Working draft

COTTON

CONSIDERATIONS RELATING TO THE INTERMEDIATE-TERM OUTLOOK FOR COTTON IN THE UNITED STATES*

This report considers some of the major factors that may affect the outlook for cotton in the period 1950-54 under two levels of national income and employment (table 1). The first situation represents a continuation of high employment with disposable income per capita at about 1948 rates despite somewhat lower prices. The second would involve one-fourth less disposable income per capita, and 10 percent less employment. These two levels are assumed to be as high or as low as national levels of economic activity will average annually during the five-year period, although levels within any one year may rise above or fall below those indicated; the average for the five years is assumed to be within the limits of this range. It is anticipated in both situations that total population will be about 4 percent larger than in 1948, and that financing of agricultural exports will have reverted by 1952 to more nearly normal channels.

SUMMARY

Future production of cotton will be influenced by demand, both foreign and domestic; changes in costs of producing cotton relative to costs of other crops; and the effect of changes in business activity particularly as they are reflected in off-farm employment and farm wage rates. The price farmers receive for cotton will be affected by these factors and by provisions of current legislation affecting cotton.

The level of domestic mill consumption of cotton during the next five years will depend, in a large measure, on the level of economic activity and of disposable income in this country. The supply of artificial fibers, particularly rayon, and the price relationship between them and cotton and the extent to which foreign markets for United States cotton textiles are maintained are also important factors.

Exports of raw cotton from the United States over the next few years will depend, to a large degree, on the ECA program as it affects the rehabilitation of the cotton textile industry in Europe. The volume of exports of raw cotton from the United States after ECA and other assistance programs end will depend on several factors. The

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Table 1.- Projections of gross national product and related data, 1950-54

Series	Unit or base	1935-39 Average	1947	First half 1948	1950-54 High	1950-54 Low
Gross national product	Bil. dol.	84.0	231.6	1/ 246.0	245	175
Disposable income	Bil. dol.	66.2	173.6	1/ 185.5	190	145
Total population	Million	129.0	144.0		152	152
Total labor force	Million	54.3	61.6	61.8	63.4	63.4
Employment	Million	44.9	59.4	59.6	60.4	54.4
Unemployment	Million	9.4	2.1	2.2	3.0	9.0
Consumer prices	1935-39=100	100	159.2	169.1	155	140
Wholesale prices	1926=100	81	151.8	163.5	140	120
Prices received by farmers	1910-14=100	107	278	291	225	175
Prices paid, interest and taxes	1910-14=100	128	231	250	215	195
Ratio prices received prices paid	1910-14=100	84	120	116	105	90
Volume of farm marketings	1935-39=100	100	143		145	145
Value of agricultural exports	Bil. dol.	.7	3.9	3.3	1.7	1.3
Cash receipts from farm mktgs.	Bil. dol.	8.0	30	-	25.0	19.0
Realized net income of farm operators	Bil. dol.	4.8	18	-	14.0	10.5

1/ Seasonally adjusted annual rates.

ability of importing countries to pay for cotton in dollar exchange is one of the most important. This, in turn, depends on the success of economic rehabilitation in these countries and on their ability to reestablish their export trade in cotton textiles. The price of United States cotton in relation to other growths and to other competitive fibers will also be an important factor in determining the quantity of cotton exported.

Under the high level of economic activities, domestic mill consumption plus exports might average 12 to 13 million bales annually during the 1950-54 period, whereas under the lower level of economic activities, annual disappearance of United States grown cotton might drop as low as 10 or 11 million bales especially if exports can not be maintained in sizeable volume.

Each year since 1941, annual domestic mill consumption plus exports of cotton have about equalled or exceeded production. Stocks of cotton in the United States have decreased from about 13 million bales on August 1, 1938 to about 3 million bales in 1948. This situation has been brought about by acreages lower than those during the prewar period coupled with high domestic mill consumption. The big crop in 1948, which is largely the result of a record high yield, probably will add about 2 million bales to the carryover. Thus on August 1, 1949 the carryover of cotton in the United States might be about 5 million bales. Currently, domestic mill consumption plus exports are expected to be about 13 million bales between August 1, 1948 and July 31, 1949. Unless the acreage planted to cotton in 1949 is considerably less than the 1948 acreage or unless yields in 1949 are considerably below normal the supply situation, as defined in the 1948 Act, will be such that marketing quotas probably would be proclaimed for 1950. The size of the acreage which farmers plant and the yields obtained in 1949 will have a very important effect on the cotton situation during the next few years.

Under the provisions of the Agricultural Act of 1948, price supports will be continued. In 1949, prices will be supported at not less than 90 percent of parity. In 1950, and subsequent years prices will be supported at not less than 60 percent nor more than 90 percent of parity depending on the level of supply. If acreage allotments are in effect at the time of planting or if marketing quotas are in effect at the beginning of the marketing year, support prices will be increased by 20 percent but not to exceed 90 percent of parity.

