

Experience has shown that the only possibility of successful production under present conditions is in communities or districts devoted entirely to the planting of sea-island cotton, to the complete exclusion of any other variety or type.

In the absence of supplies of sea-island fiber, the American market for this cotton completely disappeared several years ago, and the

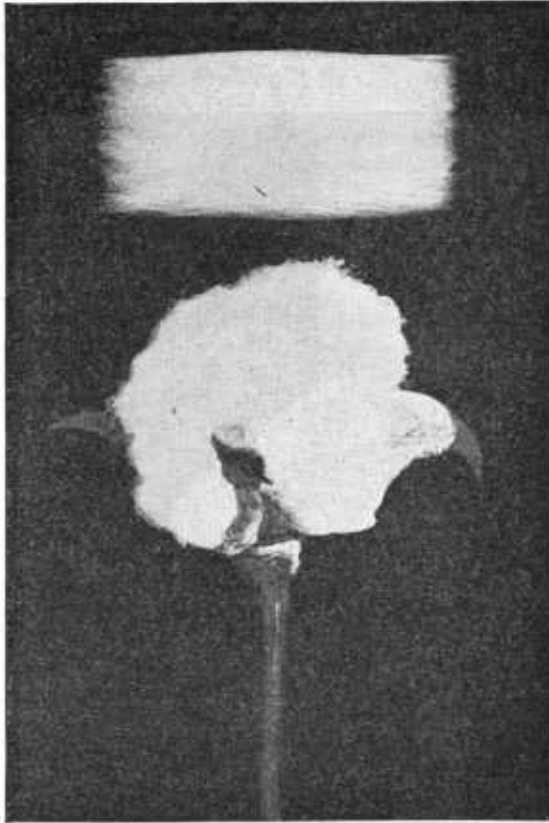


FIGURE 31.—Sea-island cotton boll. (Natural size.) It costs several times as much to pick the small bolls and roller gin the sea-island cotton as it does for upland cotton

problems of restoring a satisfactory outlet for the fiber, if and when it is produced, are equally important with the problems of production. (Fig. 31.) A regular supply of the sea-island fiber must be assured in order to reestablish an American market, and, by the same token, a fair price for the fiber must be assured to the growers in order to encourage organized effort to establish isolated sea-island communities where the seed can be kept pure and the quality of the fiber maintained.

Planting of Sea-Island Not Advised

Intensive studies of these and other fundamental problems of production are being made by the department in cooperation with growers and manufacturers. At present, satisfactory market arrangements have not been worked out with manufacturers, and until more information is available, farmers are being advised not to plant sea-island cotton on a large scale anywhere in the continental United States.

C. B. DOYLE, *Bureau of Plant Industry.*

COTTON Progressively Lowered in Grade by Exposure, Tests Show

Weather and exposure lower the grade of cotton. Every cotton farmer knows this and tries to pick his cotton under the best conditions as soon as possible after the bolls are ready. How much change takes place with exposure, and what kind of change, has never been known.

The universal standards for grade of American upland cotton recognize five color classifications which are put up in physical form, Extra White, Blue Stained, White, Yellow Tinged, and Yellow Stained, and three descriptive classes, Gray, Spotted, and Light Stained. Within each class there is a wide range of color variation, as in the white grades in which the color varies from the very light creamy cottons of Good Middling and above to the dark spotted cottons included in Good Ordinary.

In order to make a preliminary survey that would reveal something about these different colors, what caused them, how stable they are, and other characteristics, a study was undertaken in the 1930 season on cotton grown at the South Carolina Experiment Station at Clemson College. The study was limited to the factor of exposure.

The method of procedure was: In September, when the cotton was opening profusely, a great many newly opened bolls were tagged for future consideration. A certain number of these tagged bolls were picked on the date of tagging and at regular intervals for several days,

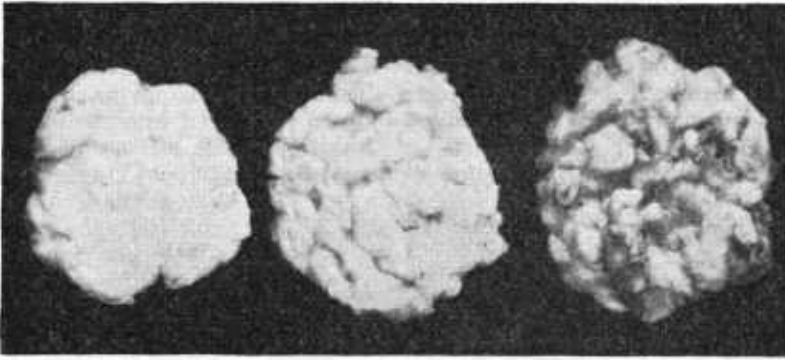


FIGURE 32.—Exposure alone causes these differences. The cottons were ready to pick by mid-September. The samples illustrated were picked during the latter part of September, the middle of December, and the first of March

then daily for approximately two weeks, and weekly thereafter as long as there were tagged bolls remaining on the stalks. This provided a series of the same cotton, grown in the same field, under identical conditions. (Fig. 32.)

