MARKETING ALFALFA IN AN UNCERTAIN ECONOMIC ENVIRONMENT

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Marketing alfalfa involves an analysis of two of the more interesting phenomena--fundamental factors impacting supply and demand in a traditional sense, and political institutions that are as much a function of passions and opinions as logic and common sense. This statement is particularly true when applied to the 1981 situation, because this period is one in which the forces of deflation are as much a concern as those factors that exert upward pressure on prices. In addition, we are seeing record crops of many feeds competing in the market place for alfalfa, and we are thinking mainly of feed wheats and corn. Evaluating this market involves an analysis of the potential supply of forages and competing products, potential demand for those products, changes in agricultural policy that might cause demand to change, and finally, an evaluation of the impact of economic policy on both the supply and demand for forages and cereals. While an in-depth analysis of any of these topics could be a single topic for this forum, it is important to summarize the most important attributes in the afore mentioned area, because each will have some impact on alfalfa prices this year, and their inter-relationship is even more important.

The 1981-82 Alfalfa Supply

Alfalfa production in California totaled about 6.6 million tons last year, and this year is estimated to amount to about 6.3 million tons, down 300 thousand tons from last year. Over the past eight years production has exceeded 6.5 million tons only three times, and these were years in which prices tended to drift down slightly. Based on production alone, we might expect a robust marketing year, but other factors are conditioning total demand for the product, and carryover as well as supplies of other products are important. Acreage of alfalfa has tended to drop slightly over the last five years, but this has been offset by slightly increasing per acre yields (Table 1 and 2). Total U.S. production is expected to be down slightly this year as well, from a tonnage of about 88.3 million in 1979 to about 82.4 million this year (Table 4). South Dakota, North Dakota and parts of Colorado and Wyoming were affected by drought conditions and resulting alfalfa production was smaller in those states than that which historical trends might indicate.

The other major component of the 1981-82 supply is that portion of the 1980 crop carried into 1981. Stocks on hand as estimated on May 1, 1981 amounted to about 542 thousand tons, and this is the smallest total since 1976. Stocks on hand May 1 have been dwindling from the 1978 high of about 1.1 million tons, and as our analysis proceeds this will probably lead to very small stocks on hand next year, if present trends in useage continue (Table 2).

The other fractional component of total supply is that amount of alfalfa inshipped into California, mainly by truck, for consumption in California dairies and livestock centers. Shipments have been derived mainly from Nevada, Utah, Oregon and Idaho, with small quantities also inshipped from states as far east and north as Minnesota and Montana. This total amounted to about 350 thousand tons in 1980 or approximately 4 percent of the total supply. Nevada provided the lion's share of these imports, since 51 percent of total inshipments came from that particular state and 236.2 thousand tons were transported from Nevada in 1979, nearly 62 percent of total alfalfa imported into California (Table 3).

The 1981-82 Alfalfa Useage

Alfalfa useage in California is a function of the number of dairy animals, livestock on feed and use by other miscellaneous species. During the 1974-76 period for example, total acreage was declining and the number of livestock in inventory was increasing, so the total alfalfa inventory on May 1, 1976 amounted to only 306 thousand tons. Coupling the relatively low inventory with a relatively small 1976 crop and drought conditions resulted in record high prices. The experience of the next year was that of another decline, but a significant change had occurred. The drought had ended while beef cattle numbers were still being drastically reduced. The impact was that 1978 prices did not respond in the manner one might have expected given the available supply on hand at the time.

The story bears repeating for one very important reason. Sudden changes in animal inventories in any of the major alfalfa using species can cause some problems in the normal alfalfa marketing process, and hence in the price of alfalfa as well.