Under the existing laws for determining cotton acreage allotments, 27 million acres is about as small an acreage as can be allotted. In 1938-42 farmers planted an average of about 24 million acres and produced an average of about 12 million bales. This acreage is only slightly higher than the 1948 acreage, however, the distribution among areas was quite different from that of 1948. Acreage allotments

under the existing regulations for their distribution, would retard shifts in cotton production which have been taking place among areas. In areas such as the Deltas, the High Plains and the irrigated areas, where cotton acreage has been increasing, the minimum acreage allotment based on the method used in the 1938-42 period for distributing them may be lower than the acreage planted in 1948, whereas in most other areas acreage allotments probably would be higher than the acreage planted in 1948.

Under the high level of economic activities, the production and disappearance of cotton during the 1950-54 period might be fairly well in balance. But under the lower level of economic activity, off farm employment opportunities and the demand for other products as well as for cotton would be less. Since cotton is a heavy user of labor, this would tend to improve the relative position of cotton compared with alternative enterprises that use less labor. It is quite likely, assuming support prices at the level of the 1948 Act that production would exceed consumption.

For the longer term, acreage shifts among areas probably will continue. Mechanization and other technological developments will continue. But the changes may be retarded unless regulations pertaining to distribution of allotments are changed.

CONSIDERATIONS RELATING TO THE INTERMEDIATE-TERM OUTLOOK FOR COTTON IN THE UNITED STATES

SITUATION IN RECENT YEARS

Very significant and far reaching changes have taken place both on the consumption and production side of the cotton picture during the last 20 years. These changes are discussed here because some of the factors which have caused them are still at work. New considerations are arising.

Domestic Consumption

The most important change in the consumption of cotton is the declining trend in cotton's share of the total consumption of the four major fine fibers. The other change is in the increase in the total consumption of cotton.

Twenty years ago cotton accounted for 86.5 percent of the domestic mill consumption of all apparel fibers in the United States. Rayon and other artificial fibers were in infancy then and comprised only 2.5 percent of the total consumption. Wool accounted for 8.5 percent while silk and flax made up the remaining 2.5 percent.

Today those proportions are quite different. In the 1947-48 season cotton had decreased to about 73 percent of the consumption of all apparel fibers, while rayon had increased to about 16 percent of the total. Wool increased slightly with 11 percent while silk and flax had about dropped out of the picture. The share of cotton in the four fiber total has decreased each year since 1942.

Before World War II the largest industrial use of cotton was in the construction of automobile, truck and airplane tires. In the calendar year, 1939, 97 percent of all tire fabrics and tire cord were of cotton. In 1947, only 60 percent of all tire fabrics and cord were produced with cotton. Rayon's share was 40 percent and with the existing price relationship between rayon and cotton, substitution would have been even greater if larger quantities of rayon had been available.

Deliveries of rayon to consuming establishments in the United States are higher today than at any time in history. The 1935-39 deliveries of rayon averaged 2.6 pounds per capita. For the three cotton crop marketing years 1945-47, the average had increased to 6.4 pounds which is 3.7 pounds or 135 percent above the 1937-39 average. In 1947-48, the per capita deliveries were 7.2, one full pound higher than for any previous year. At the current rate, deliveries for the calendar year, 1948 will exceed 1 billion pounds for the first time

in any twelve-month period. One billion pounds of rayon is equivalent to about 2,350,000 running bales of raw cotton. Assuming 9 million bales domestic mill consumption of cotton during the calendar year, rayon would account for over 20 percent of the combined consumption of the two fibers.

Not very many years ago sugar, flour, cement and a host of other products were packaged almost entirely in cotton sacks. Today a large portion of these products are packaged in paper sacks. These are only two of the many fields in which cotton is being challenged.

In spite of the decrease in cotton's share of total fiber consumption, the per capita domestic mill consumption of cotton now is higher than 20 years ago. From 1911-1939 per capita mill consumption of cotton averaged 26.1 pounds with a high in 1916 of 31.9 pounds and a low in 1931 of 19.1 pounds. The average per capita consumption for the three postwar crop years, 1945-47 was 32.4 pounds, which is 3.8 pounds or 13 percent above the average for the three prewar crop years 1937-39. In 1947-48 the mill consumption was 31.4 pounds per capita, slightly lower than for either of the two preceding years but 3.7 pounds above 1927-28. At the close of World War II the demand for cotton textiles by civilians was the highest in history. This demand stemmed from several sources - from households in moderate income brackets which had allowed wardrobes and furnishings to dwindle during the war; from servicemen who had married during or right after the war and had to completely stock up on house furnishings and civilian clothes; from families that prior to the war were in low income brackets but during and after the war were in moderate income brackets and spent much of the increased incomes, at least until recently, on wardrobes and food.

