

FIGURE 40.—These pictures are a more or less typical illustration of the development of the creamery-butter industry in the South. They were taken in Arkansas. The upper picture (A) shows the plant in which a farmers' cooperative creamery organization started operations in April, 1921. The middle (B) shows the plant in use in 1925-1929. The lower (C) is the plant occupied in 1929. The organization is now a stock company, and most of the stockholders are farmers, including nearly all of the original members.

butter is scored by an expert butter judge and forwarded to eastern markets in refrigerated cars.

The older creamery sections solved their refrigeration-in-transit problem, and the southern creamery industry will solve its transportation problem; with the aid of modern inventions the South may solve it better.

### Marketing Channels Need Development

In the South the channels for the marketing of the South's butter are not yet very well developed. The South produces approximately 3 pounds of butter per capita of its population per year. On the other hand, the consumption of butter in the South is about four times as much. (The average consumption of butter per capita in the United States is approximately 17 pounds per year.) The South has a large hungry-mouthed market at home, yet, in certain seasons of the year, when the flush is on, the channels of the marketing stream are so flooded that the southern butter runs over and into the large eastern markets where it comes into competition with butter from the old-established creamery sections of the country. The inferior butter made poorer by inadequate transportation facilities, together with the addition of transportation charges as well as the loss from the same causes of the imported butter that takes its place, has conservatively been estimated to cost the South more than a million dollars a year. The development of good marketing channels is therefore a problem which the South has to work out for itself—the same as other creamery sections have had to do.

When creameries first began operation in the South there were instances where merchants refused to handle the butter made; they did not believe that good butter could be made in the South. However, conditions have changed. There are many creameries in the South now which are doing substantial business in high-quality products. Figure 40 shows an example.

At the Dixie butter-scoring contest in September, 1930, there were 53 entries of creamery butter from 53 creameries representing nine States. Sixty per cent of this butter was scored between 90 and 93.5 points, which is high.

The idea that good butter could not be made in the South has been dispelled, and dairying, of which the creamery business is an inseparable part, has established itself permanently and is gradually finding its proper place in southern agriculture.

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### CROTALARIA, a New Green Manure and Forage Crop, Promises Well in South

Crotalaria, a new summer cover and green-manure crop, is proving to be especially well suited to the sandy lands of the South.

There is a large number of species, two of which already have become of agricultural importance. These are *Crotalaria striata* (fig. 41) and *C. spectabilis* (fig. 42), the former being the most extensively used. So far their use has been confined almost exclusively to soil improvement, but they also give promise of being of value for forage. Both species are moderately branched, upright growing annuals, attaining a height of from 3 to 6 feet. The leaves of the two species mentioned,

while comparatively large, are numerous, and the plants can well be described as leafy

Other species have been used in experimental work, and some of these give potential promise, but further work will be necessary to determine their real value.

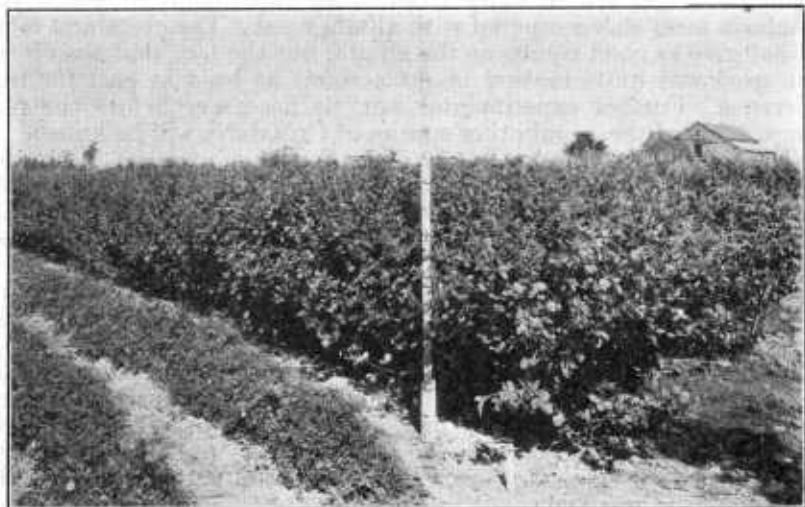


FIGURE 41.—*Crotalaria striata* planted in rows at McNeill, Miss. Plants with pods well developed

