaller spots than usually appear on the skin—are found on the kidney, or other organs, but especially on the kidneys, it is usually safe to diagnose the disease cholera. If doubt still exists or in the first place if it is practicable a veterinarian should be called. If the disease is cholera, or if these blood specks and spots are found, or even in the absence of them the veterinarian thinks the disease is cholera, no matter how improbable the owner may think it is that it can possibly be cholera, there is only one safe and wise course to pursue and that is to have a competent man treat the entire herd with anti-cholera serum. Delay is always dangerous and generally seriously unprofitable. When cholera exists notify the state veterinarian and your neighbors and use serum just as soon as possible. The man who loses many hogs with cholera in these times usually has only himself to blame for good serum properly given will prevent the disease.

Inoculating Hogs: Single and Double Treatment

In inoculating hogs against cholera, the term, "double treatment" means that the hogs are injected with anti-cholera serum and at the same time, preferably on the opposite side of the body, they are also injected with infected blood, or the blood from a cholera-infected hog. This double treatment is sometimes called the "simultaneous inoculation." The "single treatment" or "serum alone inoculation," means that only the anti-cholera serum is injected. When the single treatment is used the hogs are protected only for from two or three weeks up to six or eight weeks while the double treatment generally gives immunity or protection for life, as does a case of cholera from which the hog recovers.

While cholera is a very common disease of swine it is not the only disease which causes the hog raiser serious trouble. There are other diseases which more or less resemble cholera and also other diseases or infections with which cholera may be complicated.

Sometimes the farmer has the anti-cholera serum given when he thinks his hogs are suffering from cholera and the results are not satisfactory. In such cases his hogs are usually suffering from another disease or cholera complicated with other diseases, or the so-called mixed infections.

As a matter of information in such cases the editor has had Dr. C. A. Cary, State Veterinarian of Alabama, prepare the following brief article on these complications of cholera:

So-Called Mixed Infections in Relation to Other Diseases of Swine

There are a number of diseases of swine any one of which is rarely found by itself in the living hog. They are:

(1) Cholera.

(2) Swine Plague or Hemorrhagic Septicemia.

(3) Necrobacillosis (necrotic disease of mouth, throat, and intestines.)
(4) Paratyphosis (intestines.)
(5) Suipesterosis (intestines.)
(6) Malignant Edema.
(7) Verminous Pneumonia.
(8) Intestinal Parasites.
(9) Parasites of the Kidneys and Kidney Fat.

(1) CHOLERA. The symptoms and post mortem lesions of cholera are not so distinct and constant as to enable the farmer to make an easy diagnosis. In acute cases, there is a high fever, sluggishness, loss of appetite, sometimes constipation, at other times diarrhea; eyes may be matted, and the thin and light parts of the skin may be congested and red. It is often associated with swine plague, swine parasites in lungs, intestines and kidney fat, and necrosis of the mouth and throat and intestines. Post mortem lesions: small bloody (hemorrhagic) spots (usually round) in and over the kidneys, spleen, peritoneum, in the linings of the bladder and larynx and sometimes in the mucus membranes. The spleen may be enlarged with bloody spots on its surface. The lymph glands in various parts of the body and body cavities may be engorged and enlarged with lymph and blood.

(2) SWINE PLAGUE OR HEMORRHAGIC SEPTICEMIA. Symptoms: This disease involves the lungs usually, producing pneumonia and pleurisy with high fever, difficult and rapid respirations, and sometimes spasms of the diaphram (thumps). Animals may have a severe cough. It is said to produce a muco-enteritis in the large and small intestines, which may be determined by hard feces covered with a film of mucus. Post mortem lesions may show red or gray solidified areas of the lung tissue and in some cases abscesses in the lungs. Generally there is considerable edema of the lungs in the early congestive stage. Sometimes there may be a fibrinous exudate and considerable serum in the pleural sac. The hemorrhagic areas of

the pleura, peritoneum, and kidneys are said to be larger and more irregular in outline than the small, round, bloody spots in cholera. Sometimes there are clear jelly-like exudates under the skin around the throat.

(3) NECROBACILLOSIS OF SWINE by itself is a rare disease. The necrosis bacillus directly or indirectly produces necrosis (death) of small areas of mucus membrane of the mouth, nasal passages, pharynx, or intestines. These necrotic parts become more or less thick and look like organized exudates. In the intestines they are often called button ulcers. It is said that the (5) suipestifer bacillus and the (4) paratyphoid germ take part in the production of these so-called button ulcers of the intestines.