Of course, some of this high per capita production was used to restock inventories at wholesale and retail levels that in some items had been practically exhausted. Exports of cotton textiles during the last three crop years also have been high, accounting for about 10 percent of total domestic mill consumption whereas the 1935-39 average was only 3 percent.

The joint effect of the higher per capita mill consumption and the larger population since World War II has been to increase total consumption of cotton about 40 percent over prewar. The annual total domestic mill consumption for the three postwar seasons averaged 9.5 million bales, 2.7 millions more than the three immediate prewar seasons.

Exports

In 1858, when it was proclaimed in the United States Senate Chamber that "Cotton is King", it was with reference to the importance of the export value of this crop to the economy of this country.

In those days, exports of cotton from the United States accounted for more than half of the value of all exports and twice as much as all other agricultural exports combined.

Cotton in this respect no longer is king. In the 1947-48 season exports of raw cotton accounted for only 2 percent of the value of all exports and less than 10 percent of all agricultural exports. These exports, slightly over 2 million bales, were the lowest for any peacetime year since 1871. Lack of dollar exchange in cotton importing countries was one important factor causing low exports. In general, available dollar exchange was used to import from the United States those commodities which could not be obtained from other countries. During the 1945 and 1946 seasons most countries had accumulated substantial stocks of cotton and therefore started the 1947 season with carryovers roughly equivalent to those of 1939. With mill consumption substantially below 1939 levels these countries were able to finish the season with minimum imports of cotton. Necessary imports were managed by barter with Egypt or India or by direct purchase from those countries which would accept sterling. Of course, stocks of cotton were reduced considerably during the year. It is estimated that the reduction in ECA countries including Germany was 1.2 million bales or 25 percent.

The relative position of countries producing cotton textiles was vastly changed during World War II. Prior to the war most cotton producing countries, excluding the United States, exported raw cotton and imported textiles. With exports of cotton cut off by the war and mill activities in importing countries drastically curtailed, at the sacrifice of export trade in textiles, mill consumption in the producing countries was greatly accelerated. In 1938, mill consumption in the western hemisphere and India was 11.3 million bales and in 1947, 15.2 million, an increase of 34 percent. In 1938, total domestic mill consumption in these areas accounted for 59 percent of total production, but in 1947 the proportion had increased to 87 percent. This change is partly responsible for world trade in cotton dropping from about 13 million bales annually before the war to about 9 million bales since the war.

Production

Cotton production during the last 25 years has been characterized by substantial decreases in acreage which have been accompanied by substantial increase in yields and a considerable shift in the location of production. Cotton plantings have varied from a high of about 46 million acres in 1925 to about 17.5 million acres in 1945 which was the smallest acreage since 1883.

The average acreage planted to cotton in the United States in the years 1943-47 was less than one-half (48 percent) as large as the average during the 1928-32 period. But the production was only 28 percent less. Lint yields per acre increased from an average of 170 pounds per planted acre in 1928-32 to 256 pounds in 1943-47 - an increase of 86 pounds or approximately 50 percent.

The changes in acreage and yields have been much greater in some production areas than in others. For example in the Deltas, the High Plains and in the irrigated areas of the West production was 11, 20 and 74 percent greater respectively in 1943-47 than in 1928-32. Whereas in the Sandy Land areas of east Texas, south Arkansas and north Louisiana and in some areas in Oklahoma cotton production was only 50 percent as large in 1943-47 as in 1928-32 (table 2). The irrigated areas and the Deltas accounted for 7.5 and 24 percent respectively of the United States production in 1943-47 compared with 3.1 and 15.7 percent respectively in 1928-32. While the proportion produced in Sandy Land area decreased from 8.5 percent in 1928-32 to 3.4 percent in 1943-47.

Among the more important factors contributing to higher average yields are increased use of fertilizer, improved cultural practices, more effective insect control, better planting seed and the shifting of acreage to higher yielding areas. The latter accounts for about 25 pounds, or nearly 30 percent of the increase in yields between the 1928-32 and 1943-47 periods.

These shifts in the acreage and production of cotton have been caused largely by changes in the relative profitableness between cotton and other farm enterprises which in turn has been affected by such factors as technological developments (both in cotton and other enterprises), changes in the availability of farm labor and in farm wage rates, off farm employment opportunities and changes in the price of cotton and the products of alternative enterprises.

THE CURRENT SITUATION

The carryover situation has changed materially during the last few years. World stocks of all cotton decreased from about 26.5 million bales at the beginning of the 1945-46 season to 13.2 million bales on August 1, 1948. A large part of this decline occurred in the United States. Heavy domestic mill consumption plus exports coupled with relatively low production during and immediately after World War II had reduced the carryover in the United States from a high of 13 million bales in 1938 to about 2.5 million in 1947.

