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THE ECONOMICAL PRODUCTION OF PORK.

by

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The production of pork is one of the most important economical problems that the farmer and stock raiser has to solve. As a rule in this section of the country, we have an abundance of feed, and a fair variety and also a good stock of hogs to feed these products to, but the scientific feeder is most interested in how to utilize these products to secure the largest net profit. In other words, he wants to know what combination of feeds is the most economical.

The Experiment Stations of the different states are solving many of these problems, since the farmer cannot afford to feed many of the different products until he knows they are profitable. The farmer and stock raiser then may profit by experiments carried on under scientific supervision. What feeds can we afford to make use of, with pork and feed at a given price? The supply and demand according to the cost of production. If the cost of feed is high the cost of pork must be accordingly high or the supply will diminish. In other words, the supply and demand must be kept in equilibrium in order to keep a commodity at normal value. In this connection is where the scientific feeder shows his skill over the one who does not realize the importance of economic feeding.

The degree of success which any feeder may attain depends a great deal on the type of hogs he is handling. This does not, however have reference particularly to what breed but to the general condition, health, vigor, size and good feeding qualities of the herd. The economical production of pork cannot be attained without the right type of hog. The brood sows must be fairly large, good strong boned, vigorous, prolific and have a large digestive capacity.

The boar should be the ideal hog which the breeder wishes to raise. He should be large, strong boned, of good conformation for the type of hog he represents. He must be muscular, a strong breeder and

good feeder. A herd of fair shoats can be secured from moderately poor sows if the boar is one of the best, while on the other hand a poor boar and moderately good sows will turn out, as a rule, the poorest pigs imaginable.

Always have a number one boar and the best sows you can secure at reasonable prices, and then with proper care and feeding you will have the right kind of a hog to put on the market at a good profit.

The value of pasture for hogs is a subject which is being much discussed by hog raisers and one which is also being given much attention by Experiment Stations. An experiment was carried on at the Maryland Experiment Station in 1891 to determine the value of common woods pasture. One lot of pigs was put in a pen and fed refuse and slop from the kitchen and grain, while lot two, was put on a common woods pasture of weeds and underbrush. Lot one, made somewhat the best gains through the summer, although not enough to pay for the extra care and feed given them. Lot two, although not gaining so much on the pasture made much the better gains when put in the fattening pen in the fall. This illustrates the value of even common woods pasture in carrying the shoats through the summer cheaply, and at the same time, developing a good, large digestive tract for the economical consumption of food when put in the fattening yards in the fall.

An experiment was carried on at the Wisconsin Experiment Station in 1898 along this line. In this experiment two lots of twenty one hogs each were used. They were fed the same grain ration, viz., one-third wheat shorts and two-thirds corn meal. Lot one was put on rape pasture and lot two on clover pasture. In eight weeks the lot on rape pasture gained fifty-seven pounds more than the one on clover pasture. This result shows rape to be the superior of the two, although both of them must make excellent pasture since the pigs in each lot made

an average gain of over one pound daily for eight weeks. In another experiment at the Wisconsin Station the value of rape pasture for fattening hogs is well illustrated. Two lots of hogs were fed, one lot received grain alone consisting of one-third short slop and two-thirds soaked corn, while the other lot received the same grain and thirty two hundredths of an acre of rape pasture additional. The lot having no pasture made almost as large gains but they ate considerably more grain so that when the value of the pasture was calculated it was found to be worth one thousand sixty-two pounds of grain, or one acre of rape would save three thousand three hundred eighteen pounds of grain. Figuring shorts at \$.90 per hundred pounds and corn at \$.30 per bushel, an acre of rape is worth \$20.69 for the purpose of pasturing fattening hogs on.

Rape was also experimented with at the Wisconsin Station for the purpose of pasturing sows and young pigs and was found very satisfactory for this purpose. The writer has had some experience in pasturing sows and young pigs on rape, and although no weights were taken or records kept of gains the sows and pigs did exceedingly well with a comparatively small amount of grain.

An experiment carried on at the New York Geneva Experiment Station in 1890 illustrates to some extent the value of roughness for hogs in winter. Ensilage was used as roughage in this experiment and was not found to be a very satisfactory feed, although it showed the hogs were craving some kind of roughness. The corn was cut up with the ears on in a regular ensilage cutter. The hogs first picked out all the corn they could find and chewed up the fodder or stalks but did not swallow much of this portion of the feed. The result was that when the ensilage formed sixty-seven per cent of the ration the pork was produced at more than market value. Where the ration consisted of forty-four per cent ensilage the cost of production was the same as if

no ensilage had been fed. This seems to show that ensilage is not satisfactory for fattening hogs although it is often used to maintain brood sows. Experiments conducted by the New York Experiment Station give practically the same results as those given above.