(6) THE MALIGNANT EDEMA germ is very rarely found in swine. When it does occur, the infected animals die very quickly. It is determined by a very rapidly growing swelling extending from the point of infection. The germ enters the tissue at the tonsils, at a break in the skin or mucus membrane of the mouth and by injection with infected serum or other hypodermic injections. It is possible that the germ may very rarely enter lung tissue and produce edema of the lungs. It may very easily be confounded with all edema producing infections and at times with gas producing infections.

(7) VERMINOUS PNEUMONIA OR BRONCHITIS. No doubt the small thread worms in the bronchioles and air sacs and large brondi of the lungs irritate the mucosa and thus permit infectious germs (swine plague, etc.), to enter the lung tissue. This is especially true when the larval stage of the *ascaris suis* (large round worm found at maturity in intestines—it belongs to the fish-worm class) is found in the lungs. The larval stage of this intestinal worm is passed in the lungs, and in children and pigs it produces pneumonia. The severe persistent hacking cough of pigs is usually due to this worm or the small thread worms. The only way to be sure of a diagnosis is to find the worms in the lungs or bronchii after death. The larvae of the *ascaris* cannot readily be found by the farmer. He can see the large worm in the intestine.

(8) INTESTINAL PARASITES may be responsible for mixed infections entering the body. The large thorn-headed worm penetrates part or all of the intestinal wall and makes an opening for infections (germs, etc.) to enter the tissues and vessels. The *ascaris suis* is the large round worm found unattached in the intestines and gall ducts. It irritates and obstructs and may excrete a toxin.

(9) THE WORMS IN THE KIDNEY AND KIDNEY FAT are quite common in the South and can only be determined on post mortem. In the kidneys, the worm produces large or small cysts that interfere with kidney functions according to the size of the cysts. If in the fat, they may produce some changes and may excrete toxins. This worm sometimes invades the sublumbar muscles and in extremely rare cases penetrates the spinal canal and thus injures the nerves or spinal cord. Some believe it thus causes some cases of paralysis of the hind limbs.

It may seem out of place to put all of the before-mentioned diseases in the group of mixed infections. But this is not more absurd or wild than some of the ideas expressed by some medical men and farmers on mixed infections. Let the farmer remember that cholera is the most common and fatal disease of swine and that it is often associated (mixed) with swine plague, necro bacillosis and one or more of the mentioned infections or infestations. It is not the farmer's business or ability to make fine distinctions or exact diagnoses in a large number of swine diseases. That is the business of the expert, graduate veterinarian. It pays to buy the expert diagnoses. It also pays to buy the expert treatment. It pays to avoid patent cure-alls. But the farmer is the one to apply most of the treatment, especially the preventative treatment. He should know that most of the swine diseases are closely allied to or associated with filth, impure water, spoiled, or irrational feeds, unsanitary lots, yards, pastures and houses. A sure, active treatment for mixed infections has not been discovered. The mixed bacterins is an attempt to make a long shot with a short-range gun—a shot gun. It covers a wide

range but does not shoot very far. It may be the best uncertain treatment of its kind known. But the farmer can prevent most of these diseases. The use of anti-hog cholera serum and virus is advisable and the single or double inoculation does immunize hogs. Have it done when and where necessary, but do not depend upon it to take the place of cleanliness and disinfection of yards, pens, pastures, houses, troughs, and proper selection of quality and quantity of feed, purity of water supply and sensible breeding. Parasites and germs are co-workers. Animal parasites reduce body resistance to germs by taking some nutrition, by interfering with digestion, by production of toxins that may cause nervous irritation or anemia. Some of the parasites may be kept in control by the lime-sulphur-charcoal-salt mixture; but cleanliness and disinfection with frequent change of lots, yards and pastures are very essential factors in the control and extermination of infectious germs and parasites.

CHAPTER XVI

Housing the Hogs

There is a happy medium in the matter of hog houses that is a pleasant position for the practical hog-grower to occupy. It lies between the slipshod method of the shiftless, would-be hog-grower—who trusts to luck for his hogs to find some sort of shelter during bad weather in which they will be well enough protected to enable them to survive—and the expensive equipment of the fancy farmer who puts on style in the matter of business at the expense of profitable returns.

