

In regions of low rainfall, where salts accumulate in certain heavy soils and in situations of imperfect drainage, disastrous mistakes are frequently made in attempts at farming. Sometimes a soil that looks good contains enough salt to prevent the successful growth of any crop. The writer recently saw land of this kind planted to grapefruit and cotton. The trees showed no indication of ever bearing, and the cotton would yield not more than 10 pounds of lint to the acre. For this land the owner, thinking it looked good, had paid \$300 an acre. Actually it was not worth \$5 an acre, because of its high alkali content and the extreme difficulty of improving it by drainage. In immediate contact with this worthless land was excellent soil, without alkali and without danger of ever being seriously affected by alkali. Had the purchaser consulted the soil-survey maps of the region, he would have been on his guard, and probably never have bought the land. His case is but one among thousands in which failure is foreordained by soil inferiority.

All the advantages that may be gained from getting better acquainted with your soil types can not be given here. The time has come when you should lay aside the old way of the indiscriminate use of all kinds of land for all kinds of crops, or applying the same methods in all fields regardless of the soil type. This is too much on the order of hit-or-miss farming. It will be better for you and the Nation if you will set about to get better acquainted with your soil types, so that you may cultivate those of better quality only, adapt your soils to the right crops, practice proper methods, and devote your inferior land to timber or grass.

H. H. BENNETT.

SOY-Bean Output Increasing in United States

Although introduced as an unknown immigrant from the Orient many decades ago, not until recently has the soy bean won a recognized place in the cropping system of American farmers. The great interest shown in the soy bean and its products and the largely increased acreage and production during the last decade indicate that it is destined to become a crop of considerable economic importance in the United States.

In 1917 less than 500,000 acres were devoted to soy beans for all purposes. In 1924 there were 2,500,000 acres, of which about 1,000,000 acres were grown for hay, about 1,000,000 acres for pasture and silage, and more than 500,000 acres for seed production. About 2,283,000 bushels of seed were produced in 1917, while in 1924 nearly 10,000,000 bushels of seed and 1,360,000 tons of hay were produced. Although the increase in acreage has been general over the eastern half of the United States, the most marked increases have been in the Corn Belt States and in a few of the Southern States. In 1924 the five leading States for total acreage were Illinois, 747,000; Missouri, 400,000; North Carolina, 255,000; Indiana, 210,000; and Tennessee, 167,000; and for seed production North Carolina, 2,560,000 bushels; Illinois, 1,548,000 bushels; Missouri, 1,379,000 bushels; Ohio, 728,000 bushels; and Indiana, 650,000 bushels.

The soy bean can now be grown successfully in any climate suitable to corn or cotton. The Department of Agriculture during the past 10 years has developed, through introduction and by breeding

methods, varieties which have extended the range of profitable soy-bean culture far beyond what were at first considered its limits. The principal uses of the soy bean are hay, pasture, silage, grain, oil and oil meal, and human food. With such a wide range of uses the production of the soy bean is no longer localized and its increasing importance is assured.

Gaining Favor as Forage

As a forage crop alone, it is not likely that the soy bean will become a major field crop in the United States. However, even as a forage crop it has gained steadily in favor as indicated by the increased acreage from year to year. The forage is preserved either as hay or silage, or cut and fed green as soilage. It is also pastured extensively with sheep and hogs. Not infrequently, the soy bean is employed as a green manure or summer cover crop in orchards.



FIG. 212.—Best results in making soy-bean hay are obtained where the vines are piled in tall, narrow cocks

Unlike most other legumes the seed is rich in oil which makes the soy bean an important source of vegetable oil. Although the soy bean will no doubt continue to grow in importance as a forage crop, indications are that the future increase in soy bean acreage will be largely for the production of oil and oil meal. During the past few years, oil mills in the Corn Belt States and some of the Southern States have crushed fairly large quantities of domestic beans, and found ready markets for the oil and oil meal.

Soy-bean oil is used largely in the manufacture of soaps, paints, varnishes, linoleum, enamels, lubricating oils, printing ink, water-proof goods, salad oils, and substitutes for rubber, lard, and butter. The oil has now an important place in the world's trade and commercial utilization of vegetable oils. The cake or oil meal remaining after the oil is extracted is a highly concentrated and nutritious feed, and is relished by all kinds of livestock.

As an article of food the use of the soy bean in the United States has been very limited. For many years a few food companies have manufactured special soy-bean flour products. The number of such concerns producing soy-bean food products has increased to a considerable extent during the last few years. Soy beans are now being made into breakfast foods, crackers, wafers, soy sauce, bean curd, soy flour, and special flour preparations for various purposes. One of the most recent developments is the manufacture of soy sauce and bean curd from domestic grown beans. This has been found a most profitable industry in some parts of the Corn Belt, and soy sauce has now a fairly extensive market in the United States.

Improved Production Methods

Increased acreage and greater utilization of the soy bean have brought about improved methods in planting, culture, and harvesting. Implement manufacturers, who in the past took no interest in the soy bean, are now actively engaged in a study of the planting, cultural, and harvesting problems of the crop. The development of an efficient method of harvesting the seed crop has been one of the serious problems connected with the production of soy beans. Many types of machines are now on the market, ranging from the single-row harvester to broadcast harvesters of the beater type and the combine harvester like those used in harvesting wheat and other small grains.

Because of this rapid increase in the importance of the soy bean, State experiment stations have greatly extended their investigations of the different feeding problems, such as the value of soy-bean silage, hay, grain, pasture, and oil meal. One of the most outstanding results of this work has been the use of a mineral mixture with the grain and meal. Extensive feeding trials with hogs and poultry have shown that when minerals are added to a soy-bean ration the results compare favorably with those from a ration of tankage and meat scrap.

In the last decade the soy bean has advanced from a position of minor to one of major importance. Previously soy beans were grown only occasionally, usually as a substitute crop when clover or some other crop failed. At the present time the plant is grown regularly for hay, grain, and pasture, and with corn as silage.

W. J. MORSE.

SOY-Bean Rotation Increases Rice Yields Greatly

Crop rotation has not been a factor in developing the rice industry in southwestern Louisiana. The pasturing of rice fields after several years of cropping has been the

only recognition of the principle of crop succession in this section. Experience has shown that this method is not effective in controlling weeds, especially red rice, the worst weed of the southern rice fields. Red rice seed may remain viable in the soil for at least four years and will germinate only when brought near the surface by plowing and other tillage operations.

Experiments conducted for a period of 14 years at the rice experiment station, Crowley, La., show that weeds can be controlled and