# COTTON AND THE GENERAL AGRICULTURAL OUTLOOK

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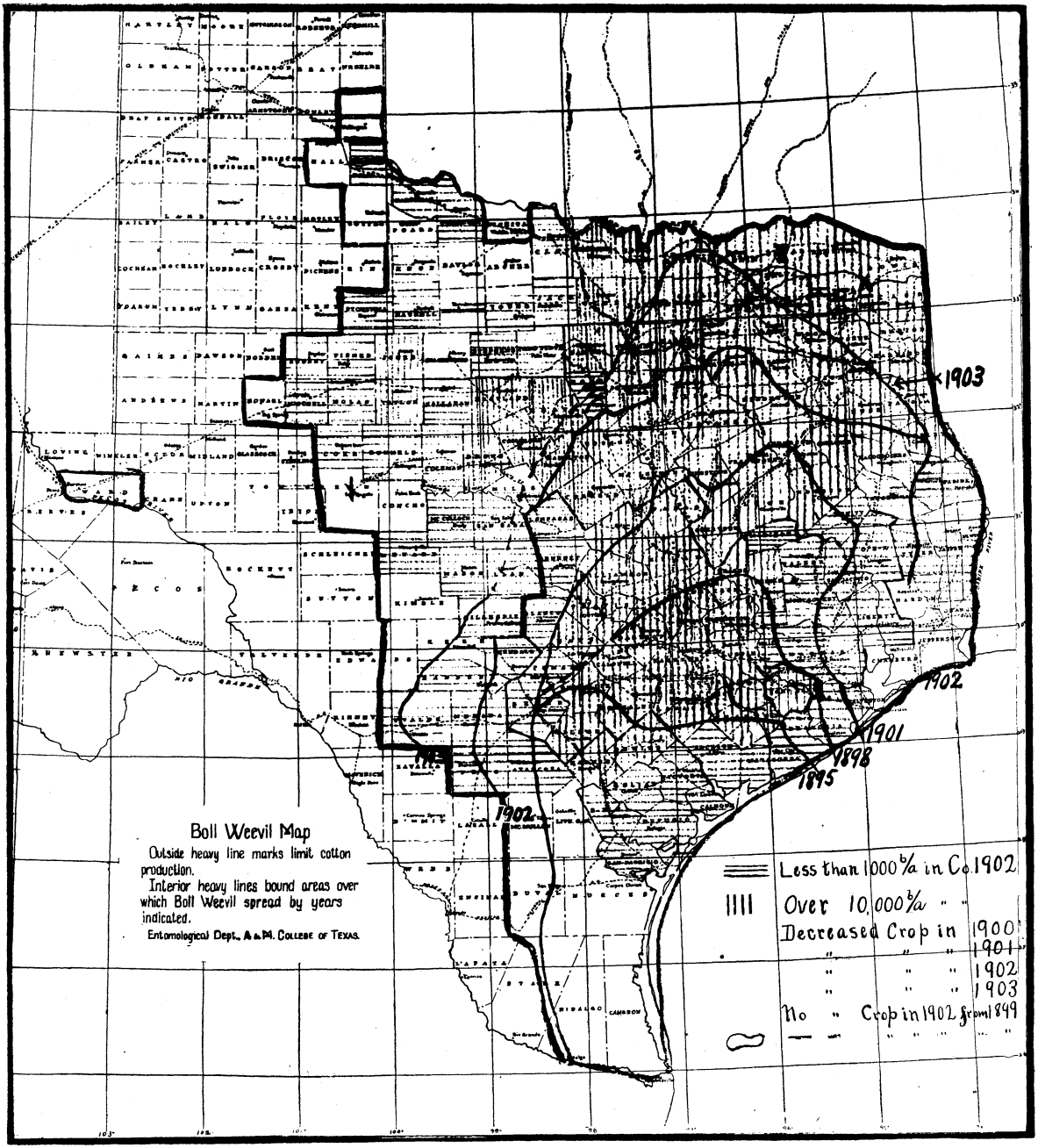
I shall not waste the time of this body in emphasizing the importance of cotton as a commodity or in discussing the unique position which it holds. It is one of the commodities which has a world-wide demand. Its production, however, is confined, for the most part, to a particular section of one of the countries of the world. Up to within the last year or two little or no apprehension was felt as to the possibility of a practically indefinite increase in its production. Conditions had been such as to justify the expectation that the South alone would be able to meet the world's demands for a long time to come. The increase in the quantity of this product from the beginning of the 19th century to the beginning of the 20th century, with the exception of the period from 1860 to 1875, had been rapid and steady, particularly so after 1850 when the southwestern trans-Mississippi territory was opened up.