The demand for alfalfa is, in the main, conditioned by the number of dairy animals in inventory at any one point in time. And it is a pretty well publicized fact that the total number of dairy animals has been increasing dramatically during the past five years. This inventory has increased from about 810 thousand on hand January 1, 1976 to about 909 thousand on January 1, 1981. In fact, the inventory has steadily increased throughout this year as well, and the inventory now totals 916 thousand (Table 5). Some interesting facts can be gleaned by looking at the distribution of animals as well. Of the January 1, 1981 inventory, 496 thousand or 55 percent were located in the San Joaquin Valley, and this proportionate distribution has remained somewhat constant during the past five years. We have noted at previous symposia that dairy animals are the primary consuming component of alfalfa within the total livestock complex. Past enumerations have indicated that they consume 70-75 percent of all alfalfa each year in California.[1/]

During the 1976-78 period, the inventory of beef cows and heifers kept as replacements declined, as California ranchers endured one of the worst livestock liquidations in the history of the industry. While beef cattle are not the most significant user of alfalfa, they do consume significant amounts of alfalfa and can marginally influence alfalfa prices, particularly during periods of inventory expansion, like the present. During this liquidation period, the annual inventories dipped as low as 869 thousand head, but the January 1, 1981 inventory count indicated that about 1 million animals were present, and the 1982 count should show at least that number, and a count of 1.02 million is quite possible.

Another marginal demand for alfalfa is through the cubing, pelleting and meal process. Much of the production from this particular process ultimately ends up in the export market. Production of cubes in California has remained relatively constant throughout the past five years. In 1976 production of cubed alafalfa amounted to about 474 thousand tons. After dipping down to a low of 397 thousand in 1978, production has climbed back to 463 thousand in 1980 and should be slightly higher in 1981. Significantly, exports of cubed alfalfa have also been increasing--from about 94 thousand tons in 1976 to about 247 thousand tons in 1980. On the other hand pellet and meal production has been declining, and I would expect these commodities to be permanent casualties of the energy crunch, except for those special markets they fit so uniquely. Meal production is less than half of 1976 levels, and exports of both meal and alfalfa pellets are half of 1976 levels as well. Energy will become more-and-more a factor in hay harvesting costs, and as time proceeds, the industry will seek new and improved methods of harvesting in order to mitigate the combined costs of harvesting, processing and transporting product long distances to market. Systems built on the assumption of low priced energy will find themselves at a continuing cost disadvantage. In fact, in all likelihood it will become much worse as the time span lengthens.

If we were to put together an analysis based on May 1, 1981 stocks and couple them with estimates of 1981-82 useage based on animal numbers presently in inventory, we would ordinarily arrive at a "tight supply-high price" scenario. On October 1, 1981 there were about 916 thousand dairy animals, 575 thousand animals on feed, one million beef cows kept as replacements, and 2.3 million other cattle. This <u>could</u> lead to the tightest May 1, 1982 stock situation in recent years. I underline <u>could</u> because there are some important ramifications regarding supplies of other feedstuffs that can replace alfalfa to a degree in animal rations. We know that substitution of other feedstuffs is a factor and is occurring. The January 1, 1981 alfalfa inventory was about 2.7 million tons, highest since 1978, indicating both buyer and seller resistance; therefore we have all viewed the 1981 crop year with some trepidation, because production of almost all of California field crops is at record high levels. According to the October 15 <u>Field Crop Review</u> we can expect the following: "An Increase in Record California Rice Crop," "Large Cotton Crop (..3 percent below record levels and up 6 percent from last year)...."Dry Bean Crop Largest Since 1954," and the..."Largest Sugar Beet Crop Since 1976." We can couple this to a wheat crop of 2.7

[1/] This estimate was about 70 percent of total 1973 production: James Cothern, <u>Processing, Transporting and Pricing California Alfalfa Hay</u>, Extension Leaflet 2890 (Berkeley: June, 1977). A 1974-76 estimation process resulted in an estimate of 74 percent used by dairy animals: G.A. King, J.C. Fitz, C.M. Warner and A.C. Bywater, <u>Trends in California Live- and Poultry Production, Consumption and Feed Use: 1961-1978</u>, Giannini Foundation Information Series 1899, (Berkeley: November, 1980).

million tons, up 16 percent from last year, a record national corn crop of about 8 billion bushels, an increase of 21 percent from last year and a general uncertainty concerning the economy and state of the agricultural programs. All of this leaves plenty of room for uncertainty concerning any premature conclusions relative to "runaway alfalfa prices."

The 1977 Agricultural Act: Where Do We Go From Here?

