

the plants were subjected to the freezing temperatures. On the other hand, the ears from the plants on the more productive soil had increased in weight and were almost as heavy as the ears from comparable plants not exposed to the freezing temperatures.

There is no doubt that corn plants are more resistant to cold, both in the young plant stage and in the maturing stage, when grown on more productive soil. An intelligent soil-improvement program to increase the productive capacity of the soil helps to reduce the loss hazard to the corn crop from untimely frosts. The growing of legumes and, where needed, the application of fertilizers in proper amounts not only increase the productive capacity of the soil, but yields and quality are improved because of the longer growing season for the corn.

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COTTON Exports of U. S. Reflect Continuously Shifting World Market

The United States has been the leading source of the world's cotton supplies for the last century. Although there has been a rapid increase in the domestic consumption of American cotton during this period, more than one-half of the cotton grown in the United States continues to find an outlet through foreign markets. American cotton is used in the mills of every important cotton-consuming country of the world, and in a majority of these countries more than one-half of all cotton consumed is American. Although domestic markets for American cotton are increasing in importance, the prosperity of the cotton industry in this country is dependent, among other things, upon maintaining extensive foreign markets for the sale of this raw material.

The several market outlets for American cotton are continually changing in importance. These changes usually affect both the quantity and quality of cotton taken or consumed. Sufficient data are not available to determine the changes which have taken place in quality of cotton consumed, but quantitative data which are available on the exports and consumption of American cotton reveal some rather significant shifts.

One hundred years ago, when total domestic consumption plus exports were only about one-half million bales, Great Britain and France were the only markets of any consequence to which American cotton was exported. (Fig. 31.) During the 5-year period 1824-25 to 1828-29 average annual exports of American cotton to Great Britain made up 60 per cent of total distribution (domestic consumption plus exports). During this same period about 20 per cent was exported to France, 1 per cent to Germany, and about 3 per cent to other European countries. Domestic consumption at that time was about 16 per cent of total distribution, and Asiatic markets were of no appreciable consequence. It will be noted that a century ago domestic consumption together with exports to Great Britain and France accounted for about 95 per cent of the total distribution of American cotton.

Present Proportional Distribution

Comparing the average annual figures for the current period, 1924-25 to 1928-29, with those of a century ago, it is evident that some

marked changes have taken place in the quantities of American cotton exported to various markets. Great Britain and France no longer hold the predominant positions which they once enjoyed as export markets. The proportional distribution to Great Britain during the last century has declined from about 60 per cent to 14 per cent; to France, from 21 per cent to 6 per cent. These decreases have been absorbed largely by domestic mills, Germany, Italy, other European countries, and Japan. During the century the average annual consumption in domestic mills increased from 16 per cent to 43 per cent; Germany, from 1 per cent to 13 per cent; Italy, from practically nothing to 5 per cent; other European countries, from 3 per cent to 8 per cent. Japan was taking no American cotton a century ago, as compared to takings amounting to 8 per cent of total distribution at the present time.

Marked changes have also occurred in the importance of the different countries with respect to mill consumption of American cotton since

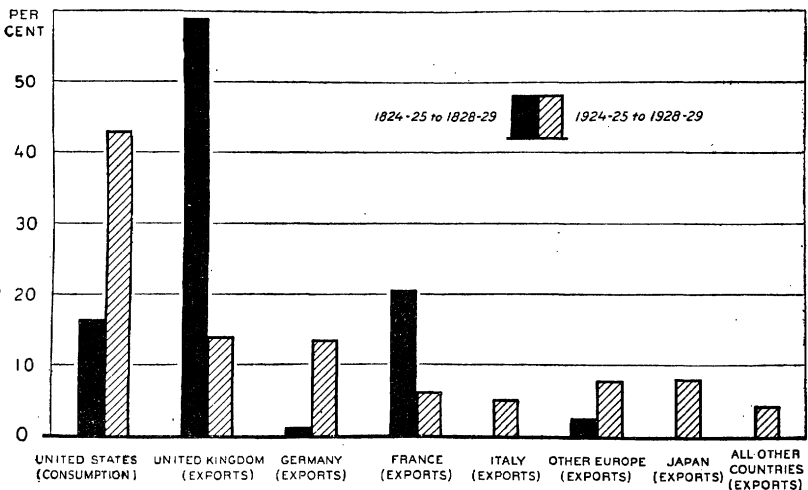


FIGURE 31.—Percentage distribution of American cotton, specified countries, average annual 1824-25 to 1828-29 and 1924-25 to 1928-29

the period immediately preceding the World War. (Fig. 32.) Average annual world consumption of American cotton between the periods 1909-10 to 1912-13 and 1925-26 to 1928-29 increased about 1,800,000 bales, reaching the highest level on record. Comparing recent years with pre-war years, the losses and gains in consumption of American cotton outside the United States practically balance each other, leaving the increases in domestic consumption as a net gain.

Comparing recent years with pre-war years, consumption of American cotton in Great Britain has declined about 1,400,000 bales, or from 26 to 13 per cent of total world consumption. Other marked changes in consumption of American cotton have occurred in the United States and Japan. Consumption in the United States has increased about 1,800,000 bales, or from 36 to 44 per cent of total world consumption. Consumption in Japan has increased almost 800,000 bales, or from 2 per cent to 7 per cent of the total. Smaller changes in the consumption of American cotton have occurred in other countries during the period under review.

The last two or three years have witnessed significant shifts in the consumption of American cotton, some of which may prove to be permanent. Following the high level reached in 1926-27 there was a general decline in world consumption of American cotton. This decline has been especially marked during 1929-30. While nearly all important cotton-consuming countries have shared in this decline, it has been much more severe in some countries than in others.