On August 1, 1948 the carryover of cotton in the United States was about 3 million bales. This is only one-half million bales more than for the previous year which was the lowest since 1930. Disappearance, from August 1, 1948 to July 31, 1949, is expected to be about 13 million bales. Primarily because of the record yield per acre expected in 1948, the carryover on August 1949 is expected to increase to about 5 million bales. Under existing legislation marketing quotas probably will be proclaimed for the 1950 crop unless the acreage in 1949 is considerably smaller than in 1948 or unless yields in 1949 are considerably below normal.

FACTORS AFFECTING THE OUTLOOK 1950-54

Many of the trends and adjustments which have been influencing cotton's destiny will continue in the future, some at intensified rates others will be subdued and new factors will arise.

Prospective Domestic Consumption

The level of domestic mill consumption of cotton until the mid-1950's will depend in large measure on the level of industrial production and of disposable income. The supply of rayon, the price relationship between raw cotton and rayon, new or increased uses of cotton, and the extent to which foreign markets for cotton textiles are maintained are also important factors that will affect the rates of cotton consumption.

The level of industrial production affects the level of cotton consumption directly and indirectly. About 40 percent of the cotton consumed is used in the production of industrial goods. The remaining 60 percent is about equally divided between production of household goods and wearing apparel. Therefore, if industrial production and disposable incomes remain near the current levels, the level of cotton consumption, on a per capita basis, should remain high.

It is not likely, however, that per capita consumption would remain as high as the 1947 rate of 32.2 pounds. The supply of rayon and other synthetic fibers will have become more plentiful, due to expansion of productive capacity. It is expected that, unless striking technological improvements are made in the manufacture of cotton textiles and unless the ratio of the price of raw cotton to rayon staple fiber can be substantially reduced, the substitution of rayon for cotton will continue to increase.

As foreign textile mills are rehabilitated, exports of cotton textiles from this country are being reduced. If these exports should revert to their prewar proportion, as seems likely, domestic mill cotton consumption in the United States would be reduced by as much as 750,000 bales annually, which would be about 2.5 pounds per capita. This might be offset by increases in exports of raw cotton.

New uses for cotton such as insulation and plastic laminates are being developed from time to time. These will offset to some extent the decreases in cotton consumption due to the inroads of rayon and other synthetic fibers and the reduction in exports of cotton textiles.

The net implication of these considerations is a reduction from present levels in per capita mill consumption of cotton. In 1952, under the high level of economic activity, it is expected that the rate will be about 28 or 29 pounds and slightly less in 1954.

With a population in 1952 of 152 million persons, total mill consumption of cotton, under high levels of industrial production, would be about 8.5 to 9.0 million bales. The expected decrease in per capita consumption of cotton, however, more than offsets the effects of the probable increase in population. A decline in the levels of industrial production and disposable income would cause a decline in the consumption of cotton. Under the low level of economic activity, total cotton domestic mill consumption might be reduced by about 20 percent, or to about 7 million bales.

Prospective Exports

Exports of raw cotton from the United States until 1952 will depend in large measure on the amount and manner in which funds are provided by the ECA for the rehabilitation of the cotton textile industry in Europe. Proposed volumes of exports to the participating countries are about 2.5 million bales annually for the life of the program. These quantities to some extent represent the amount of cotton believed likely to be available for export after domestic requirements are satisfied and reasonable provision was made for the Orient, Canada and other usual takers. If production in this country increases over that of the last few years it is probable that an increase will be made in the quantities available for export under ECA.

Prewar Europe and Japan were large producers and users of synthetic fibers. The bulk of the production in Europe was in Germany and Italy where the substitution of rayon for cotton was a governmental policy. Production since the war has been much smaller because of war damage to plants and because of shortages of coal and wood pulp. The need for cotton, therefore, is greater at the present time than prewar. However, the more difficult it becomes for these countries to procure raw cotton, the more intensified will be the efforts to shift to the production of rayon.

Exports of American cotton after ECA and other assistance programs end depend on several factors. The ability of the European countries and Japan to pay for cotton in dollar exchange is one of the most important. This in turn, will depend on the success of economic rehabilitation in these countries and their ability to reestablish their export trade in cotton textiles. The price of United States cotton in relation to that of foreign cotton also will be important in determining the size of exports of United States cotton.

The extent to which shifts to the production of rayon are made will also affect the requirements for imported cotton. Efforts also may be made to expand cotton production as much as possible in the minor producing countries which are markets for many of the European manufactured products, particularly if exchange difficulties and

bilateral trading agreements should continue. The United Kingdom is already bringing into production new Empire areas in Africa. It is doubtful that this expansion would be great but any expansion probably would be directly reflected in smaller requirements for American cotton.

