Acreage Controls in California

cotton growers' use of diverted acreage has direct and indirect effects on state's agricultural production pattern

Trimble R. Hedges

Cotton acreage in California has dropped from 1.34 million acres in 1953 to 883 thousand acres in 1954—approximately 34%—with a further cut in 1955 to 56% of that in 1953.

Cotton has ranked first in value of production among California field crops since 1947, and in 1953 represented 21% of the total irrigated land.

The California average cotton yield—in pounds of lint per acre—rose from 632 pounds in 1953 to 806 pounds in 1954, as compared with a five-year average of 658 pounds.

Market prices, with 90% of parity—or higher—price support have made cotton a preferred crop in the San Joaquin Valley. But between the crop years of 1953 and 1954—because of acreage controls—California farmers took 457,000 acres out of cotton production.

However, under the reduced cotton acreage, it is easier for farmers to plan their crops and to follow more effective soil management practices. Under the relatively high price supports and limited acreage, it has been profitable to commit more resources of fertilizer, water, power and machinery time, and man-labor to cotton before the marginal net returns are equalled by those from alternative crops.

In addition to the cotton acreage taken out of production in 1954, California's wheat acreage was reduced 131,000 acres, making a total of 588,000 diverted acres in 1954.

In contrast to cotton and wheat, feed grains—barley, corn and grain sorghums—alfalfa, and specialty crops—dry beans, early potatoes, and sugar beets—expanded acreage by 636,000 acres between 1953 and 1954, roughly 50,000 more than the total acres diverted. Not all increases were associated with acreage control programs, nor were the crops listed the only crops affected. Weather, relative prices, and a multitude of less obvious factors were involved. Perhaps half of the 1954 gain in barley acreage—or 179,000 acres—was directly associated with cotton and wheat cuts. This portion of the barley increase—plus acres going into the other listed crops—accounts for 457,000 acres or about 131,000 less than the total acres diverted. An allowance of 100,000 acres is considered resonable for increases in fallow land, leaving approximately 31,000 acres unaccounted for, roughly 5% of the total diverted acres.

Total gross value of field crop production in California was slightly higher in 1954 than in 1953. It also was higher in 1954 than during the five-year average period 1948, 1950–1953.

Value Decline

The decline in gross value of production for the controlled crops amounted to $26 million for cotton lint and $4 million for wheat. In addition, rice—not controlled in 1954—showed a drop of $15 million in gross value of production and alfalfa a drop of $1 million. All the rest of the crops showed increases in value of total production. Sugar beets, early potatoes, barley, and corn showed the largest increases; all increased 10% or more. The increase in value of the 1954 production for early potatoes can be discounted inasmuch as the 1953 season was characterized by the lowest price in recent years and disastrous earnings.

For the expanding crops, the general rule was increases in production—and usually also in yields per acre—without important price declines. Barley, however, is an important exception; the 1954 season's average price of $2.40 per hundredweight was 31¢ below 1953.

Alfalfa and Barley

It was feared that alfalfa production on diverted acres would bring serious declines in price and gross value, but the actual drop in price between the 1953 and the 1954 season's averages was small. If the comparison is made between 1954 and the five-year average, the drop is of major importance. Quite possibly a part of the impact of the diverted acres on alfalfa prices occurred during the 1953 season.

Barley and alfalfa are the only two major crops for which there is evidence—in the over-all picture—that non-cotton growers may have suffered from adjustments by cotton growers. The slight increase in average yield was insufficient to offset the 12% price drop from 1953 to 1954 for regular barley growers with reasonably constant acreage from year to year. A certain amount of diverted cotton acreage went into rice, but the total was minor in importance relative to the total increases in California rice acreage during the past five years.