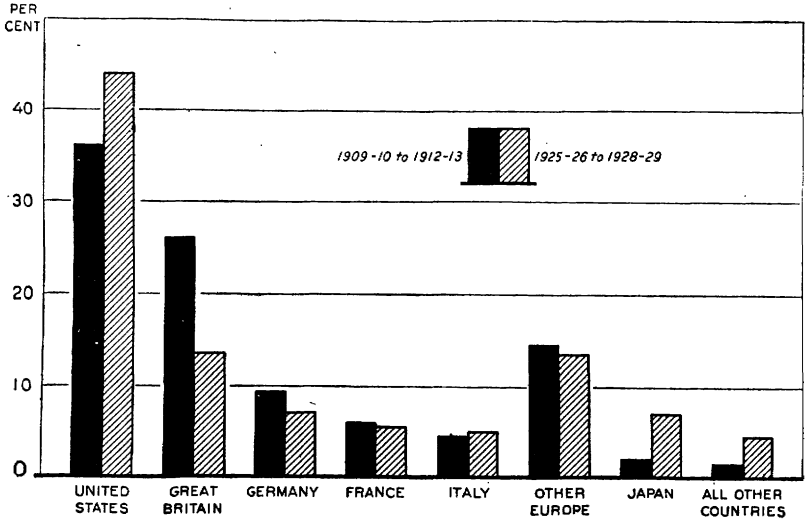


FIGURE 32.—Percentage of world consumption of American cotton in specified countries, average annual 1909-10 to 1912-13 and 1925-26 to 1928-29

Decreased Consumption in United States

Consumption of American cotton in the United States decreased about 350,000 bales in 1927-28, regained most of this loss in 1928-29, and decreased considerably in 1929-30. In Great Britain each of the last four years has shown a decrease from the preceding year in American cotton consumption. There was a slight increase in the amount of American cotton consumed in Germany during 1927-28, but decreases have occurred during the last two years. Japan, like the United States, shows a decline in 1927-28, a slight increase in 1928-29, and a decrease during 1929-30.

TABLE 1.—Distribution of American cotton in specified countries (average annual 1824-25 to 1828-29 and 1924-25 to 1928-29)

Country	1824-25 to 1828-29		1924-25 to 1928-29	
	Bales	Per cent	Bales	Per cent
Consumption, United States.....	1 90,946	16.5	6,457,000	43.0
Exports to—				
United Kingdom.....	324,677	58.9	2,114,752	14.1
Germany.....	6,520	1.2	2,003,399	13.4
France.....	113,313	20.6	889,086	5.9
Italy.....	645	.1	732,067	4.9
Other Europe.....	14,753	2.7	1,154,421	7.7
Japan.....			1,174,226	7.8
All other countries.....	383	(?)	483,552	3.2
Total.....	551,237	100.0	15,008,000	100.0

¹ 3-year average.

² Less than 0.1 per cent.

TABLE 2.—*Bales and percentage of world consumption of American cotton in specified countries (average annual 1909-10 to 1912-13 and 1925-26 to 1928-29)*

Country	1909-10 to 1912-13		1925-26 to 1928-29	
	<i>1,000 bales</i>	<i>Per cent</i>	<i>1,000 bales</i>	<i>Per cent</i>
United States.....	4,740	36.0	6,592	44.0
Great Britain.....	3,368	25.6	2,007	13.4
Germany.....	1,259	9.6	1,009	7.3
France.....	775	5.9	828	5.5
Italy.....	594	4.5	711	4.7
Other Europe.....	1,940	14.7	2,045	13.6
Japan.....	272	2.1	1,048	7.0
All other countries.....	214	1.6	666	4.5
Total.....	13,162	100.0	14,996	100.0

Very little fluctuation has occurred in the amount of American cotton consumed in France during the last four years, and consumption of this growth in Italy has been maintained at a relatively high level during recent years. The textile industries of France and Italy experienced somewhat less depression during 1929-30 than did most of the other important consumers of American cotton. Russia, Czechoslovakia, Spain, and Poland are among the countries which have shown decreased consumption of American cotton during the last two or three years; while Belgium, the Netherlands, and Canada are among those in which, until 1929-30 at least, American cotton consumption has been maintained or increased.

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COTTON More Productive When Thick Spaced for Small Upright Plants

"Thick spacing" is the farmer's expression of the contrast between the present practice in thinning cotton and that of the early years of the weevil invasion, when wide spacing or checkrowing was considered desirable, with the plants 2 or 3 feet apart. Much closer spacing is now advised, with the plant separated only a few inches, or with two to four plants left in hills at 12 or 14 inches. Several times as many plants are left in the fields as formerly, 30,000 to 60,000 plants per acre instead of 5,000 or 6,000. Closer spacing than a "hoe width" between the hills encounters difficulties of thinning by hand or of special methods of seeding. Moderate "natural stands," with the plants averaging 2 to 4 inches apart in the rows, often do not need to be thinned, so that in some districts the labor and expense of "chopping" are avoided. The method is of general application where cotton is grown as an annual, but adjustments to local conditions require further investigation. Thus in dry districts a wider separation of the rows is indicated, but with the plants close in the rows.

An agricultural invention was made by learning how the form and size of the plants could be controlled, and how small upright plants could be used to better advantage than large spreading plants, under the short-season conditions imposed by the boll weevil. The early indications of larger yields from thick-spaced cotton have been confirmed by many tests at State experiment stations, which have served