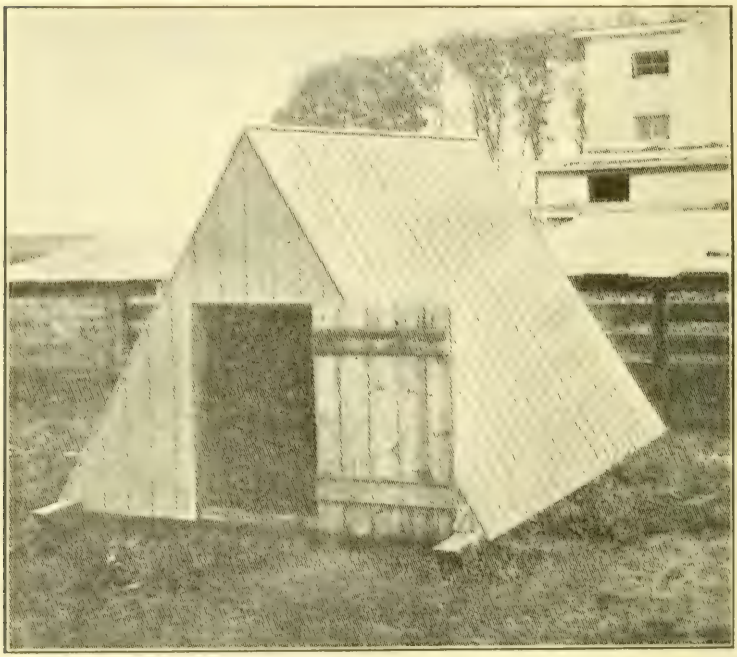
It will hardly be denied by any one that even in our goodly Southern clime hogs, to return the greatest profit, must have some protection from the elements, especially is this the case with farrowing sows and pigs that are under two months of age. Then it is a pretty good theory that any animal that has a comfortable sleeping place, at all periods of his life, has a better chance for doing his best than has one to which such comfort is denied.

A Comfortable Sleeping Place

Hogs advise by their actions as to the sort of a sleeping place they consider comfortable. The main points they usually stress as being conducive to their comfort are warmth, and absence of wind and dampness. Hogs are full of wisdom as a general thing and left to their own resources they will seek for their sleeping places situations that combine as near as possible the points mentioned above and so far as they are concerned little else matters.

Right at this point it should be remembered that hogs have never been seen to climb up into a pole pen—with a slatted floor raised a foot above the ground and with the blue sky, and a few pine boughs for a roof—to make their beds. From this fact it may be concluded that the above is

not the sort of a hog house for hogs of any age, and that the ten thousand men in our South country who are insisting upon their hogs occupying houses built after this fashion are "going agin hog nature." So with the statement thrown in for what it is worth, that the above is no



THE A TYPE OF HOG HOUSE

sort of a hog house at all, we may pass to the contemplation of more pleasant subjects.

For the use of fattening hogs or dry sows, we doubt if there is a better style house than the open shed, boarded tight and battened on the north, east and west sides, and, for use in permanent pastures or in fields where temporary crops are being hogged off, it is well to have these houses

set on two sills rounded at both ends like sled runners so that a team may haul the house from place to place in the fields as often as the sleeping floors become dusty or otherwise insanitary. This arrangement, too, enables the hog grower to manure the poorer spots in the field.

In such houses there should be a board either end cut to fit between the sills at the ground line that may be raised when the house is moved and then dropped in place again when the house is at its new location. The A-shaped farrowing house is familiar to practically all our farmers, and probably no better house for the South can be devised for the purpose. (See page 80.) In these houses the roof extends to the ground on both sides and both ends of the house should be boarded and battened tight. Then in the end of the house that faces the South should be a hinged door, and above this a window. This last that is often neglected by builders of this style house is quite important; for sunshine is very essential to the health of the little pig and, too, it is one of the best sanitary agencies we can make use of.

Location and Arrangement

For use in sections of our territory where cold weather and farrowing time hardly ever come together, the small open shed answers very well for a farrowing house, when the beds are kept in good order, ideal sanitary conditions are maintained by such housing.

Where many sows are kept and the lay of the land is such that it is practicable, the individual farrowing houses and their individual lots should front on a road or driveway so a team may be conveniently used to haul the necessary feed, but where only from two to four brood sows are maintained, as is the case on the average farm in our section, this is not necessary. But at all times thought should be given to the arrangement of house and lots to the end that only necessary labor attend the handling of the hogs; for time is money to the most of us or should be at least.

