

IMPACT OF OTHER CASH CROPS ON ALFALFA ACREAGE AND THE ALFALFA INDUSTRY

Scott Hathorn, Jr., Extension Economist

The Demand

Alfalfa hay and cubes, unexcelled as a dry roughage for ruminant animals, horses, and sheep, is palatable, high in protein content, rich in calcium, and is superior in vitamin A and D content. These natural qualities help reduce the amount of grain and other concentrates required in the ration than would be needed otherwise if a less palatable and less efficient roughage was feed.

Beef cattle consume about 30 percent of the California-Arizona alfalfa supply, dairy cattle about 60%, and horses and sheep the remainder. Rising affluence and increasing population in the last decade has insured a steady growth in the demand for meat, milk, and milk products. Alfalfa has shared in this growth because it is a prime raw material used in the production of these products.

The Bank of America recently released (Spring 1973) Outlook for the California Industry and the forecast was for a gradual upward trend in the demand for alfalfa over the next five years (1973-1978). Unfortunately, this forecast was made before the energy crisis and other shortages developed which give rise to a high degree of uncertainty in the economy. Even if these factors do not interrupt the growth trend in alfalfa demand, they will certainly tend to retard the growth in the foreseeable future.

In the 1968-72 period, the barley/alfalfa hay price ratio averaged 0.573 in California and 0.587 in Arizona. Improved prospects for increased exports of feed grains, particularly to the Communist countries, could cause the price of feed grains to rise relative to alfalfa hay. To some degree this could encourage dairymen and cattle feeders to substitute alfalfa hay for grain in feeding rations.

The Supply

Alfalfa ranks second among cash crops in gross receipts in both California and Arizona. Cotton ranks number one in both states. California production of alfalfa hay in 1973 is estimated at 6.9 million tons, down about 4% from 1972. Arizona production in 1973 is estimated at 1.3 million tons, up about 4 percent from 1972.

Alfalfa Competes with Other Cash Crops for Land

Alfalfa production is generally located in areas that have cheap water. For example, in Arizona, production is concentrated in Yuma and Maricopa counties where water is available at reasonable prices. Basically, alfalfa and cotton compete for a place in the crop plan. Many producers favor a rotation of cotton, alfalfa, and barley, and in some cases, alfalfa is produced on the lighter soils while cotton and barley use the better soils.

Under certain circumstances, safflower and alfalfa might compete, especially when the prospective price for safflower is high relative to alfalfa hay. This condition seems to prevail at the present time.

With the advent of higher yielding Mexican wheats, growers are gradually replacing barley with wheat. As a general rule, alfalfa does not seriously compete with barley or wheat for a place in the crop plan.

Some of the more important factors that growers will consider in deciding to grow more or less alfalfa in 1974 are:

- (1) Relative cash returns for competing crops.
- (2) The grower's reservation income level.
- (3) The degree of custom services used in alfalfa production
- (4) The degree of risk.

Relative Cash Returns

Cash return as used here is the return per acre after deducting growing and harvesting costs from the gross receipts produced by an acre of crop.

Cash returns per acre of cotton and alfalfa are summarized below.

Cotton			Alfalfa Hay		
Price	Gross	Cash Return	Price	Gross	Cash Return
50¢	\$ 590	\$ 280	\$ 50	\$ 350	\$ 160
52	610	300	55	385	195
54	630	320	60	420	230
56	650	340	65	455	265
58	670	360	70	490	300
60	690	380	75	525	335
			80	560	370

In the above tabulation, gross receipts for cotton are based on a lint yield of 2 bales per acre, a seed yield of 1650 pounds, and a cottonseed price of \$110 per ton. Growing and harvesting costs are estimated at \$310 per acre. Gross receipts for alfalfa are based on a yield of 7 tons per acre and growing and harvesting costs are estimated at \$190 per acre.

The gross returns and prices for cotton and alfalfa hay are presented in Figure 1. Assume that 58¢ is the most likely price for 1974 cotton. From this price follow the price-gross return line horizontally to point A, the point of intersection of the cash return line for 58¢ cotton and the cash return line for alfalfa hay, and drop down vertically to read \$78.57 per ton on the alfalfa hay price scale. This is the price at which alfalfa hay must sell in order for the cash return from alfalfa hay to equal that of cotton. This price can be thought of as the "break-even" cash return price. The producer must assess the likelihood that alfalfa hay will sell at this price before making a decision to replace cotton with alfalfa hay in the crop plan.