State's Cotton Areas

The relative importance of cotton in the California farm organization varies widely among the California cotton-producing subareas. In general, for the three-year average 1951–53, from 60% to 70% of the cropland in the upper San Joaquin Valley—Kern County—was occupied by cotton. In contrast, southern California — Imperial and Riverside counties—had some 35% to 45% of its cropland in cotton. The Westside, or the western San Joaquin Valley—Fresno and portions of Kern, Kings, and Merced counties—also shows a range of approximately 35% to 45% of its cropland in cotton during the three-year preprogram period.

The cotton acreage cut was fairly uniform in all of the San Joaquin Valley subareas, averaging about one third of the three-year average cotton acreage. The cut was somewhat smaller in southern California in 1954—where there had been a sharper upward trend in cotton acreage during recent years than in the state as a whole—the range according to size of farm was 15% to 20%.

The subareas where cotton growing was most concentrated had the most diverted acres in 1954. The upper San Joaquin Valley took approximately one quarter of its irrigated open cropland out of cotton; the Eastside—portions of Tulare, Fresno, and Madera counties—20%; the Central Valley—Merced, Stanislaus and Stockton counties—15%; the Westside, 12% to 14%; and southern California, 9%.

The upper San Joaquin Valley—prior to the 1954 allotment program—was primarily a cash crop area, with cotton and potatoes dominant. Farmers, unable in 1954 to shift any of the diverted cotton acres to potatoes, turned to field corn, sugar beets, alfalfa seed, alfalfa hay, and milo.

On the Eastside, farmers turned heavily to grain and legumes—particularly alfalfa hay—but also fallowed some land.

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cumstances of this trial, the amount of decay in Fordhook 242 was significantly less than that of Concentrated Fordhook, and plants of selection L-4 developed only superficial hypocotyl discoloration. The resistance shown by US 403A in the first trial was not evident in this test; in fact, strain 403A was more severely diseased than the control varieties. This difference in response by one variety emphasizes the necessity for testing material under a range of conditions.

Three varieties and 27 strains, including surviving material from previous trials, were tested in 1951 on a heavy loam soil in Orange County. The mean summer temperature in this trial area is higher by about 5F than that in the areas of the first two trials. Fordhook 242 was eliminated as a potential source of resistance because it did not show outstanding tolerance to decay in this test. Strain L-4, however, again exhibited a good degree of tolerance, hypocotyls of this strain being only superficially discolored at the worst. Seed was collected from 42 individual L-4 plants for further testing.

The fourth season's test—1952—was located in Los Angeles County in an area subject to coastal fogs. The sandy soil was very heavily infested with the disease-inciting organism. The trial included 42 lines derived from single plants of strain L-4 selected in the previous test, together with Concentrated Fordhook in the first three trials. The differences observed were not significant, however. Under the exceptionally severe conditions of the fourth trial, Ventura proved to be significantly more tolerant than Concentrated Fordhook. All lines of L-4 were significantly more tolerant to hypocotyl decay than the Concentrated Fordhook; five of the single plant progenies of L-4 fell in class 75, 30 in class 50, and seven in class 25. One of the seven lines with the lowest disease index was selected as the source of tolerance in a breeding program designed to improve the reaction of Concentrated Fordhook to this disease.

Strain L-4 is very similar to the Giant Calico variety which was reported to have germinated significantly better in unsterilized soil at 59F than the Fordhook, Henderson, and Jackson varieties. The superiority is attributed in a large measure to resistance of the cotyledon to infection by Rhizoctonia. The two types —L-4 and Giant Calico—may be identical. Transfer of their tolerance to *Rhizoctonia solani* into commercial varieties should prove a major step in reducing losses in yield and quality of lima beans caused by the poor stands and root destruction resulting from attacks of this organism.