Most of the species of *Crotalaria* require warm climatic conditions. *C. striata* has matured seed as far north as North Carolina, while *C. spectabilis* has matured but little seed at Columbia, S. C. In 1930 the latter matured no seed at Columbia, while the former matured a heavy crop. *C. striata* matures seed farther north than *C. spectabilis*, but the latter species grows much larger in northern latitudes than the former.

While many *Crotalaria* species are native to tropical regions with heavy rainfall, none so far as tested in experimental plantings give promise of being adapted to wet or heavy soils. They make their best growth

in rich sandy loam, but also do well on soils that are made up largely of sand. In the poor sandy lands of the coastal plains area of the southeastern United States, both *C. striata* and *C. spectabilis* have proved to be better adapted than the commonly cultivated crops, and it is for this region that they seem to hold the greatest promise.



FIGURE 42.—*Crotalaria spectabilis* in row plantings at McNeill, Miss. Plants in full bloom

Many species of *Crotalaria* have a bitter taste in the green state and seem to be avoided by livestock. *C. spectabilis* seems to be more palatable than *C. striata* and is eaten to some extent by stock after they have acquired a taste for it.

At the Florida Agricultural Experiment Station, at Gainesville, *C. striata* meal was fed to dairy cows in an experiment in which the crotalaria meal was compared with alfalfa meal. The crotalaria meal did not give as good results as the alfalfa, but the fact that the crotalaria used was quite mature might account at least in part for this difference. Further experimental work is necessary before the real forage value of these and other species of *Crotalaria* will be known.

The greatest use of crotalaria has been for green manure. *C. striata* has been used most extensively in the citrus groves of Florida and *C. spectabilis* in the pecan groves.

In experimental plantings at Gainesville, Fla., greatly increased yields of corn and sweetpotatoes have followed the use of crotalaria.

While but few chemical analyses of *Crotalaria* have been reported, the information available indicates that it is high in protein and is similar to many other legumes in this respect.

*Crotalaria* seed stored under favorable conditions has a long period of viability. The percentage of hard seed is high, ordinarily ranging from 60 to 90 per cent. Where the crop is to be volunteered from year to year this is an advantage, as the seed will carry over in the soil and germinate in subsequent years. If a high germination is desired the seed should be scarified.

The organism that inoculates crotalaria seems to be present in all our soils, so that artificial inoculation is not necessary.

Commercial fertilizer has been used in experimental work to increase the yield of crotalaria, but the growth without fertilizer is sufficiently large so that probably it seldom can be used profitably.

All species of *Crotalaria* should be sown in the late spring. Warm weather is essential for their rapid development. For green manure or forage, seedings should be broadcast or sown in close drills, using about 15 pounds of scarified seed per acre. For seed production plantings should be in wide rows and given cultivation. Yields of seed obtained from experimental plantings have ranged from 300 to 900 pounds per acre, while forage yields have ranged from 2 to 6 tons.

*Crotalaria* seems to have but few enemies. All species have been immune to the root-knot nematode, and no fungous disease has done serious damage. The bella moth attacks the seed and does some damage and may be serious with further development of the crop. No method of control is known. Another insect, the pumpkin bug, feeds upon the green pods of crotalaria, but does little damage to the crop. Trouble may be encountered, however, when crotalaria is used in citrus orchards. The pumpkin bug, which is harbored by crotalaria when in the green-pod stage, may attack the citrus fruit if for any reason the crotalaria is destroyed after the pumpkin bugs have become numerous. To cut the crotalaria in the citrus groves before it comes into pod is therefore essential.

Aside from their use as field crops, several species of *Crotalaria* have ornamental value and can be used for both cut flowers or to beautify the out of doors. *C. spectabilis*, *C. retusa*, and *C. usaramoensis* are especially well suited for this purpose.

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