Unquestionably, the single most important factor affecting the longer term demand for alfalfa in California relates to the type of Senate-House compromise legislation replacing the 1977 Agricultural Adjustment Act. One can conjecture, but economic and defense policy AWAC sales and many other seemingly unrelated matters became focal points for discussion in the tradeoff between support for agricultural programs, national defense and economic budget cutting. At the time of this writing, we can only guess about the likely outcome, but we can at least assess the impact of Senate-House starting points in regards to the dairy legislation particularly. The House version of the Agricultural Adjustment Act of 1981 (AAA of 1981) proposes the following major points: (1) A base starting price of $12.80 per hundredweight for 3.5 percent B.F. milk, (2) Minimum of 72.5 percent of parity for the 1982-83 marketing year and 75 percent of parity thereafter unless CCC purchases of products are 3.5 billion pounds of milk equivalent. If the 3.5 billion pounds of milk equivalent are exceeded support levels would drop to 70 percent of parity thereafter. The Senate version of the dairy related AAA of 1981 has the following differences: (1) While the base starting point would be the same as the House version ($12.80 per hundredweight for 3.5 percent B.F. equivalent), the Secretary of Agriculture would have the option of foregoing an annual adjustment in parity if net CCC purchase outlays were to exceed $750 million in any one marketing year, (2) if the $750 million in annual CCC purchases is exceeded, parity could deteriorate to 65 percent or less by October 1, 1982 and 55-60 percent by October 1, 1983. The latter point in both versions is the most sticky and the one that will be resolved by a substantial amount of political "horse trading."

Our budgetary work indicates that reducing support levels below 72.5 percent could induce a substantial amount of liquidation, particularly if cuts as drastic as those that the Senate contemplates are imposed. On the other hand, if the House version is adapted I would expect continued overproduction in excess of market needs and substantial accumulation of CCC stocks-- and we are running out of storage space. But in addition to this, the budgetary costs of the House version are substantially above the Administration budgetary guidelines, "and therein lies the rub." While the two versions differ substantially, this is not necessarily disadvantageous, since political compromise could allow tradeoffs lessening the 1982-83 impact as outlined by the Senate. I would expect something like the following: (1) A minimum of 65-72.5 percent of parity for the 1982-83 marketing year and (2) an adjustment of parity levels within which the Secretary of Agriculture can adjust downward, i.e. 68-72.5 percent as opposed to 65 percent in 1982 and 65-68 percent in 1983.

One thing is certain. We have too much milk and too many cows. Continued overproduction could cause accumulation of stocks to the point that "dumping" in world markets might again be a consideration, and this has dangerous overall trade ramifications.

We have continued to increase milk production for 29 consecutive months and 29 of the 33 major milk producing states showed increases. Producers in Idaho and Colorado were leaders with a 12 and 10 percent October milk production increase as opposed to the same period a year earlier. One only has to travel in Idaho to gain a feeling for the severity of the problem. Large numbers of new producing plants are presently being constructed, despite the danger signals on the horizon--and such producers are not likely to cut back once committed to production. The issue of the "haves", i.e. those with large Class I quotas as opposed to the "have nots", those dependent on maintenance of high support levels is one that has torn even the most conservative organizations apart, and one not easily resolved. But it is an issue of "pay me now or pay me later," and from this point of view, one that alfalfa producers should monitor closely.

The more immediate impacts are more certain. Both the Senate and House versions seem to indicate that milk producers can cover variable costs with the prevailing legislation, i.e. $12.80 per hundredweight-3.5 percent B.F. milk, and the near term tends to point to relatively strong prices, but expectations also influence prices, so it is important to stay abreast of legislation progress. From an alfalfa producer's point-of-view, 72.5 percent of parity or higher is a "good" number, while numbers lower than 70 percent of parity are "bad" numbers.