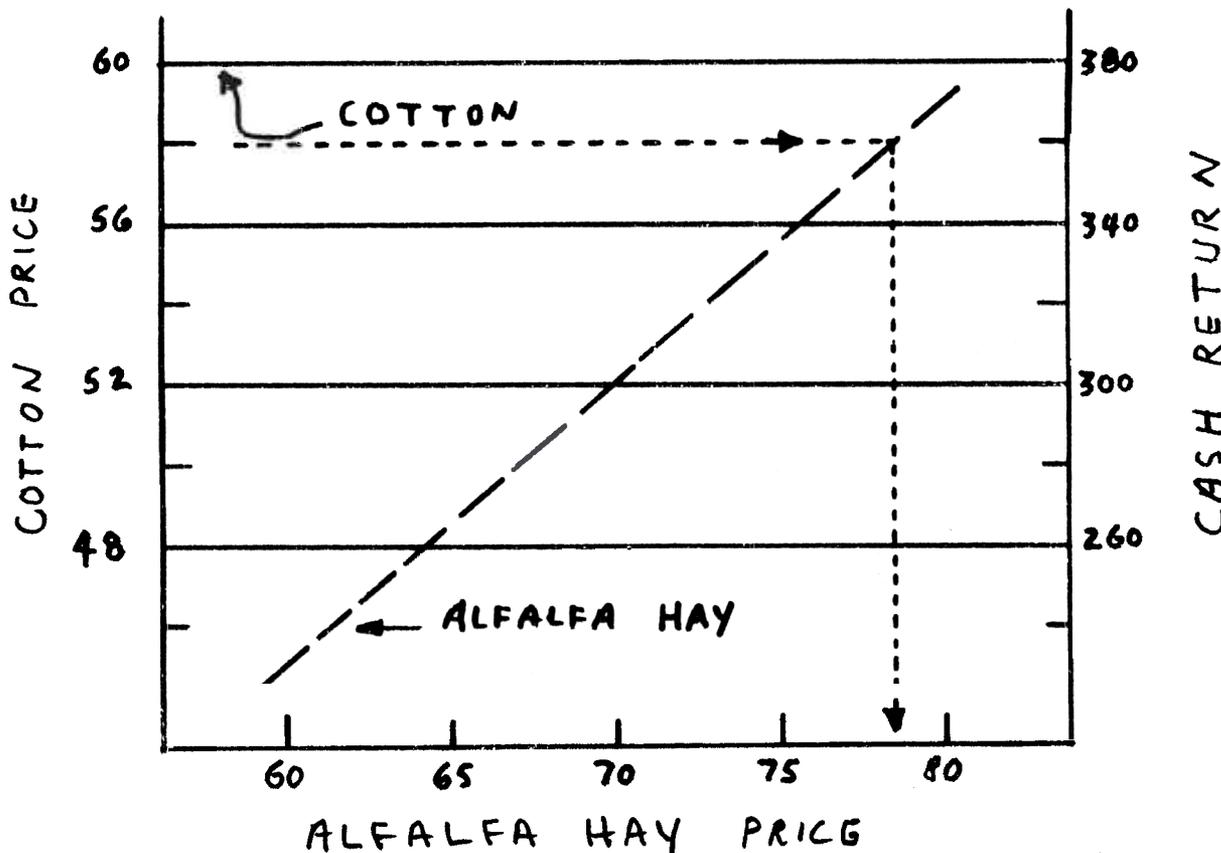


Figure 1. Determination of "Break-Even" Cash Returns for Alfalfa Hay Versus Cotton at Various Levels of Price for Cotton and Alfalfa Hay.

Reservation Income

Even though the economic indicator indicates that a producer should switch some acreage from one crop to another, he may not do so for various reasons. The average age of farmers in the United States today is in excess of 50 and they tend to be conservative. If a producer is satisfied with the level of income that the farm unit is yielding, he may hesitate to shift crop acres even though he would increase income by making an adjustment in the crop plan. If he wants to increase income, he will take the easiest course available in making the adjustment. Even though the economic indicator says plant more cotton, he might plant more grain under favorable conditions because of personal likes, dislikes, or for the lack of adequate labor or tooling.

Degree of Custom Services Used

If the producer depended on custom services for harvesting hay, he might be more willing to decrease alfalfa acreage than if he owned the harvesting equipment. He may be willing to sacrifice income rather than let his machinery stand idle.

Degree of Risk

In past years the cash returns from cotton have varied the least of all crops produced in Arizona and this is probably true in California also. Barley and wheat have experienced more variability in cash returns than cotton but their record has been much better than that of alfalfa hay. Growers will hesitate to switch to more risky crops unless the potential payoff is great. On the other hand, growers feel quite comfortable about increasing cotton acres when conditions are right.

Summary

The relative cash returns picture for alfalfa hay versus cotton is unfavorable. Cotton can be contracted for fall delivery at 55 cents or better. Even a \$60-65 alfalfa price falls considerably short of the break-even price of \$78.57. It appears that alfalfa acreage for 1974 will decline at the expense of cotton. The amount of change could be less than indicated by economic considerations because of psychological and other factors that can enter into the grower's decision.