Within the newer and more fertile territory, from which the largest increase was expected, there has appeared a destructive cotton insect, the Mexican boll weevil, which constitutes the greatest menace to cotton production that the cotton farmer has had to face. And it so happens that within the short time in which this pest has been most active, unfavorable climatic conditions have prevailed over the entire South, resulting in a marked lessening of the yield in most sections. It is not remarkable, therefore, that much apprehension has

been felt throughout the world that there may be a permanent decrease in the supply of cotton, and that startling developments have presented themselves on the cotton exchanges. A careful discussion of the situation is, therefore, especially opportune.

Let us consider first the Mexican boll weevil as a factor in the production of cotton. This insect has been known to scientists for more than a generation. It was first described by a German naturalist in 1878. It is probably a native of Mexico or of Central America. It made its appearance in Texas in 1892–93, near Brownsville. Since that time it has spread rapidly, moving at the rate of forty or fifty miles a year without materially lessening its numbers over the territory as it advanced. By 1895, it had advanced as far north as a line drawn from San Antonio to Columbia, near the mouth of the Brazos river; by 1898, to the neighborhood of Navasota and Bryan; by 1901, to Waco and Palestine; and by 1903, to the neighborhood of Brownwood on the west, Sherman on the north, and beyond Nacogdoches on the east; or on the west well on towards the ranch section, on the north nearly to the Red River, and on the east to within a short distance of the Louisiana line, covering more than 5,000,000 acres of the 7,000,000 planted in cotton, affecting a region which, in 1899, produced more than 2,000,000 out of a total production in the state of 2,600,000 bales.

The rate of increase of the insect is remarkably rapid. Each female lays from 50 to 150 eggs during the course of a month or six weeks. It lives a month or more, and it is estimated that each insect will destroy two or three squares a day. Its habits are such as to render it proof against any means yet devised for its destruction. It


1903
1902
1901
1898
1895
1902
Boll Weevil Map
Outside heavy line marks limit cotton production.
Interior heavy lines bound areas over which Boll Weevil spread by years indicated.
Entomological Dept., A. & M. College of Texas.
Less than 1000 lb/a in Co. 1902
Over 10,000 lb/a " "
Decreased Crop in 1900
" " " 1901
" " " 1902
" " " 1903
No " Crop in 1902 from 1849
" " " " " "

feeds on nothing but cotton, and entrenches itself in the squares or in the bolls where it is protected against chemicals or poisons, and from which it can be taken only with considerable difficulty. During the winter it hides in the crevices of the ground, or under bark, pieces of wood, or trash of any kind. That it can not be destroyed by any human device is practically conceded by all the entomologists. In the next few years it will certainly cover every section of Texas; and that it will spread over the cotton area of Oklahoma, Indian Territory, Arkansas, Louisiana, and ultimately over the entire South, is fully expected.