Ideas differ as to the sort of floor that is best in farrow-

ing houses, a good many hog men maintaining that a solid dirt floor is as good as any and when the houses are cleaned often enough to keep the beds free from dust or damp bedding we believe this floor answers very well. But when pigs are farrowed in rather cold weather, or during spells of extreme wet, and the soil on which the houses are located

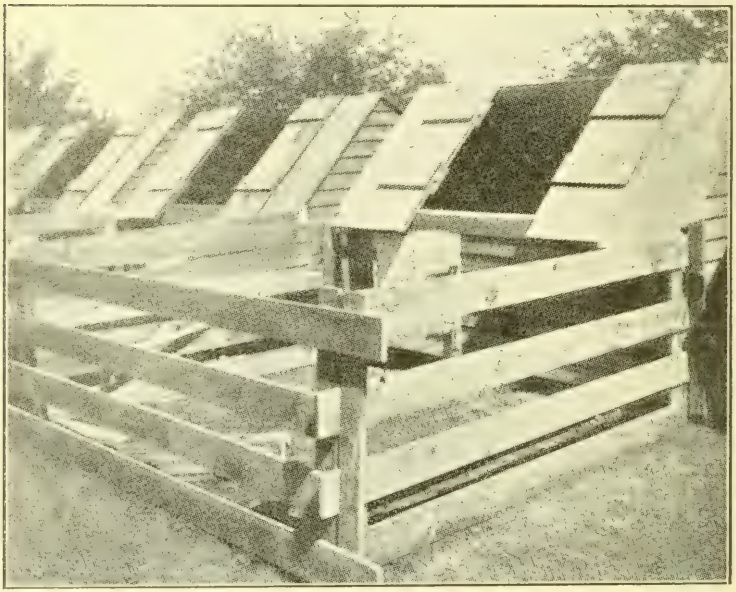
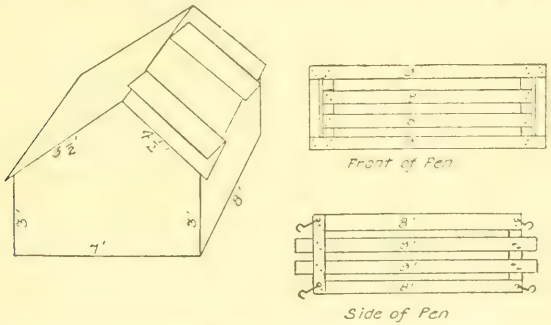


ILLUSTRATION SHOWS A GOOD COT WITH A CONVENIENT KNOCK-DOWN PEN. SKIDS 4 X 6, 9 FEET LONG. TWO JOISTS, 2 X 6 LAID FLAT. SIDES WEATHER BOARDED OR CRACKS BATTENED.

is clay, we are of the opinion that a detached board floor laid on the ground and the bedding placed on this makes a better arrangement. We do not favor board floors raised several inches above the ground and attached to the building, for it has been our observation that they are no better than those laid on the ground and often make a harboring place for rats underneath and a place for filth and dust to accumulate.

Many advocate a raised railing around the interior of the farrowing house for the protection of the small pigs, but we have never yet seen a pig crushed anywhere save in the bed of its dam, and believe the proper feeding of the sows before farrowing—so the pigs will be strong when farrowed—and due care taken that too large a bulk of coarse bedding be not given is better insurance against pig crushing than any arrangement of house could be.

Large, expensive farrowing houses are all right in sections where the pigs must be farrowed during very cold



ILLUSTRATIONS SHOW THE DIMENSIONS OF THE HOUSE ON PAGE 82, AND ALSO THE PANELS OF THE PEN

weather, but in our section we believe such houses are only a waste of capital and that the cheap house answers as well for every purpose. At times when we have had sows ready to farrow during one of our very rare cold spells we have provided the sow a temporary small box stall in the warmest part of a large cattle shed, making the sides of the box so no cold drafts could reach the sow, and if the weather should be cold enough to warrant the extra precaution, lay boards across the top of the box and cover with straw. The sows would remain in this box not more than a week, of course, and it would generally not be that long before they could be carefully moved to their out-of-doors house.

