Cotton Quotas and Allotments

impact of area variations in farm resources and past crop production patterns on farm income

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The following article is the third of a four-part report on an analysis of the impact of cotton acreage allotments on the agriculture of California.

Reduced net farm incomes for California's cotton farmers are expected to result from transferring cotton acreage—under national acreage allotments—to less profitable alternative uses.

Gross income will depend on the alternatives chosen and their market prices.

What producers do with diverted cotton acreage will reflect their estimates of the duration of the acreage restriction program. If they expect controls for only one year then they will likely shift to alternative cash crops with little regard for ultimate use of the products. However, the anticipation of cotton acreage restriction more or less regularly over a period of several years will force California's farmers to turn attention to converting feed crops and crop aftermath to higher valued products—meat and livestock products.

The impact of acreage allotments on California's cotton farmers will depend on the alternatives available to the individual farmer. The adaptability and profitableness of such alternatives vary from area to area and farm to farm because of differences in soils, water availability, temperature characteristics, pests and diseases, and market availability. In addition, choice of enterprise will be affected by size of farm, the operator's tenure, debt position, and his experience.

Because one group of factors influencing choice of alternative is closely related to geography, four fairly homogeneous areas have been identified. Certain specific indications of the income impacts of cotton acreage adjustments are considered in terms of these areas.

The two northern cotton counties—Merced and Madera—form a unique area. They maintained their livestock enterprises very well during the years of cotton expansion. The production of feed gains, alfalfa, and pasture in these counties—on nearly all of the 24,000 acres anticipated to be taken out of cotton—indicates that some expansion of dairying and feeding operations will take place. Cheaper feed and relatively low investments needed to enlarge existing livestock enterprises should favor expansion. Total capital requirements, however, will be increased for farmers undertaking this type of shift.

Livestock expansion in 1954 is much more likely to materialize in the Merced-Madera area than in any other of the San Joaquin Valley cotton districts. Cash crop alternatives are not attractive in this two-county area.

Net earnings from alternative cash crops and total farm earnings undoubtedly will decline for farmers who do not expand livestock. Preliminary estimates indicate that the owner-operator's net earnings per acre from grain sorghum, barley or other cash crops may be $15 to $50 less than he can anticipate for cotton in 1954. A tenant committed to a cash rental of $40 to $50 per acre may find grave difficulty in choosing an alternative to cotton which will bring a positive net return after rental payment.

Three groups of farmers—tenants contracted to cash rents, operators with substantial indebtedness, and operators of small farms—will attempt to maintain relatively high per acre incomes with a minimum of new investment. Substantial shifts to livestock in a one-year period or adoption of enterprises requiring heavy equipment investments are not likely for these groups. The limited income possibilities of cash crop alternatives present such operators with extremely serious problems.

A wider range of alternative cash crops is available to farm operators in central and southeastern Fresno County, Tulare County, eastern Kings County, and northern Kern County but income-impacts probably will be as serious as in the North.

Growers in this east central area are experienced with a variety of crops including miscellaneous vegetable crops, field corn, and other specialties. As a result, cash grains and alfalfa will absorb less acreage in proportion to the total diverted acreage in this area than in any of the other areas. In spite of this greater diversification, lower net incomes appear inevitable. This is particularly likely since relatively small acreage increases for vegetable and specialty crops may bring reduced prices. Cotton yields average higher here than elsewhere in California and—although yields of other enterprises are also higher—the net loss per acre of diverted land may exceed that expected in the northern counties.

Reduced per acre earnings of $50 to $90 could occur if cotton acreage is diverted to such crops as alfalfa, field corn, sugar beets, or barley. Price variability of the more specialized crops is such that meaningful estimates of net income reductions are not possible.

Some livestock is present in this portion of the San Joaquin Valley and some expansion may come on those farms already including livestock. If so, it will result from increased on-farm feed supplies and the operator's belief that this feed can be marketed most profitably through livestock. Farms in this part of the Valley are smaller on the average than in the other cotton areas of California. This factor will also tend to force a shift to cash crops of higher per acre value.

Cash tenants may have high cash rentals to meet and will attempt to shift to high value per acre crops. Share tenants may be forced into similar crops by terms of the lease. In either case, a shift to a so-called balanced farming program will be less likely on tenant farms than on the owner-operated farms. Capital requirements per farm probably will not be altered significantly in this

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mosphere. A water sample was taken 204′ out in an irrigation check receiving water from the main ditch only 60′ from the point of treatment at the pump—a distance of 264′ between points of treatment and sampling. Only 2 ppm of carbon dioxide remained in the water sampled. This would be enough in an acre foot of water to dissolve 5.4 pounds of calcium, equivalent to about 25 pounds of gypsum.

Another set of water samples was collected later using care to retain any dissolved carbon dioxide. These samples were placed in quart bottles, which were tightly capped and refrigerated for transport to the laboratory. Even with these precautions, no more carbon dioxide was found in the water than in the field sample.