Production

Among the more important factors which will affect the production side of the outlook picture during the next few years are (1) the supply of farm labor and wage rates (2) mechanization and other technological developments (3) the relative returns from cotton and alternative enterprises in the various cotton production areas and (4) government programs, particularly those designed for cotton. Price of cotton is of course, an important factor and it affects and is affected by these and other factors. Weather as it affects yield from year to year is also important.

Labor Supply

During and since World War II the relative shortage of labor and high farm wage rates have been important factors in keeping cotton acreage below that of prewar.

Farm employment has been declining since World War I in the major cotton producing areas and especially during the last 10 years. The downward trend in farm employment has been due in part to good non-farm job opportunities. Especially during the recent period of prolonged high employment, many farm families have been attracted to better paying jobs in industry. On the other side labor needs have been reduced by the mechanization of farm operations and the shifts to enterprises using less labor than cotton. In recent years the unavailability of labor when needed together with the higher wage rates have also encouraged many farmers to adopt more mechanized methods, to shift to other enterprises and to reduce their dependence on hired labor.

Between 1929 and 1947 the annual rate of decline in farm employment averaged about 1 percent in the ten leading southern cotton growing States. The rate of decline was slightly greater after 1939 averaging about 1.3 percent. If the 1929-47 rate continues to 1955 the number of farm workers in the 10 States would be reduced about 8 percent below the number employed in 1947. If the 1939-47 rate of decline continues the number would be reduced 10 percent by 1955. The higher rate of decline would be more likely under sustained high employment levels while the somewhat lower rate would be more likely under less favorable conditions.

The relative profitableness and availability of non-farm employment will have an important effect on the number of people who will

make themselves available for agricultural work in 1950-54. Under conditions of high level employment non-farm job opportunities probably will remain good and farm wages may average only slightly below 1947 levels. Such a situation would encourage the mechanization of the cotton enterprise in areas where adapted and the shift to crops using less labor in other areas.

Under the lower level of economic activity farm wage rates might be reduced significantly - perhaps 30 to 35 percent below the wage rates under the high level of economic activity. The lower farm wages and substantial unemployment might encourage cotton production somewhat, especially if these conditions psisted for several years, but it also would retard the rate of mechanization of farm operations.

Mechanization and other Technological Developments

Mechanization. Mechanization in the South, particularly of the cotton enterprise has lagged behind that of other major crops such as wheat and corn. This is due partially to the fact that efficient machinery had not been developed for performing the peak labor operations - chopping and harvesting. However, in recent years mechanization of land preparation and planting operations has increased rapidly. Numbers of tractors on southern farms more than doubled between 1940 and 1947. The number of tractors per 1,000 acres of harvested cropland increased from 2.4 in 1940 to 5.5 in 1947. Further evidence of the use of tractor power in cotton production is the increase in the proportion of land preparation, planting and cultivating of cotton done with tractor equipment. In 1946 approximately 60 percent of land preparation and 45 percent of cotton cultivation was performed with tractors. 1/ This is about double the proportion handled with tractors in 1940. This trend has been accelerated in recent years by the relative scarcity of labor, high wage rates and the fact that some enterprises could be completely mechanized. Increased mechanization and higher yields have reduced the man labor requirements per bale of cotton about 1/3 during the last 20 years.

New technological developments are on the horizon and the older ones are being adopted more generally. Mechanical cotton pickers, strippers, flame cultivators, mechanical choppers and other mechanical weed control techniques are now in limited use. Extensive experiments in the use of chemicals for weed and grass control are being conducted. These new technological developments are underway. How far and fast they will move is the subject of much research. Only broad guesses and generalization can be made at this time. As of today, mechanical harvesters are not very important in the cotton production picture. Probably not over 3 percent of the 1947 cotton crop was harvested mechanically, most of which was done with strippers. Only one implement company is in mass production on the mechanical picker.

1/ Use of Tractor Power, Animal Power, and Hand Methods in Crop Production FM-69.

Perhaps less than 1,500 mechanical pickers will be in use in 1948.

Other implement companies have experimental cotton pickers which are being tested. In the future some of these machines may prove to be as good or better than the machines now being used. However, over the next 3 to 5 years it is questionable if they will be available in sufficient numbers to harvest any substantial portion of the crop.

A large portion of the mechanical pickers are in the Delta areas and in California where farms are large, the land is level and where gins have been equipped to handle machine harvested cotton. The initial cost of the pickers is high ($7,500 to $8,000 in 1948 including tractor) and the grades of cotton picked by them are lower than grades of cotton picked by hand. Even so, preliminary results of a study in 1947 in the Delta area of Mississippi indicate its use is economically feasible when wages for hand picking are $2.50 or more per hundred pounds of seed cotton. Fuller and more expert use likely will increase the competitive position of the machine compared with hand harvesting. The use of mechanical pickers is expected to expand but at a fairly gradual rate, first on the larger farms and in high yielding areas. The rate of adoption will depend to some degree upon technical improvements in and the price of the machine but perhaps more on the supply of labor and accompanying wage rates and the geographic distribution of the cotton acreage. The rate of adoption and use will be faster with full employment and the high level of economic activity than with the lower level.

