

Alfalfa Hay Profit Expectation

shifts in land-use pattern resulting from cotton
acreage allotments influenced by price expectation

Ivan M. Lee

Most cotton growers in California must choose an alternative land-use pattern for 1954—a choice necessitated by cotton acreage allotments.

Profit expectations of each crop considered as a feasible alternative to cotton will ultimately determine how the land will be used. In these considerations price expectations of various crops are important elements.

In a substantial segment of the cotton-producing areas of California alfalfa hay will be one among several alternative crops considered.

Changing Factors

Alfalfa hay was one of the important crops absorbing the acreage diverted from cotton in 1950—the most recent year of cotton allotments—but the pattern of acreage shifts in 1950 can not serve directly as a basis for projecting the probable acreage shifts in 1954. The economic factors influencing the farmer's decisions with respect to land use change over time.

In arriving at price expectations for a particular crop it should be helpful to bear in mind the factors which—on the basis of historical evidence—seem to be related to the price of that crop.

A statistical analysis of prices received by California farmers for alfalfa hay covering the crop years 1924–1940 and 1947–1952 suggests some of the factors related to price of this crop. The years 1941–1946 were excluded on the assumption that the price determining forces were somewhat disturbed by economic conditions associated with World War II.

The bulky nature of alfalfa hay effectively restricts its market to California and the immediately surrounding area. For this reason the variables directly related to alfalfa prices should be adequately represented by state data from which all the variables introduced in the analysis were drawn.

Price Variations

The factors which appear systematically related to alfalfa hay prices over the period analyzed were total supply of alfalfa hay, prices received by farmers for livestock and livestock products, and fall

pasture condition. These factors—when introduced into the analysis—explain 95% of the variation in alfalfa hay prices.

Total supply of alfalfa hay on farms in any given year is the sum of production in that year and carry-over from the previous year. Carry-over statistics for the state are for all hay and do not give alfalfa separately. However, total hay carry-over in this state is dominated by alfalfa, hence, the sum of total hay carry-over and production of alfalfa was considered a close approximation to total supply of alfalfa on farms.

The analysis indicated that in the period studied a change in total supply of 100 thousand tons was associated with a change in the opposite direction of around 47¢ per ton—baled basis—in the farm price of alfalfa hay. The introduction of alfalfa hay production and total hay carry-over as separate variables in the analysis gave similar results.

Direct Influences

The prices prevailing for livestock and livestock products would be expected to bear directly on the price farmers are willing to pay for alfalfa hay. An index of prices received by California farmers for livestock and livestock products—with the period 1935–1939 as the base of 100—was introduced into the analysis to represent this economic factor. The results indicated that for the period analyzed a change of one point in this index was associated with a change in the same direction of 12.5¢ per ton—baled basis—in farm price of alfalfa hay.

Producers of livestock in California normally rely on nonirrigated pasture to fill at least a part of their feed needs during the year. Feed production on California ranges is highly dependent on critical weather factors, primarily quantity and time distribution of rainfall. When pastures are short, more supplemental feeding is essential. Alfalfa hay constitutes an important substitute feed in these critical periods. In the judgment of farm management specialists, fall pasture has probably been a more critical factor influencing alfalfa prices than pasture at other times of the year. To represent this factor, average October pasture condition—in per cent of nor-

mal—as reported by the California Crop and Livestock Reporting Service, was introduced as a variable in the analysis. This variable proved to be significant. Over the period studied, a change of one point in reported October pasture condition was associated with a change in the opposite direction of around 9¢ per ton—baled basis—in the farm price of alfalfa. The introduction of average October-November pasture condition as an alternative variable gave very similar results.

Variables and Prices

The average relations of price with the separate variables are—in each case—net of variation in the other factors introduced into the analysis. With reference to the supply-price relation, for example, the procedure in the analysis attempted to hold livestock prices and pasture condition constant when measuring the average relation between supply and price.

The quantitative results are interpreted as describing average relations prevailing in the period studied. The use of those relations directly in forecasting the farm price of alfalfa hay in a future year is hazardous. The formulation of the problem from which these results have come can be considered only an

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CALIFORNIA AGRICULTURE

Progress Reports of Agricultural Research, published monthly by the University of California Division of Agricultural Sciences.

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ALFALFA

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approximate representation of the more complex economic relationships determining alfalfa hay prices.

Recognizing the limitations of the procedure, the use of the quantitative relations summarized for estimating alfalfa hay price may be illustrated with reference to the crop year—1953. Production of alfalfa in 1953 was estimated at 4,617 thousand tons. Adding to this the estimated total hay carry-over on May 1—

267 thousand tons—brings the total supply for the year to 4,881 thousand tons. October pasture condition was estimated at 75% of normal. The preliminary August index of prices of livestock and livestock products adjusted for seasonal variation was 240. As a basis for comparison it might be indicated that the values for these three variables in 1952 were: 4,670 thousand tons as total supply; 81 as the October pasture condition; and, 280 as the index of livestock prices.

Considering the values of these variables the estimated farm price of alfalfa hay for the 1953 season would be around \$23 per ton—baled basis. In view of the level of alfalfa prices prevailing in October, 1953, this estimate for the season average price would appear to be too high. On the basis of the monthly farm

price for alfalfa for May through October it would appear that the season average price will be nearer \$20 per ton. However, the price picture as of October might be altered somewhat by pasture condition through the fall and winter months.

The apparent overestimate of alfalfa price in 1953 should serve to caution against relying on the use of the results directly for estimating future price. The forces which influence prices in any particular year may not be well represented by the average relationships based on the historical period studied. On the other hand, the factors studied do serve to explain a substantial part of the alfalfa price decline in the current season.

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