Those in our section who are looking for a chance to spend surplus money can find many hog house plans and

arrangements that will turn the trick for them, but the average man who wants to have his hogs take care of him need only concern himself with having good roofs on his hog house, tight walls around them, dry, clean, well-bedded floors, and a chance for the sun to shine in.

CHAPTER XVII

Curing Meat on the Farm

It is not necessary to select zero weather as a day for slaughter; in fact, to get the best results, hogs should not be killed at a time when the thermometer stands at zero or below. A cold, clear, crisp day, however, should be chosen if possible. If the day is sufficiently cold it is best to kill in the forenoon; this should be done to assist in disposing of the extra work which always accompanies the killing of hogs. If, however, the day turns out to be a warm one, as is frequently the case in the South, it is far better and safer to kill in the afternoon.

To prevent fermentation in the stomach and intestines while the animal is being dressed, it is wise to deprive the hog of all feed, except water, for 24 hours before killing. When fermentation arises the meat is always tainted, as the warm body of the hog takes up objectionable odors very quickly. The peculiar odors which oftentimes accompany the home cured meats are very largely due to fermentations which arise in the stomach and intestines after the hogs are slaughtered.

Killing

To insure complete and rapid bleeding, the hog should be as quiet as possible several hours previous to being killed, and should never be excited or violently exercised immediately before being slaughtered. Many farmers stun the animal with a heavy instrument of some kind before sticking, but it is thought that more complete bleeding is accomplished when the animal, while yet alive is simply turned on the back and the heart pierced, or the main artery leading from the heart severed, with a long-bladed knife. If this operation is performed accurately the blood spurts out in a stream and insensibility and death result quickly.

The novice may insert the knife into one of the shoulders, rendering the piece practically unfit for curing. A blood-shot piece of meat or one which has not been thoroughly bled is a very undesirable piece for curing.

Scalding

After many careful experiments, where a thermometer was used to obtain the exact temperature of the water (a thermometer good enough for the work may be obtained for 25 cents at almost any drug store), it was learned that temperatures ranging from 150 degrees to 155 degrees finally loosened the hair and made it slip readily, but to do this the body of the animal was held in the water more than a minute; this, however, is a very great advantage as the danger of "setting" the hair is very small indeed. When hogs were scalded in water with temperatures from 150 to 155 degrees, the hair became loose in about 72 seconds. When the temperature of the water varied from 186 degrees to 190 degrees, it was necessary to hold the bodies in the water only 24 seconds. For the sake of safety the temperature of the water should not be higher than 175 degrees; with this temperature one may expect the hair to become loose within 40 seconds.

Dressing

As soon as the hair is thoroughly removed the bodies should be hung up, washed with clean, cold water, and the internal organs removed. This should be done before gases develop in the intestinal tract. After the hogs are dressed the carcass should be opened as wide as possible in front, washed again with clean, cold water and hung in the coolest possible place until the following morning. It is not meant by this, however, that the meat should be allowed to become frozen. Many good farmers cut the bodies into rough pieces very soon after the hog is dressed; if the day has been warm and the probability is that the night will also be warm, it is usually wise to do this, especially with large bodies. The writer has found it to be a good prac-

tice to cut up the carcass very early the morning following the day on which the hogs were killed and immerse the pieces in brine before the warm part of the day. If the day following bids fair to be warm it becomes almost necessary to put the meat away early the first morning. If the weather, however, is unusually cold the day following the killing it is probably wise to rub the pieces of meat with salt and let them stand over one day before placing them in the brine or salt.

The process of common dry salting is well understood. Many farmers have never used any other method. Very excellent meat can be made by this method, but as a rule the meat becomes too dry, hard, and salty. Better meat can be made by other methods, and the danger of loss is reduced probably 50 per cent. Probably the best results—or at least the best results ever secured by the writer—are secured when the meat is immersed in the following brine solution:

To each 100 pounds of meat—

12 pounds of common salt.
3 pounds of brown sugar.
3 ounces of saltpetre.
6 gallons of water.

As the brine must be perfectly cool when the meat is immersed it should be made the day before using. Ordinary syrup may be used in place of the sugar. The above articles should all be placed in a kettle and boiled gently for about one hour. Any kind of a clean vessel, as an earthen jar or wooden barrel, may be used for holding the brine and meat; clean syrup barrels are usually very easily obtained. Extreme care, however, should be exercised to obtain new and thoroughly clean barrels; old and tainted barrels should never be used.