A large portion of the mechanical strippers which will be operated in 1948 are in the High Plains area of Texas where it is estimated that about 3,000 machines harvested about 15 percent of the 1947 crop.

Preliminary results of studies in 1947 dealing with mechanical strippers indicate that, with wages for hand snapping at about $2.00 per hundred pounds of seed cotton and trash, the returns per acre over harvesting costs were greater with machine stripping than with hand snapping. The difference is even greater in favor of machine stripping for cotton harvested after frost because after that time there is no significant difference in grade of cotton or in harvesting waste between the two methods of harvesting. However, the grades of cotton harvested before frost are considerably better than grades of cotton harvested after frost. Normally about 60 percent of the crop is harvested before frost. A satisfactory artificial defoliant would lessen this grade difference and would prove a great stimulus to increased use of the mechanical stripper and it probably would be adopted very rapidly.

The following conditions in the High Plains are favorable to strippers (1) the short growing season and the variety of cotton grown is conducive to uniform maturity (2) the vegetative growth is small and the stalk is low (3)because of relatively low rainfall, weed and

grass control is not a serious problem (4) hand snapping is now the prevalent method of harvesting (5) gins are equipped to handle roughly harvested cotton and (6) cotton production, except for harvesting is already highly mechanized. This is the only major cotton producing area where conditions are so favorable to machine stripping. Conditions in parts of southwestern Oklahoma and in the Low Plains of Texas are fairly similar to those in the High Plains and mechanical stripping may expand there, but not as rapidly as in the High Plains.

Strippers are being tried in a limited way in the Piedmont area of North Carolina. Here the cotton stalk does not grow tall and weed control is less of a problem than in most other humid areas. The stripper appears to have possibilities particularly for harvesting after frost.

The areas mentioned are not the only ones where mechanical harvesting may be adopted but they are the areas where adjustments toward complete mechanization likely will move the fastest during the next few years.

In the humid areas weed and grass control may prove as much of a bottleneck to complete mechanization as mechanical harvesting. But by combinations of various methods such as rotary hoes, mechanical choppers, flame cultivators and perhaps chemicals, labor requirements may be reduced.

Other technological developments. In addition to mechanization, other improved production techniques are increasing in importance. A larger proportion of farmers than ever before are using fertilizer on cotton and at greatly increased rates per acre. On a per planted acre basis, the application of fertilizer was 50 percent greater in 1948 than during the prewar period 1938-42. Even so, on most farms where the land responds to fertilizer, experimental data indicate that the point of diminishing financial returns has not been reached. New and more effective insecticides are being developed and more farmers are adopting insect control programs. Higher yielding varieties and strains of planting seed are being developed. All of these developments point toward a continuation of the upward trend in yields per acre. Assuming average weather a yield of 275 pounds of lint per planted acre might reasonable be expected during the next 5 years. Lint yields averaged about 256 pounds during the 1943-47 period.

Cotton's Position Among Alternative Farm Enterprises

The profitableness of cotton relative to other farm enterprises in farming systems and to non-farm employment will, to a large extent, determine the acreage of cotton on an individual farm and in turn the total acreage. Acreage allotment programs would modify this situation somewhat.

Cotton's importance in farming systems varies considerably among production areas and between farms within an area. Trends in acreage and production, by areas, during the last 20 years gives a good clew to the changes in relative profitableness of cotton and other alternatives, including non-farm employment, under conditions existing during this period. Two questions arise (1) will the factors which were responsible for these changes continue in effect with about the same intensity during the next five years and (2) what effects might new factors, not important in the past, have on cotton production during the next few years?

As previously indicated several production areas such as the Western Irrigated areas, the High Plains and the Deltas have shown marked increases in cotton acreage, and yields, (table 2). Furthermore, mechanization has advanced further in these areas than in other areas. Cotton perhaps will continue to have a high comparative advantage over other crops. In the absence of cotton acreage allotments the acreage of cotton might continue to increase.

In some part of the Coastal Plains of the Southeast in recent years, peanuts have been relatively more profitable than cotton and have been grown on land formerly planted to cotton. This shift is due partially to relative yields and partially to relatively favorable prices of peanuts compared with cotton. If peanut-cotton price relationships should revert to those of the prewar period cotton might regain some of its relative advantage and some of the acreage lost to peanuts. This situation may be accentuated if both peanuts and cotton are subject to acreage allotments. However, with a high level of employment and high wage rates the acreage of peanuts for "hogging off" might increase in the Southeast.