The Demand for Competing Products

The fact that we are likely to have a record corn crop of more than 8 billion bushels is rapidly becoming a reality. In addition, a record wheat crop of more than 2.7 billion bushels is already a reality. We can expect some increased feeding of both wheat and corn domestically. Oddly enough, despite a decline in farm milk prices for example, the milk-feed price ratio actually improved some from 1.35 in May to 1.48 in September. Concentrates fed have remained steady, with an average U.S. useage of 15.1 pounds per cow. Actual prices of concentrates and prepared rations has increased 12 cents from October, 1980 and are more than 88 cents higher than in 1979. This phenomena is a result of the impact of inflation on ration processing, preparation and delivery and is likely to continue. Therefore, I am inclined to believe there will be little substitution of grain for forages, beyond that which is already occurring.

What is likely to occur relates to the continued substitution of corn and other types of ensiled forages as a substitute for alfalfa, and this is particularly true in the San Joaquin Valley, where a contiguous supply is potentially available by forward contract. Least cost rations seem to say that alfalfa need only be in the ration at minimum levels, and while this has to be tempered by the palatability argument, increased substitution of palatable ensilages seem to indicate a great deal more of this type of strategy is possible. In addition, record supplies of almost all field crops indicate a broad number of other feedstuffs will be available to other species that can adapt to them, further tempering the demand for alfalfa from these traditional sources.

The State of the Economy: A Matter of Concern

Agriculture and agricultural producers benefited from inflation in two ways. Land appreciation was much greater than the inflation rate due to the speculative interest in land as a factor in providing worldwide food needs. Second, the improved ratio of foreign currencies in relation to the U.S. dollar made foreign trade with the U.S. very attractive. Conversely, agricultural producers will pay some of the tare in deflation in opposite and offsetting ways. Land values are not likely to increase as rapidly as the rate of inflation, and this is particularly true for the extensive land users, i.e. the range livestock land holders. Secondly, as the dollar strengthens in relation to foreign currencies, we can expect short term demand for food products to face the realities of diminished quantities at greater real prices. Adjunct to this argument is the administration "bootstrap" philosophy that seems to deemphasize importation of U.S. products as opposed to emphasis on self support. In either case, the short term "bloom is off the rose," in regards to foreign trade. In the longer term, nothing has changed, and the demand for products is likely to remain relatively strong; but the impact of deflationary political and economic strategies are likely to have an impact on the domestic and foreign demand for red and white meats particularly. From this point of view, I remain very bearish relative to red and white livestock and poultry products demand in 1982, particularly in the first quarter. And this will have a dampening impact on the input industries as well.

Summary and Conclusions

The following points seem worthwhile in encapsulating the most salient features of marketing alfalfa during the 1981-82 season:

(1) The supply of alfalfa will most likely be down during the 1981-82 season, due to lower beginning stocks on May 1 (542 thousand tons) and lower production (6.3 million tons).

(2) Useage will likely remain relatively high, due to record large milk production and related dairy cattle numbers and relatively high inventories of beef cows.

(3) Supplies of alternative feedstuffs will also be relatively high, and we can expect substitution of these feedstuffs to the maximum amount that is possible from the nutritional and palatability point of view. This has some important regional ramifications, and we can expect to see some differentials in markets in which this is possible as opposed to those in which it is less possible, i.e. Fresno vis a vis Petaluma.

(4) The AAA of 1977 is subject to a great deal of rewriting, even at this late date. I am betting on a version that will be somewhat higher than the Senate version but less than the House version. From this point of view, I see little change in dairy cattle numbers; but watch and be able to interpret provisions of the 1982-83 sections of the legislation.

(5) Demand for livestock and poultry products will be affected by continuing economic policy and a relatively lackluster economy, particularly in the first half of the calender year.

(6) First half demand for many of the feed complex items will be equally lackluster, but second half expectations will be conditioned by world wide weather conditions, as they have in the past; so if poor weather materializes, expect commensurate upward movement in the futures markets and in forward contracts for feedstuffs.

Producers are always interested in the $64 question, "Price wise, what can I expect?" I expect prices to continue in the low $100 dollar level, but costs are such that profitability will continue to be squeezed, particularly in those producing regions more remote from the consuming markets. If "bad number" scenarios are incorporated into legislation, we can see prices dropping well below $100 per ton. To me, forward contracts covering at least part of the 1982 production would not seem to be a bad idea, if they can be implemented to cover the cost of production. If a version of the new agricultural legislation is adapted as liberal as the House version, we could have some real excitement in the alfalfa market during the next 2 to 3 years.