After the pieces of meat are neatly trimmed into proper shape and size they should be laid in the barrel with the meat side up, a heavy weight placed upon them, and the brine poured in to a depth not less than two inches above

the top piece of meat. The brine should be examined every few days as it sometimes becomes "ropy," especially during a long period of hot weather. If the brine shows signs of becoming "ropy" or tainted the trouble can usually be checked by removing the meat, dropping in a small amount of common soda, and stirring well. If this treatment does not immediately correct the trouble, the meat should be taken out, each piece thoroughly washed, and put down again in new brine and barrels. The small pieces of meat should remain in the brine 30 to 40 days. At one time the writer kept 38 hams of various sizes in a brine for 52 days. The small hams were in the brine too many days and become somewhat too salty. Fifty-two days was not, however, too long a brine period for the larger hams.

Smoking

After the meat has been in the brine a sufficient length of time it should be taken out, hung in the smokehouse, allowed to drip two or three days, and the smoke applied. If the meat is to be smoked properly and kept pure and sweet a good, but not necessarily an expensive, smokehouse must be erected. A cement floor is almost an absolute necessity, as such a floor can be easily and completely cleaned while it does not furnish places for the "skippers" to live during their resting period.

Many farmers smoke meat at irregular intervals, for 20 to 40 days, but there is probably nothing gained by prolonging the period, especially if the smokehouse is well made and the smoke is applied continuously for a short period. If the smokehouse will not hold smoke, then it is necessary to prolong the smoking period. When the house is tight and the fire is kept burning continuously there seems to be no reason why the meat should be smoked more than three or four days. Corn cobs, hickory chips, and various other woods are used for producing the smoke; no special or secret virtue accompanies the smoke made by any one particular kind of wood.

Sacking the Meat

As soon as the meat has been sufficiently smoked the ventilators and windows should be opened and the warm air permitted to escape. When the meat is thoroughly cooled it should be prepared for the summer season. The majority of farmers permit the cured meat to hang in the smokehouse, unprotected from the flies and other insects, during the spring and summer months. This is an unwise thing to do, unless the house has a cement floor, is dark, and all openings are thoroughly protected by wire screening. Meat which hangs unprotected in the average smokehouse is almost sure to become infested with "skippers." It should be taken down and prepared for the summer season. The individual pieces of meat should be first wrapped closely with old newspapers or wrapping paper. They should then be placed in strong sacks (flour sacks will do) and each bag tightly tied at the top. The sacks should then be hung exactly where they are to stay until taken down to be eaten or sold, and painted on the outside with a solution so as to exclude all flies and "skippers." A thick paste of ordinary lime, glue, and water will answer the purpose very well. A better paste, but one somewhat tedious to make, may be made of the following materials:

For 100 pounds of hams and bacon—

3.0 pounds of barytes (barium sulphate).
.06 pounds of glue.
.08 pounds of chrome yellow (lead chromate).
.40 pounds of flour.

Fill a three or four-gallon bucket one-half full of water and mix in the flour. Dissolve the lead chromate in a quart of water in a separate vessel and add this solution and the glue to the flour water. Bring this to a boil and while boiling add the barium sulphate slowly, stirring constantly. The solution should be painted on the outside of the sack with an ordinary paint brush.

APPENDIX

Feeding Cotton Seed Meal to Hogs

1. Cottonseed meal should not constitute more than one-third or one-fourth the ration of hogs.

2. Cottonseed meal should not be fed for more than four or five weeks at any one period; but after a rest of three to five weeks, the cottonseed meal may again be fed for another period of four or five weeks.

3. When hogs are on green feed, cottonseed meal may probably be fed in larger quantities and for longer periods than when dry feeds only are used.

4. Possibly the feeding of wood ashes or copperas, with the cottonseed meal, and souring the cottonseed meal mixed with water before feeding, may have some effect in lessening its injurious effects on hogs.

5. Except for its injurious effects on some hogs, cottonseed meal is a most excellent feed for hogs, making good gains and producing a firm carcass.

6. It appears that some samples of cottonseed meal are more toxic or poisonous for hogs than are other samples; but since no one knows just what the poisonous matter is, it is not practicable to distinguish the less poisonous from the more poisonous samples of meal, except by trial.

7. Cottonseed meal, forming one-third or one-fourth the ration, is a most excellent feed for hogs for the last four weeks before slaughtering, especially for hogs grazed on peanuts, soy beans and other soft pork producing feeds; for it produces good gains and hardens the fat.