In parts of the Low Plains areas of Texas and Oklahoma wheat has displaced cotton in recent years. This is attributable, at least in part, to the fact that wheat production is completely mechanized and to the scarcity of labor and high wage rates for harvesting cotton. Under the high level of employment it is doubtful if wage rate will decrease sufficiently and/or cotton mechanization increase sufficiently to materially change the comparative advantage of cotton in these areas. If both wheat and cotton acreage allotments are in effect farmers having both cotton and wheat allotments might tend to increase cotton acreage.

The importance of livestock in farming systems has been increasing in the South generally and many farmers have shifted to a more general type of farming. This trend is particularly evident in the Blackland of Texas, the Sandy Coastal Plains, the Brown Loam area and to some extent in the Piedmont and Coastal Plains.

In some areas non-farm employment has been the chief competitor of cotton in bidding for the labor resources and may continue so under conditions of full employment.

The increased industrialization which is occurring in the South will not only provide off farm employment opportunities for farm people but also will furnish an expanded market outlet for locally produced milk, eggs, meat and vegetables and the trend is likely to continue and should be encouraged.

In some areas a considerable amount of land, which a few years ago was planted to cotton has been abandoned. Much of this land now has young trees on it. Some abandoned farm land has been bought by timber companies and investors who are holding it for timber production. It probably will not get back into cotton production. This situation is prevalent in the Sandy Coastal Plains area and parts of the Piedmont and Coastal Plains areas of the Southeast.

In summary, under the high level of economic activity the position of cotton in relation to other enterprises may improve on farms where cotton mechanization is economically feasible. On larger farms where increased cotton mechanization is not immediately feasible the recent advantages gained by enterprises using less labor may continue or increase. On the smaller farms where land, not labor, is the limiting factor cotton may continue to have the advantage. However, for some families on small farms off-farm employment may continue to be attractive. For the cotton producing region as a whole it does not appear there would be a significant change in cotton's position relative to other enterprises, compared with recent years, under the high level of economic activity.

If acreage allotments are in effect for wheat and peanuts there probably would be a tendency toward an increase in cotton acreage on many farms where cotton acreage has been wholly or partially displaced by these crops.

Under the lower level of economic activity and considerable unemployment, particularly if they prevail over several years, migration of people from Southern farms would be retarded. This probably would result in lower wage rates which would tend to improve the position of cotton, a heavy user of labor in relation to land and capital, relative to more labor extensive enterprises. This situation probably would tend to increase cotton acreage but would be likely to retard mechanization and the use of other improved production techniques.

Government Programs

Government programs may have a very important effect on cotton production and consumption particularly during the next few years. The following discussion is not posed as a complete analysis of the effects of programs which may result from recent changes in farm legislation. But, the legislation relating to cotton is so important that some of the possible consequences are explored here.

Under the provisions of the 1948 Act price supports for cotton will be continued. The present parity formula will be in effect for the 1949 crop but the support price will be 90 percent of parity instead of 92½ percent as in 1948. In 1950 and in subsequent years prices will be supported at not less than 60 nor more than 90 percent of parity depending on the levels of supply. If acreage allotments are in effect at the time of planting or if marketing quotas are in effect at the beginning of the marketing year, support prices will be increased by 20 percent but not to exceed 90 percent of parity.

Assuming the September 8 estimated production of 15.2 million bales and a disappearance of about 13 million bales between August 1, 1948 and July 31, 1949, the carryover would be about 5 million bales on August 1, 1949. Unless the acreage planted to cotton in 1949 is considerably less than the 1948 acreage or unless yields in 1949 are considerably below normal the supply situation, as defined in the 1948 Act, will be such that marketing quotas probably would be proclaimed for 1950.

Under the existing laws for determining cotton acreage allotments, 27 million acres is about as small an acreage as can be allotted. One of the main reasons for this is the minimum State, county and farm allotment provisions of the Act. Under these provisions the pattern of acreage allotments would resemble that of 1942 when the total allotment was about 27 million acres. In the 1938-42 period farmers planted an average of about 24 million acres and produced an average of about 12 million bales. This acreage is only slightly higher than the 1948 acreage. However, the distribution of acreage among areas in 1948 is considerably different from the acreage allotments of 1942. In this respect the cotton production areas may be roughly divided into 3 groups; (1) those showing a considerable increase in 1947 over 1942, (2) those showing only slight decreases between 1942 and 1947 and (3) those showing a considerable decrease (table 3).

Among the areas in the first group are the High Plains cotton area of Texas, the Deltas, and the irrigated areas of California, Arizona and New Mexico. Mechanization had advanced more rapidly in these than in other areas. Yields per acre have increased and in general cotton has a high relative advantage over other crops. In the second group are areas such as the Blackland of Texas and the Eastern Hilly areas of Mississippi, Alabama and Tennessee and the Piedmont area. In the third group are areas such as the Low Plains where wheat has displaced cotton, the Coastal Plains where peanut acreage has increased and the Sandy Land area where good off-farm employment opportunities have pulled people off the farms.