With this kind of variance in the economic environment, each producer will have to ask him or herself, "How much risk can I stand?"

TABLE 1

California Hay Crop Acreage and Yield 1976-81

Year	Alfalfa Hay: Acres Harvested	Alfalfa Hay: Yield Per Acre	All Other Hay: Acres Harvested	All Other Hay: Yield Per Acre	Total Crop: Acres Harvested	Total Crop: Yield Per Acre
	-Thousand Acres-	-Tons-	-Thousand Acres-	-Tons-	-Thousand Acres-	-Tons-
1976	1,100	6.0	530	1.8	1,630	4.63
1977	1,140	5.85	530	2.0	1,670	4.63
1978	1,090	5.45	520	1.95	1,610	4.32
1979	1,050	6.0	510	1.95	1,560	4.68
1980	1,030	6.40	520	2.20	1,550	4.99
1981	1,050	6.0	515	2.00	1,565	4.68

Source: California Crop and Livestock Reporting Service

TABLE 2

California Hay Crop Production 1976-81

Year	Production: Carryover May 1	Production: Alfalfa	Production: All Other Hay	Production: Total Crop	Total Supply	January 1: Year	January 1: Stocks on Farms
	-Thousand Tons-						
1976	306	6,608	954	7,754	7,860	1977	1,737
1977	680	6,669	1,060	7,729	8,409	1978	2,860
1978	1,082	5,941	1,014	6,955	8,037	1979	2,226
1979	765	6,300	995	7,295	8,060	1980	2,043
1980	620	6,592	1,144	7,736	8,356	1981	2,708
1981	542	6,300	1,030	7,330	7,872	1982	2,200*

Source: California Crop and Livestock Reporting Service *Author's Estimate

TABLE 3

ALFALFA HAY TRUCKED INTO CALIFORNIA BY STATE OF ORIGIN
1976-1980

State of Origin	1976	1977	1978	1979	1980
	-Tons-				
Idaho	33,982	10,609	1,193	13,003	13,312
Nevada	167,570	108,197	142,673	236,178	178,578
Oregon	13,118	9,940	4,433	19,240	14,715
Utah	39,001	13,482	17,627	107,929	144,134
Total Inc/ Remaining States	255,498	143,175	166,690	378,168	352,175

Enumerations of above shipments principally through Plant Quarantine Inspection Stations at Mount Shasta, Truckee, Benton and Yermo. Source: Alfalfa Hay: California Market Summary, 1980, Federal State Market News Service, Sacramento, 1980