How Many Hogs or Cattle Per Car?

Twenty head of cattle weighing between 1,100 and 1,200 pounds will go into a 31-foot car, twenty-four in a 36-foot car and twenty-seven in a 40-foot car.

The minimum weight for a thirty-one foot car load of hogs loaded double deck is 19,000 pounds and 15,000 pounds loaded single deck. One hundred and fifteen 100-pound hogs or seventy-two 200-pounders or sixty-two 250-pound-porkers will be accommodated in a 31-foot car. One hundred and thirty-two 100-pounders, or eighty-four 200-pound porkers, or seventy-one 250-pound animals will go into a 36-foot car. One hundred and forty-seven 100-pound porkers, or ninety 200-pound animals, or eighty 250-pound animals will go into a 40-foot car.

Young Hogs Make Best Use of Feed

The following table modified from Henry's "Feeds and Feeding," shows the economy of gain in feeds consumed by young or small pigs as compared with hogs weighing 250 pounds or more:

Weight of Pigs	Number of Pigs Fed	Average Feed Eaten Per Day	Average Gain Per Day	Feed Re-Required for 100 lbs. Gain
15 to 50 lbs.	174	2.2 lbs.	0.8 lbs.	293 lbs.
50 to 100 lbs.	417	3.4 lbs.	0.8 lbs.	400 lbs.
100 to 150 lbs.	495	4.8 lbs.	1.1 lbs.	437 lbs.
150 to 200 lbs.	489	5.9 lbs.	1.2 lbs.	482 lbs.
200 to 250 lbs.	300	6.6 lbs.	1.3 lbs.	498 lbs.
250 to 300 lbs.	105	7.4 lbs.	1.5 lbs.	511 lbs.
300 to 530 lbs.	105	7.5 lbs.	1.4 lbs.	535 lbs.

Feeding Velvet Bean and Pod Meal to Hogs

In a recent issue it was stated that many had reported unsatisfactory results from attempts to feed velvet bean and pod meal to hogs, and reports from our readers were

asked for. The request has brought numerous responses, and the evidence is still rather unfavorable to the use of velvet bean and pod meal for hog feeding, unless the meals is soaked. A number have reported that soaking the meal from one feeding to the next seems to make it palatable and that the hogs do well on it. Even cattle are reported to like it better when it is wet or soaked. Perhaps the same would be true with horses, which seem less inclined to eat it than other livestock.

In short, the reports from the use of dry velvet bean and pod meal, either alone or with other feed like corn, for hog-feeding, are unfavorable while the reports from its use after soaking are highly satisfactory. If soaking is all that is required to make velvet bean and pod meal satisfactory for hog-feeding the solution of the trouble previously reported is not difficult. The following is a sample of the reports of the successful use of velvet bean and pod meal by soaking:

"Editor Progressive Farmer: I notice a reader has not gotten satisfactory results from feeding velvet bean and pod meal to hogs. I have been feeding some to hogs and it seems to be the very thing for them. I grind the beans, pod and all, with about 40 per cent ear corn and put the amount I want to feed at night in a container at morning and cover with water. By night it's ready, and I repeat at night for the morning feed. My hogs are always ready for the feed and seem to do better on it than anything I ever tried. I also feed my cattle on the above mixture and the shuck ground in, except I do not soak it for cattle.

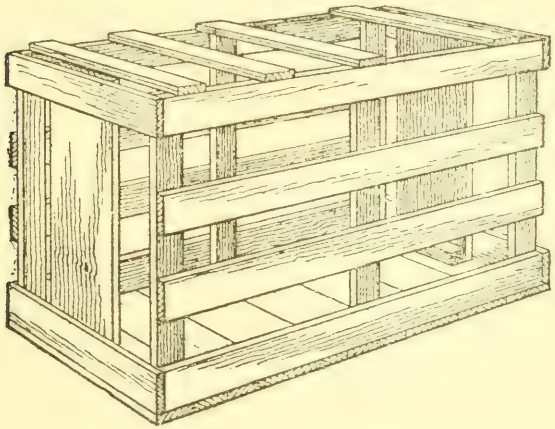
"A SUBSCRIBER."

A Practical Hog Crate

Farmers who raise pure-bred hogs need practical and strong hog crates in which to ship the animals. Specialists of the United States Department of Agriculture recommend a crate in which the side slats are nailed on the out-

side, where they are just as secure and safe, and by which the same amount of lumber will give 2 inches more space than if the slats were placed on the inside, as is commonly practiced.