Many experiments have been carried on in feeding nitrogenous vs. carbonaceous rations noting the gains made by the shoats and the effect on the carcass. An experiment carried on at the Kansas Experiment Station in 1899 shows the value of nitrogenous feeds for pigs. Two lots of five pigs each were used. Lot one weighed at beginning of experiment three hundred thirty-nine pounds and lot two, three hundred forty-five pounds. The former was fed a ration of equal parts shorts and bran, while the latter received corn meal with a few potatoes introduced at the latter part of the experiment. Lot one, at the end of fifteen weeks weighed one thousand sixty-nine pounds, and lot two, weighed nine hundred forty-two pounds showing the best gain for the hogs fed a nitrogenous ration. The average amount of feed for one pound increase on lot one was four and six-tenths pounds, and for lot two, five pounds. This again shows the value of proteid substances. Finally the pigs were slaughtered and a block demonstration given which showed the pigs that were fed a carbonaceous ration to be just as healthy, although the character of the flesh was decidedly in favor of the pigs which were fed the larger amount of proteins since it contained a larger per cent of lean meat and a darker and better color. The fat of the corn fed pigs was just as firm and white as it should be, while the fat of lot one was flabby and soft with a sort of a dirty yellow color. The bones of the pigs in lot one showed a higher breakage point than the ones in the other lot, the two being five hundred seventy eight and four hundred eighty-five pounds respectively.

It was the custom a few years ago to cook feed for all classes of hogs, but the last few years this practice has been abandoned by

nearly all of the prominent feeders. When we come to look this subject up in the reports of the Agricultural Experiment Stations we find that in nearly every case the results show that it does not pay to cook the feed. In several cases it showed a loss of seventeen per cent. In thirty-six different trials made by Experiment Stations only three showed a gain by cooking the feed. We know by the behavior of protein or nitrogenous compounds, that heating makes them less digestible. This may easily be proven, and has been proved by heating a substance and artificially digesting it, or through feeding it to animals and testing the excrement for undigestible material.

Does it pay to buy such feed as dried blood, meat scrap and bone meal for hogs? We may say, in general, that it does not pay to buy these feeds, although in some special cases a small amount may prove to be a profitable investment. For instance, we may have a few pigs in the herd that have been crowded away from the dam and feed trough until they are "stunted" as we say. In a case of this kind a little dried blood or meat scrap will prove a great help in getting the pig started toward a market weight. For instance, at the Kansas Experiment Station in the spring of 1903, we had four pigs that were small for their age and had been crowded away from the feed by the larger pigs until they were badly "stunted". They were then put in a lot by themselves and fed corn, kafir-corn, shorts, little soy bean meal and dried blood. They were also put on rape pasture and had skim milk part of the time. The better and larger pigs were put on alfalfa and rape pasture and fed corn meal, kafir-corn meal and shorts. When the pigs were all brought together in the fattening yard in the fall the "runts" as they were called, were "runts" no longer, but actually outweighed the average of the best pigs. Of course it cost a good deal more to feed the "runts" the soy bean meal and dried blood but as it

was, they made three hundred pound hogs at ten months of age, while had they been kept with the others and fed like the others they would have spoiled the looks of the whole bunch and been unprofitable beside. The profit in feeding them this ration was just \$5.00 above cost of feed and labor, which of course is very small, but it shows that "stunted" pigs can be made good, heavy hogs by the proper care and feed. If the proper selection of brood sows and boar is made and the pigs given plenty of charcoal and good feed, bone meal will not be necessary at all.

The value of shelter is something which is not fully realized by many feeders. Not many experiments have been carried on in this line with swine, but some experiments have been carried on with cattle, with and without shelter. Of course the cattle with shelter did the best and made better gains with a given amount of grain. We also know by experience that hogs that are forced to lie in the slush and snow in winter and go out in a blizzard to obtain their food will not put on fat fast enough to pay for their feed. It takes much of the feed to keep the hogs warm and maintain them. The hog is an animal that contracts rheumatism very easily and when forced to sleep in cold, damp quarters they will soon be so lame in the hind legs and back that they will get around with great difficulty. Give the swine a good, warm, dry, clean place to sleep and fifty per cent of the feed will be saved and we will have hogs that we will be proud to show our neighbors and ones that will increase our bank account or lift the mortgage from our farms.