To be effective in alkali reclamation, carbon dioxide must increase the amount of soluble calcium—or magnesium, or both—over that amount which would be dissolved by the natural water.

Soil Test

The influence of treated and untreated water from the two Tulare County wells was tested on a normal and on an alkali Fresno fine sandy loam soil. One-to-five equilibrium water extracts were made and analyzed, with results as follows:

Calcium and magnesium extractable from Fresno fine sandy loam soil by natural and by carbon dioxide treated irrigation waters.

Water	Soil	Calcium + Magnesium lbs./Ac. ft. of soil*
Well No. 1	Normal	260
Natural	Alkali	200
Well No. 1	Normal	340
CO_2 treated	Alkali	185
Well No. 2	Normal	1070
Natural	Alkali	160
Well No. 2	Normal	1105
CO_2 treated	Alkali	150

*Would require 7.5 Ac. ft. of water per Ac. ft. of soil to extract these quantities.

These results show that neither of the treated waters dissolved more calcium and magnesium from the alkali soil than did the natural waters. The extracts from the normal soil show that the treated water brought additional calcium and magnesium into solution equivalent to less than 25 pounds of gypsum for each acre foot of water applied. The effect on the alkali soil was insignificant.

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QUOTAS

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area if a one-year adjustment situation prevails.

The nature of the adjustment which must be made by the cotton producers of west Fresno, Kings, and southern Kern counties contrasts with those in both areas previously discussed. Large holdings of leased lands under which the water table has steadily declined complicate the adjustment problem. Profitable alternatives to cotton among the irrigated crops are extremely limited, and income reduction likely will be sharp on many farms.

Alfalfa, pasture, irrigated grains, and oil crops can not bear the costs of lifting water and other production expenses on a substantial portion of this region. Producers in this area may turn to nonirrigated cash crops, although they are poor alternatives to cotton, and many producers may leave a portion of their farms idle or fallow.

Net income per acre on diverted cotton land might decline by $30 to $60 if planted to safflower, dry barley or similar crops if prices, costs and yields are comparable to those of 1953.

Many tenants on large farms have made heavy capital investments in farm machinery and in farm improvements under terms of development leases. A transfer to these less intensive operations must bring sharply reduced returns.

Prices of feed grains which producers in the west and extreme south portions of the San Joaquin cotton area can produce without irrigation are expected to decline as production is increased in 1954. Yields without irrigation will be greatly reduced and per acre incomes—both gross and net—will fall substantially. Producers who are not burdened with high cash rents or debts will suffer a loss in income and a lower return on their invested capital. Tenants operating under cash leases and part owners operating large acreages are prevalent throughout this area. The decline in per acre earnings on such farms is particularly dangerous to the survival of the business. If a cash tenant is committed to a rental of as much as $30 per acre it is highly unlikely that alternatives will yield sufficient income to meet the rental payments and cover cash production costs as well.

Southern California cotton counties—Riverside and Imperial—expanded their cotton acreage sharply from 1950 to 1953. Partly because this shift was both recent and abrupt and also because of the climatic conditions in the winter months, the impact of the adjustment on individual producers may not be as severe as on producers north of the Tehachapi, particularly on the west side of the valley. Alfalfa and small grains are expected to replace nearly 50% of the diverted cotton acreage but such historically important crops as flaxseed, grain sorghums, and the vegetable and melon crops will be important alternatives for individual farmers.

An accelerated expansion of livestock on farms in the two southern cotton counties is anticipated, particularly if cotton allotments extend over two or more years. Feed availability, new feeding techniques, and new information on handling cattle in the summer climate should further induce livestock production on farms in this area where many farmers are thoroughly experienced in feeding beef cattle. What individual producers will turn to in the Palo Verde, Coachella, and Imperial valleys will be determined primarily by experience and location. Reduced incomes are certain, regardless of what alternatives are chosen. Net incomes on diverted cotton land could be from $15 to $40 lower than if they were planted to cotton—assuming the yield, cost and price conditions of 1953.

The over-riding consideration for California cotton producers as a group is that the 1954 cotton acreage limitation program is expected to bring sharply reduced earnings—both in total and for most individual cotton growers.

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The fourth—and last—article in this report will consider the role of livestock in the adjustment to cotton acreage allotments.

POTASSIUM

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In the Escondido area there was a positive correlation between potassium and fruit size, even though this is an area of large fruit and low potassium. In the Whittier area—one of high potassium and small fruit—there also was a positive correlation. In the Anaheim and Azusa areas—where the correlation is negative—factors other than potassium were influential in controlling size.

One level of potassium concentration in the leaves can not be applied universally to all orchards to determine the need of potassium fertilization to affect fruit size. Other factors—location, soil, rootstock, cultural practices—must be considered, may affect potassium concentration in the leaves but not fruit size or fruit size and not the leaves.

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