Definite Color Trend Shown

The samples were small, hand picked, and hand ginned, yet they provided excellent material for a study of the actual fiber color change. Although they are not entirely representative of grade since they contain so little trash, yet the grade given to them by Government classifiers lowers regularly from the first to the last of the season and follows the same trend that would take place in the classification of commercial samples. During the first two weeks after tagging, all of the samples graded Strict Good or Good Middling White or Spotted. The last sample to grade in the White grades was picked on the eighteenth day after tagging. From that time on the samples graded progressively through Good Middling Spotted, Good Middling Gray, Strict Middling Spotted and Strict Middling Gray, Good Middling Blue, Middling Spotted, Strict Middling Blue, Strict Low and Low Middling Spotted, and finally became so low in color that they could not be

graded against the standards. Measurements of the color of these cottons show a very definite trend from light, somewhat creamy cottons of the high White grades down through the Grays to the low-grade Blue cottons. The spots which caused some of the higher grades to fall into Spotted classifications seemed to be of different origin from those of the low grades, the general background color of the low grades being gray or blue even though they were called Spotted cottons. The measurements showed that the cottons picked after the middle of January were so low that there are no equivalent grades for them.

This study covers only one eastern cotton under weather conditions of 1930-31. Cottons from several sections of the Cotton Belt were studied in 1931, with many additional laboratory tests made upon them in order to discover correlated factors; that is, as the grade deteriorates by exposure, what other changes in characteristics occur that affect the spinning utility of the cotton.

It is a significant fact that exposure in the field for only two or three weeks after the bolls first open will lower the grade of the cotton.

DOROTHY NICKERSON, *Bureau of Agricultural Economics.*

COTTON Root Rot Causes Great Loss in Southwest; Control Problem Unsolved

During recent years, studies in Texas and Arizona have resulted in an increased knowledge of the habits and life history of the cotton root-rot fungus (*Phymatotrichum omnivorum* (Shear) Duggar) which

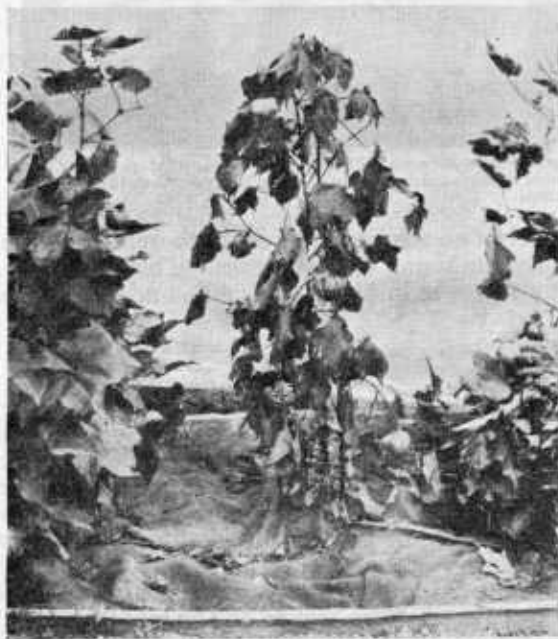


FIGURE 33.—Characteristic appearance of a cotton plant dying from effects of the root-rot fungus

causes the serious root-rot disease in these and other Southwestern States. (Fig. 33.) The disease is most prevalent in Texas, where it causes losses estimated at \$100,000-000 annually. It is also responsible for serious losses in parts of Oklahoma, Arkansas, New Mexico, Arizona, southern California, and northern Mexico.

The disease attacks not only cotton but alfalfa and many important field crops, vegetables, fruit and shade trees, berries, and ornamental plants. (Fig. 34.) Texas investigators have listed 274 species of cultivated plants and about

350 noncultivated species which serve as hosts of the fungus. The root-rot fungus is undoubtedly native to most of the areas where it occurs, as it is found on wild plants remote from cultivation, and