Why should we have clean troughs and quarters for the swine? Many people think because the hog roots in the ground and lies in mud holes in hot weather, that he is a filthy, dirty animal; but they only show their ignorance of the subject by such remarks. (The hog is one of the cleanest of the domestic animals.) A hog cannot be compared to a dairy cow for filth nor is a horse as clean as a hog, providing of

course the hog has a chance to be clean. Then since the hog is naturally a clean animal why not encourage this quality by giving him a clean trough to eat out of, and large, dry, clean quarters? If you do not believe the hog is a clean, tidy animal just give him a chance to be clean once and prove or disprove these statements in regard to his habits and tidiness. Then again there are other reasons for keeping the hog clean besides being profitable and humane. The disease germs such as the hog cholera germ and the swine plague germ are not so apt to grow and develop in a place that is kept clean and where sun light can enter. Sunlight is the natural enemy of bacteria. Then get all of this wonderful disinfectant into your hog houses that you can.

Care of brood sows and pigs until fattening time; The brood sows of course should be fed so that they will farrow a large litter. To do this feed the sows plenty of good bulky feed like bran and alfalfa. Save the fourth cutting of the alfalfa hay for the brood sows and with this, bran and corn the sows should be in fine breeding condition to breed for spring pigs. Keep this feeding up through the period of gestation, although toward farrowing time the feed should not be quite so bulky but more nutritious. Do not feed too heavily just before the sow farrows and very lightly for twenty-four to forty-eight hours after farrowing. If you want to save a large per cent of the pigs, stay right with the sow while she farrows and as the pigs are delivered wipe them dry with a soft cloth and place them around next to the sow's udder. Help the "runt" to get his share of the milk for a day or two and he will take care of himself after that.

Each sow and litter of pigs should have separate quarters for at least ten days, and then it is not advisable to put too many of them in one lot, for there are always robbers among the pigs and the smaller ones will become "stunted" from lack of nourishment. As soon as alfalfa or rape pasture is good, turn the sows and pigs on, having a sepa-

rate place to feed the sows and pigs. When the pigs are six to eight weeks old take the sows out and leave the pigs on the pasture, and if the pigs have been taught to eat well from the trough they will hardly miss their dams. Castration should follow weaning if the pigs are in good healthy condition and are eating well, or many prefer to castrate before weaning, say at four or five weeks of age. The pigs should be fed enough grain to keep them in fairly good condition and keep them growing well. The pigs, which have become shoats by the middle of October, should be put in the fattening yard and fed a fattening ration for six weeks to two months. Green corn makes a good ration, although they should become accustomed to it very gradually. A swill made of shorts and skim milk will materially add to the gains made by the shoat. The profit obtained of course depends upon the cost of raising the hog and the price received. We may by a few figures make a pretty close estimate as to how much it will cost us to raise the pigs and put them on the market. Let us assume that the pigs were farrowed on the 1st day of April. Then we commenced to feed them grain on the 1st day of May. It is rather difficult to calculate a balanced ration for them when they are on alfalfa pasture since we do not know just how much of the alfalfa they will consume. Let us assume, however, that a ration of one-half corn meal and one-half wheat shorts is fed. We estimate that a pig one month old to five months of age will consume an average of two and one-half pounds of grain per day besides the alfalfa it utilizes. In five months or one hundred fifty days the pig consumes three hundred seventy-five pounds of grain. Figuring corn at thirty cents per bushel and shorts at ninety cents per hundred pounds this amounts to \$2.68. The alfalfa pasture usually rents for \$6.00 per acre, and one acre of it will pasture about ten head of shoats. Then the cost of the pasture will be sixty cents. Adding this to the cost

of the grain we have \$3.28 as the cost of raising the pigs to six months of age regardless of the cost of labor. Then if the shoat is put in a yard and fed a ration of corn for two months this will cost \$1.92 since the shoat will consume about six pounds of corn per day. Adding this to the previous cost we have a total of \$5.20 for feed to fit the hog for the market. We will estimate the labor of feeding and marketing to be \$1.00, making a total cost of \$6.20. The hog should weigh two hundred fifty pounds by this time and at an average price of \$5.00 per hundred will bring \$12.50. This leaves a net profit of \$6.30 which is a fair profit on one hog. The ration of corn fed the last two months of course is not strictly a balanced ration, and undoubtedly would be improved by the addition of shorts or soy bean meal, but as a rule, where hogs have been pastured all summer on alfalfa and received only a light grain ration they will make such rapid gains on corn alone that it is very doubtful whether the extra gain obtained by feeding more expensive grain would be profitable.