While people in their panic have probably attributed to this insect damage which has been done by other insects such as the boll worm, by diseases such as the root-rot, and by unfavorable climatic conditions, still there is ground for believing that in one year alone it has destroyed 240,000 or 300,000 bales with a value of $12,000,000 to $15,000,000. In seven counties running from west to east, selected from the area in which the insect appeared before 1895, the production between 1899 and 1902, decreased from 98,225 bales to 88,967 bales; in seven counties in the area in which it appeared between 1895 and 1898, the production decreased, between 1899 and 1902, from 247,579 to 129,817 bales; and in seven counties in which it appeared between 1898 and 1901 there was a decrease, between 1899 and 1902, from 279,935 to 180,071 bales. In the area in which it appeared between 1901 and 1903, the damage was not so great and there was an actual increase of production between the dates mentioned. But it is undoubtedly true that in the year 1903, over this area, the destruction has been enormous. On the

other hand, in seven counties, running from west to east, selected from the area not yet affected by the boll weevil, the production increased, between 1899 and 1902, from 151,000 to 175,000 bales, while in a second set of seven counties, likewise selected from the non-boll weevil area, the production increased, in the same period, from 197,000 to 265,000 bales. The difference between the yield in the boll weevil section and in the non-boll weevil section is too great to be explained by differences in climatic conditions. For the most part, these were substantially the same over the entire state.

Everywhere men are asking what the outcome will be. Will cotton production be discontinued in a vast and fertile territory from which the largest increases have been obtained in the last few decades, and from which the largest increases have, until recently been expected? The answer given to this question by all of the experts, and by the greater number of intelligent, practical farmers is in the negative. The prevailing opinion in Texas is that while it is probably useless to attempt to exterminate the boll weevil, a profitable crop can be raised in spite of it by the employment of approved methods of cultivation. It has been demonstrated by experiments carried on by experts of the federal Department of Agriculture and at the Agricultural and Mechanical College of Texas, that by careful preparation of the soil, by early planting, by using seeds of early maturing varieties, by keeping the fields scrupulously clean, and by persistent and late cultivation; in short, by using methods which a farmer should use, and which are not much more expensive than those that ought to be employed were the weevil not present,—cotton can continue to be raised with a profit. The

effect of such methods, it is claimed, will be to make the cotton mature before the boll weevil becomes active. It has been discovered that it does not begin to do damage on a large scale until the latter part of July or the first of August, its early or late advent and activity depending, in considerable measure, on whether there is much rain fall or general atmospheric moisture.

But still there is room for a considerable amount of pessimism. Farmers are conservative; most of them possess comparatively little initiative, and vast numbers of them find it difficult to secure the requisite equipment in the way of seed, machinery, stock, and the labor necessary to make intensive cultivation possible. The situation calls for a campaign of education by every agency that can be employed, and even then progress will be slower than many people expect. It is probable that in time each farmer will, in planting cotton, limit himself to an area which he can cultivate with scrupulous care, and that those farmers who cannot muster up the intelligence and initiative will be crowded to the wall and will be compelled to direct their attention to other crops and to live stock, with immense gain to themselves and to their communities.

Turning for a moment to the production of cotton in the South as a whole, outside of the boll weevil area, and eliminating the boll weevil from consideration, there is no reason whatever for apprehending difficulty in securing, under normal conditions, a large increase in cotton production. In each state there are still tracts of land not devoted to any crops which can be put into cotton, and it may be said with some assurance that there is scarcely a farm in the South on which more cotton cannot be raised by the employment of better methods of

cultivation. Reasons that have been assigned for the decrease in the cotton crop since 1900, such as the deterioration of seed, the migration of some farm labor to the cities, and the tenancy system may be dismissed without serious consideration. It is undoubtedly true that exceedingly careful attention should be given to the selection of seed and to cotton breeding, and that everything that can be done should be done to retain on the farm the more intelligent labor and to increase the efficiency of tenants. But it cannot be safely argued that there is anything in this direction which goes to explain the decrease in the crop since 1900. There is good reason for thinking that there has been an improvement in the cotton seed used by vast numbers of farmers. It is undoubtedly true that the agricultural population in many sections of the South has not only absolutely but also relatively increased. The statistics of the federal census show that white cash tenancy farming and black share tenancy farming give a larger yield per acre than ownership farming by either whites or blacks, and that negro cash tenancy farming and white share tenancy farming are only slightly less productive than white ownership farming, and are more productive than black ownership farming. The explanation of this probably lies in the fact that those who own, and supply tenants, are more intelligent, furnish more efficient machinery, and give more efficient direction to the labor than can the average owner. And the superiority in point of production of the negro share tenant over the white share tenant is probably due to his greater readiness to receive and carry out directions. The census of 1890 gives the following yields per acre for each class of farmer, white and black.

