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By

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GROWING SOY BEANS IN ALABAMA

By

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The soy bean is an erect leguminous plant introduced from Asia. In China and Japan it is grown extensively and used for human food, soil improvement, forage and commercial purposes.

The acreage of soy beans in Alabama is increasing rapidly. The livestock farmers and feeders desire crops that can partly take the place of corn, cottonseed meal and other expensive feeds. They are finding that the soy bean makes a valuable substitute in the feeding of horses and cattle and swine; that its hay is nutritious and liked by stock; and that the crop can be harvested cheaply.

USES

Soy beans are rich in protein and make a good pasture for growing hogs, which graze on the young and tender leaves, and later feed on the ripened beans. Pasture experiments at Auburn show that pork was made from the feeding of a two-third corn ration and soy bean pasture at a cost of only \$2.74 per hundred pounds.*

The value of the soy bean for soil improvement should not be overlooked. Being a legume it gathers atmospheric nitrogen and puts it in the soil for any succeeding crop. In addition to being a nitrogen gatherer, it improves the physical condition of the soil rapidly. Experiments made at Auburn in 1911 and 1914 show that cotton, when planted after corn and after soy beans drilled, from which only the seed was harvested, the soy bean land made an average increase over the corn land of 318 pounds of seed cotton per acre. If the seed cotton was reckoned at 4 cents per pound, the fertilizing value of the soy bean stubble and straw would be worth \$12.72 per acre. In another test where the soy bean land and corn land was planted in fall oats, the increase in yield of oats due to the fertilizing value of the soy bean stubble was 173 per cent over the corn land.

*Page 63, Bulletin 143, Alabama Experiment Station.

FERTILIZER AND CULTURE

The soy bean can be grown on almost any kind of soil in Alabama. Any soil that will grow good crops of cotton or corn will produce good crops of beans or hay. A clay or clay loam well supplied with humus is best adapted to this crop. Poor sandy soil will not produce a profitable yield.

Experiments of this Station seem to indicate that about 200 pounds of acid phosphate applied in the drill at planting time pays for its use. Lime either in the form of ground limestone, quick or air slacked, applied at the rate of two tons per acre once in three or four years, increases the growth of the soy bean plant, though it is not always necessary to the making of a good crop.

When the bean is planted for the first time, an application of three or four loads of stable or lot manure will materially increase the first crop. After the beans have been once grown successfully on a piece of land, the addition of nitrogenous fertilizer is not necessary to secure a profitable yield.

Soy bean land should be prepared in about the same manner as for cotton. The rows may be made from 2½ to 3½ feet wide. If the land is well drained, the rows may be laid off and the seed planted on a level surface; but if it is poorly drained, the seed should be on a low bed.

Soy beans may follow winter grain, if the stubble is plowed promptly and the beans planted immediately. In those sections where many hogs are raised and the fields fenced for pasturing, the corn rows may be made six feet wide, and a row of beans planted in each corn middle. The corn and beans are cultivated together. After pulling the corn, the beans may be grazed by hogs and cattle. If it is desired to make hay of them, they may be cut with a scythe or sharp hoe.

INOCULATION

Soy beans require inoculation in order that they may take up nitrogen from the air. While natural inoculation is widely distributed, it is often advisable to employ artificial inoculation when the soy bean is grown for the first time.

The inoculation of the seed may be done either by scattering in the drill with the seed 200 or 300 pounds of inoculated soil per acre from some bean field,

or by the use of artificial cultures. Cultures may be obtained from commercial companies or in small amounts from the U. S. Department of Agriculture, Office of Soil Bacteriology, Washington, D. C.

Soy beans may be sown with a cotton or a corn planter, provided with proper plates, any time from April 15 to July 15. The seed should not be planted when the ground is very wet or very cold. They should be covered not more than two inches deep. As soon as the plants come up they should be cultivated shallow—usually about three times.

When soy beans are drilled for seed, the rate of seeding is about two pecks per acre. When they are sown broadcast for hay, the rate is about eight pecks; when planted as a mixture for hay, about four pecks of beans and four of cowpeas are necessary to secure a good stand and to get a good quality of hay.

HARVESTING AND THRASHING

The time to harvest soy beans is when most pods are ripe and half of the leaves fallen off. If left until the pods become fully ripe, the pods burst open and scatter the beans on the ground. If to be made into hay, it should be mowed when the pods are well formed.

When only a patch is planted, the soy bean plants may be cut with a sharp hoe, corn knife, scythe, or pulled up, and put in small piles to cure. When several acres are grown, they may be cut with a mower, self-rake, reaper, or binder and piled until they are cured. If the acreage is large, the harvesting of the seed may be done with a special bean harvester, several kinds of which are now on the market.

The soy bean can be thrashed with an ordinary grain separator, if the speed of the cylinder is reduced to about one-half of that for grain and some of the spikes from the concave are removed. When the amount to be thrashed is small, the dry plants may be spread out on the floor or wagon sheet, and the seed beaten out with a flail.

Soy beans heat quickly when stored in bulk, if not thoroughly dry. After thrashing they should be spread out to dry, or sacked and piled in such a way that they will be well ventilated.

VARIETIES

The Experiment Station has tested many different varieties or strains for seed production during the past

10 years. During this period the four most productive varieties of each year for seed included Mammoth Yellow six times; Blackbeauty five times; Hollybrook four times; and Edward, Haberlandt, Ebony and Wilson each three times.

In the last five-year period, Hollybrook averaged 15.1 bushels of seed per acre; Blackbeauty 13.9 bushels; Mammoth Yellow 13.3 bushels; and Ebony 12.4 bushels. The varieties which lead in seed production have rather coarse, erect stems, and are medium late. The early varieties never rank high in yield of either seed or forage.

The farmer will make no mistake in choosing the Mammoth Yellow for this latitude. It is a rank growing variety, has medium large yellow seed, and requires about 135 days to mature a crop of seed. It produces good hay. Hollybrook produces a smaller plant and has yellow seed. It requires about 125 days to make a crop of seed. Blackbeauty and Ebony are black seeded varieties.

For the production of hay, Mammoth Yellow, Hollybrook, Ebony and Biloxi are recommended. On good land they produce from one to two tons of hay that is of high feeding value, being similar in composition to hay from cowpeas, clover and alfalfa.

NOTE:—For a full discussion of varieties, fertilizers, culture, harvesting, and uses of soy beans, ask for Bulletin No. 203 of the Alabama Experiment Station.