Mean Indices for Hypocotyl Decay Exhibited by Some of the Lima Bean Varieties or Strains Tested in Various Southern California Areas, 1949 to 1952

Variety or strain	Location and year of test			
	Ventura County		Orange County	Los Angeles County
	Field 1 1949	Field 2 1950	1951	1952
Concentrated Fordhook	46.5	38.8	41.3	84.4
Ventura	40.0	32.5	38.8	51.5**
Fordhook 242	35.7	30.0*	40.0	...
Regular Fordhook	54.5	...	...	...
US 403A	28.3**	47.5	...	...
Henderson	48.7	38.8	...	...
L-4	...	27.5**	26.2*	43.8**
L-4— 7 best lines 1951	...	...	...	27.2**
Easy Thresh	43.3	...	...	...
Triumph	46.7	...	...	...
Westan	46.7	...	...	...
Peerless	49.8	...	...	...
Wilbur	50.4	...	...	...

* Significantly different from Concentrated Fordhook at odds of 19:1.

** Significantly different from Concentrated Fordhook at odds of 99:1.

J. B. Kendrick, Jr., is Associate Plant Pathologist, University of California, Riverside.

R. W. Allard is Associate Agronomist, University of California, Davis.

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CONTROLS

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The diverted acres in the central San Joaquin Valley trended heavily into grain, hay, and pasture. In both these last two subareas, dairying and beef are well established, although on the Eastside dairying, in particular, tended to decline from 1947 to 1953.

The soil and water conditions on the Westside limited possible adjustments. Water costs are high; establishing and developing a well often involves investments of $35,000 to $50,000. Common practice has been to combine a winter crop—such as barley—with cotton in such an acreage ratio as to use the full capacity of the well for 10 months or more of the year. Growers have found few alternatives for cotton—as a summer crop—assuring them a net return, much less an equivalent level of earnings.

Farmers operating all farm sizes report reduction in miscellaneous crops, both in terms of number of crops and acres. The smaller farms tended to increase legumes, particularly alfalfa hay and irrigated pastures, plus feed grains —field corn, milo, barley.

There was little or no change in fallow land for farms of 80 crop-acres and under. As the size of farm increased, however, farmers tended to shift a higher proportion of diverted acres to grain and relatively less to legumes. On the Westside, farmers put about half their diverted acres into barley with two fifths being left fallow and the remainder assigned to summer crops such as alfalfa seed.

The greatest increase in inputs of resources other than land for cotton production is occurring in the more highly specialized areas such as upper San Joaquin Valley—Kern County—the Westside, and southern California. This is particularly true of materials such as fertilizers and soil conditions, and investments such as added land levelling and improved irrigation facilities.

Growers in the subareas with acceptable alternatives to cotton succeeded in maintaining gross value of farm production or, at least, in minimizing its drop.

The crops with increases of 10% or more in gross value tend to concentrate in Kern County. Many larger farms in southern California, on the Eastside, and in the central San Joaquin Valley also were able to shift into such crops.

Under-use of mechanical cotton picker capacity—resulting from the acreage cut—was followed by a drop in custom rates for mechanical picking as well as for hand picking during the 1954 cotton harvest season. The majority of California growers with 100–150 acres producing cotton in recent years equipped themselves with mechanical pickers. These farmers now find themselves with insufficient acreage following the acre cuts to utilize all their harvesting capacity.

The tendency of growers to increase capital investment in permanent improvements and equipment is most evident on the part of larger operators and of farmers who either own their land or have a long-time lease, frequently some type of development lease.

The acreage control programs have varied in effect depending on tenure. For example, a cash-lease grower—operating in a high water-cost area—might be paying $50 an acre year year for 80 acres in cotton. Under the control program he would be cut to 40 acres of cotton. Therefore, he would, in effect, be paying $100 an acre rent, and—in a high water-cost area—it is difficult to find a profitable alternative crop for cotton.

The farmer with a development lease finds himself with a similar difficulty. He has undertaken to pay for a considerable investment in farm improvements—in lieu of rent—over a period of years. He finds his financial position weakened or endangered to the degree that the control program lessens his ability to meet the fixed payments he has assumed.

Trimble R. Hedges is Professor of Agricultural Economics, University of California, Davis.