White: owner 0.398, cash tenant 0.403, share tenant 0.380. Black: owner 0.364, cash tenant 0.381, share tenant 0.400.

Passing to the second and more general part of my topic, the general agricultural outlook, I shall endeavor, by reference to recent developments, to suggest the agricultural tendencies and probabilities.

Speaking summarily, the South has, in recent years, made great advances which will become more marked as time passes. In the production of the old staple crops, it has made remarkable progress. The improvements in the methods of production and in farm equipment have been no less striking than the increase in the yields of the various crops. New and very fertile land has been appropriated, and land already under cultivation, has been more satisfactorily tilled. In 1860 the total number of bushels of corn produced in the Southern states under discussion, was less than 230,000,000, and it did not exceed this figure until 1890, when it reached 272,000,000, while within the next ten years it amounted to more than 378,000,000. The total tonnage of all forage crops produced in 1859 was less than 930,000, and it was not until after 1880 that the production again reached this point, while in 1899 the yield exceeded 3,200,000 tons. The total value of all live stock, reported in the census of 1860, was approximately $331,000,000, which figure was not reached again until about 1890, while the census of 1900 reported a total valuation of approximately $525,000,000. The foregoing figures sufficiently suggest progress along old lines.

The main advances along new lines have shown themselves in truck and fruit farming. Time will not suffice to enter into details in this direction, but the statis-

tics for Irish potatoes, which may be taken as an index of the truck crops for the South, of local market garden products, and of the principal fruit trees, will be representative. In 1859 there was a total production of Irish potatoes of 5,460,000 bushels, a figure which was not exceeded until after 1880, while in 1899 the production exceeded 12,000,000 bushels. The statistics for local market garden products are still more striking. They do not extend back beyond the XIth census. That census reported products with a total value of $3,775,000, while the census of 1900 reported products with a valuation exceeding $18,000,000. The development of the fruit growing interest has been no less rapid. The census of 1890 reported more than 33,500,000 apple, peach, pear, and plum trees, while that of 1900 reported approximately 67,500,000.

Interesting tendencies are revealed by the statistics of the number and acreage of farms, and of the value of farm implements, machinery and farm products. The number of farms has increased enormously, while the size of the farm has diminished steadily, and the value of farm implements and machinery has, in the last decade made a gratifying advance. The number of farms which, in 1860, was less than a half million, in 1900 was only a little less than 2,000,000 and the average size of the farm, which in 1860 exceeded 410 acres, in 1900 was approximately only 125 acres. In 1860 the value of farm implements and machinery was returned at $75,000,000, which point was not reached again until in 1890, while in 1900 the total valuation exceeded $122,000,000. All this contributed to the increase in the total value of farm products from $412,500,000 in 1870 to more than $952,500,000 in 1900.

It will be observed, speaking generally, that the South did not recover from the Civil War and the disruption of its social and economic system until about 1890. When we remember that the South, for the first time in her history, attained a normal industrial position about 1890, and that she has had only a little more than a decade under which to secure expansion under normal conditions, we are amazed at the vast results secured. The future will be a continuation of the recent past on a large and intense scale. We shall witness a remarkable growth of better farming, a large increase in modern equipment and machinery, satisfactory improvements and a rapid diversification in the staple crops and a tremendous uplifting in the intelligence and prosperity of the people.