The acreage of cotton allotted to States, counties and individual farms will depend on the basis used for their distribution. If essentially the same method used in 1938-42 is used in 1950, the allotted acreage in the first group of areas probably would be below the acreage planted in 1947 and still further below the 1948 acreage. In the second group the allotted acreage might be about the same or somewhat larger than the acreage planted in 1947. Whereas the allotted acreage in the third group would be considerably above the acreage planted in 1947.

The question is how near would farmers plant to their full acreage allotments? This will depend largely on the alternatives available and the relative profitableness of cotton and other alternatives including non-farm employment. Under the high level of economic activity, off farm employment opportunities would be good, farm wage rates would remain high, and livestock products may be in a relatively more favorable situation than cotton.

Under these conditions mechanization of cotton probably would continue to advance and the first group of areas probably would plant near their full allotments. In the third group of areas and to some extent in the second group, off farm employment opportunities and alternative enterprises have been sufficiently profitable to result in only a maintenance or actual decrease in cotton acreage during recent years. Some increase in cotton acreage in 1948 over 1947 is evident in some of these areas, however cotton prices, at planting time were around 35 cents per pound and supports of nearly 29 cents were in the picture.

Acreage allotments for peanuts and wheat would tend to encourage farmers, who have been growing these crops but not planting up to their cotton allotments, to plant more closely to their cotton allotments. The first year marketing quotas are reimposed there might be a psychological reaction to increase cotton acreage so as to retain eligibility and to obtain a larger allotment in future years. However, the prospective price probably will be more important in determining cotton acreage, particularly under the high level of economic activity.

If the high level of economic activity predominates during the next 5 years production and disappearance may be fairly well in balance. The situation may be somewhat different if the lower level of economic activity prevails. Off farm employment opportunities would be less, farm wage rates probably would be considerably lower than with the high level. Cotton, because it is a heavy user of labor, might be in a relatively more favorable position with alternative enterprises requiring less labor. Acreage allotments on peanuts and wheat, would be more likely under the low level of economic activity. This would tend to increase cotton acreage in some areas. Therefore the acreage in 1950 and subsequent years might be greater under the lower level than the high level assuming the same basis for distributing acreage allotments. Perhaps less fertilizer and poison would be used per acre, other improved practices would lag and yields might be somewhat lower. Mechanization would move more slowly. Even so, production might be greater under the lower level than under the high level of economic activity and would be in excess of probable disappearance.

Table 2.- Trends in cotton acreage, yield and production by cotton production areas

Cotton production area	Percent of 1928-32 Average								
	1943-47 Average			1938-42 Average			1933-37 Average		
	Acreage	Yield	Production	Acreage	Yield	Production	Acreage	Yield	Production
	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.
Irrigated	120	142	174	124	140	173	116	128	153
High Plains	76	145	120	85	138	118	95	107	112
Delta	68	163	111	69	172	119	81	126	102
Eastern Hilly	57	168	95	62	143	89	77	124	95
Gulf Coastal Prairies	57	134	76	63	116	72	82	98	81
Coastal Plains	42	153	65	61	121	73	77	129	100
Piedmont	45	142	64	58	125	72	74	112	82
Low Plains	44	103	47	51	124	65	76	92	69
Texas Blacklands	46	100	46	51	106	54	75	96	73
Texas Grazing	35	129	46	50	111	57	78	89	72
Ozark-Ouachita Mts. & Valleys	33	128	42	51	151	78	73	90	67
Sandy Lands	26	111	29	48	113	56	71	101	72
Cross Timbers	25	107	28	46	133	63	84	86	74
Oklahoma Prairies	27	99	27	43	129	56	75	74	58

Table 3.— Distribution of cotton acreage among cotton production areas 1937, 1942 and 1947

Cotton production area	Acreage of cotton 1/			1947 as percent of	
	1937	1942	1947	1942	1937
	--- Million acres -			Percent	
High Plains	1.8	1.3	2.0	155	110
Irrigated	1.1	.8	1.0	119	86
Delta	4.5	3.3	3.7	112	82
Gulf Coast Prairies	1.3	.8	.9	110	72
Blacklands	4.3	2.8	2.7	99	64
Eastern Hilly	4.2	3.0	3.0	98	70
Texas Grazing	.8	.5	.5	89	58
Low Plains	3.6	2.7	2.3	85	63
Piedmont	2.5	1.7	1.4	81	56
Ozark-Ouachita Mts. & Valleys	1.0	.7	.5	74	52
Coastal Plains	4.8	3.1	2.2	72	46
Sandy Lands	3.0	1.8	.9	52	31
Cross Timbers	.6	.3	.15	47	26
Oklahoma Prairies	.5	.4	.16	39	32
Total United States	34.1	23.3	21.5		

1/ In cultivation July 1.