The front of the crate is closed by putting in a board standing endwise instead of nailing slats crosswise, the commonly accepted procedure. The former method is better because the end can be opened readily and the hog can walk



A PRACTICAL HOG CRATE

out with ease instead of being forced to back out, as in the ordinary crate. In addition, when the slats are nailed crosswise, especially when the crate is used for old hogs, they may be pushed off or broken in two while in transit, and sometimes allow the hog to escape.

For a properly constructed crate the sides should be made first, and the floor, top, and ends built around them. The floor should be laid crosswise, which will make the crate stronger. Only good, strong boards should be used. One 12-inch board or two 8-inch boards are sufficient for the ends. A block should be nailed to the floor 1 inch from

each end to keep the end boards from slipping inward. The crate should be built to fit the hog to be shipped and should be large enough for comfort. A well-built crate may prevent serious injury to the hog in transit. A crate of suitable size for a hog weighing from 250 to 300 pounds is 2 feet wide, 4 feet 8 inches long, and 2 feet 8 inches high.

In building the sides of the crate it is essential to use nails sufficiently long to allow one-fourth-inch clinch, the nails being bent crosswise of the grain of the wood. The nails in the end boards are not clinched and the nail heads are left to protude enough so that the nails can be removed easily with a claw hammer. The usual top cross board just above the animal's hind quarters is omitted.

A List of a Small Part of the Literature Available on Hog Raising From the U. S. Department of Agriculture, Washington, D. C., and State Experiment Stations

Bulletin No. 47 in 3 parts from the Bureau of Animal Industry, "The Hog Industry."

Farmers Bulletins:

No. 22, The Feeding of Farm Animals.
No. 100, Hog Raising in the South.
No. 102, Southern Forage Plants.
No. 272, A Successful Hog and Seed Corn Farm.
No. 379, Hog Cholera.
No. 411, Feeding Hogs in the South.
No. 438, Hog Houses.

Alabama Experiment Station, Auburn, Ala.

Bulletin No. 122, Grazing and Feeding Experiments with Pigs.

Bulletin No. 143, Feeds Supplementary to Corn for Southern Pork Production.

Bulletin No. 154, Corn, Soy Bean Pastures, Tankage, Cottonseed Meal for Fattening Hogs.

Bulletin No. 166, Curing Meat on the Farm.

Bulletin No. 168, Fattening Hogs in Alabama.

North Carolina Experiment Station, West Raleigh, N. C.

Bulletin No. 200, Feeding Fermented Cottonseed Meal to Hogs.

Bulletin No. 207, Hog Raising in North Carolina.

Circular No. 4, Curing Meat on the Farm.

South Carolina Experiment Station, Clemson College, S. C.

Bulletin No. 152, Hog Cholera and the Serum Method of Treatment.

Bulletin No. 168, Hog Cholera and Its Control.

Kentucky Experiment Station, Lexington, Ky.

Bulletin No. 175, The Growing and Fattening of Hogs in the Dry Lot and on Forage Crops.

Louisiana Experiment Station, Baton Rouge, La.

Bulletin No. 123, Some Experiments in Grazing and Soiling.

Bulletin No. 124, The Best Crops to Grow for Hogs.

Bulletin No. 148, Stock Feeding.

Texas Experiment Station, College Station, Texas.

Bulletin No. 78, Feeding Fermented Cottonseed Meal to Hogs.

Bulletin No. 131, Hog Feeding Experiments.

Bulletin No. 157, Hog Cholera and Its Prevention.

Other Books For The Farm Library

Massey's Garden Book

By Prof. W. F. Massey

Prof. Massey has been doing gardening for nearly all of the eighty years of his life and he knows what's what in gardendom. He has put the experience gained in all these years of practical experience in this garden book for the Southern States.

Neatly printed and illustrated, paper binding, 127 pages. This book with The Progressive Farmer one year for $1.25.

Hines' Automobile Book

By P. T. Hines

Mr. Hines is a practical automobile mechanic, and he has treated the subject of motor car operation and care in such simple, brief, concise, practical, and yet thorough manner, that it will be a boon to every motor car owner. It will help solve any automobile problem that may come up.

Illustrated, paper binding, 96 pages. This book and The Progressive Farmer one year for $1.25.