TABLE 4

ALFALFA AND ALFALFA MIXTURES FOR HAY

STATE	AREA HARVESTED 1979	AREA HARVESTED 1980	AREA HARVESTED IND 1981	YIELD 1979	YIELD 1980	YIELD IND 1981	PRODUCTION 1979	PRODUCTION 1980	PRODUCTION IND 1981
	1,000 ACRES			TONS			1,000 TONS		
ARIZ	160	165	155	6.40	7.00	7.20	1,024	1,155	1,116
ARK 1/	73	78	70	2.50	1.60	3.00	183	125	210
CALIF	1,050	1,030	1,050	6.00	6.40	6.00	6,300	6,592	6,300
COLO	790	780	760	3.10	3.00	3.00	2,449	2,340	2,280
CONN 1/	22	21	22	2.65	2.55	2.65	58	54	58
DEL 1/	8	7	7	3.25	3.05	3.10	26	21	22
IDAHO	1,068	1,090	1,100	3.40	3.50	3.50	3,631	3,815	3,850
ILL	740	720	715	3.90	3.75	3.80	2,886	2,700	2,717
IND	390	380	380	3.20	3.35	3.35	1,248	1,273	1,273
IOWA	1,810	1,760	1,760	4.10	3.90	4.10	7,421	6,864	7,216
KANS	1,000	1,000	1,020	3.50	2.85	3.50	3,500	2,850	3,570
KY	204	200	200	3.10	2.95	3.20	632	590	640
LA 1/	13	13	13	2.35	2.40	2.40	31	31	31
MAINE 1/	21	22	21	2.50	2.05	2.60	53	45	55
MD 1/	75	70	74	3.20	3.10	3.20	240	217	237
MASS 1/	27	27	27	2.90	2.40	2.70	78	65	73
MICH	1,040	1,020	980	3.10	3.20	3.10	3,224	3,264	3,038
MINN	2,150	2,100	2,000	3.40	2.70	3.20	7,310	5,670	6,400
MO	520	520	540	2.75	2.25	3.05	1,430	1,170	1,647
MONT	1,300	1,200	1,250	2.25	2.35	2.35	2,925	2,820	2,938
NEBR	1,650	1,650	1,650	3.25	3.05	3.05	5,363	5,033	5,033
NEV	215	215	210	3.40	3.50	3.40	731	753	714
N H 1/	19	20	20	2.60	2.25	2.60	49	45	52
N J 1/	48	41	43	3.60	3.00	3.90	173	123	168
N MEX	245	240	245	4.50	4.30	5.00	1,103	1,032	1,225
N Y	1,040	1,030	990	2.75	2.90	2.90	2,860	2,987	2,871
N C 1/	25	25	27	2.35	2.25	2.30	59	56	62
N DAK	2,000	1,220	1,500	1.85	0.95	1.70	3,700	1,159	2,550
OHIO	580	540	510	3.05	3.10	2.90	1,769	1,674	1,479
OKLA	460	420	410	3.30	2.50	3.25	1,518	1,050	1,333
OREG	415	425	410	3.70	4.00	4.00	1,536	1,700	1,640
PA	850	840	825	2.70	2.60	2.70	2,295	2,184	2,228
R I 1/	3	3	3	2.70	2.10	2.60	8	6	8
S DAK	2,500	2,300	2,250	2.20	1.40	1.30	5,500	3,220	2,925
TENN 1/	105	105	110	2.50	2.40	2.50	263	252	275
TEX	190	170	185	4.70	4.50	4.80	893	765	888
UTAH	475	470	475	3.80	3.90	3.90	1,805	1,833	1,853
VT 1/	105	110	105	2.55	2.25	2.60	268	248	273
VA 1/	93	87	90	2.95	2.50	2.85	274	218	257
WASH	503	505	500	3.60	3.70	3.75	1,811	1,869	1,875
W VA 1/	85	80	80	1.75	2.55	2.50	149	204	200
WIS	3,100	3,050	2,850	3.30	3.50	3.35	10,230	10,675	9,548
WYO	545	520	533	2.40	2.15	2.30	1,308	1,118	1,226
U S	27,712	26,269	26,165	3.19	3.04	3.15	88,314	79,865	82,354

1/ ESTIMATES FOR CURRENT YEAR CARRIED FORWARD FROM EARLIER FORECAST.

CROP REPORTING BOARD, SRS, USDA

TABLE 5

ESTIMATED NUMBER OF MILK COWS AND HEIFERS THAT HAVE CALVED ON FARMS, JANUARY 1, BY COUNTIES AND DISTRICTS, CALIFORNIA: 1976-81

Region/and or County	1976	1977	Year 1978	1979	1980	1981
			-- Number--			
NINE NORTHERN	23,800	24,100	25,300	24,350	22,800	20,050
CENTRAL COAST	76,800	72,700	73,600	67,000	65,900	63,800
Marin	15,300	14,500	13,400	13,000	12,600	14,000
Sonoma	38,100	37,200	36,100	36,500	36,000	33,000
SACRAMENTO VALLEY	40,900	42,300	46,200	47,500	46,700	44,800
Glenn	11,100	12,200	13,500	14,300	13,000	13,500
Sacramento	16,400	18,500	20,000	21,800	24,000	21,400
SAN JOAQUIN VALLEY	437,700	430,600	448,000	465,000	477,000	496,000
Fresno	48,000	51,000	50,500	51,000	53,500	51,500
Kern	32,200	28,600	25,800	22,000	21,000	20,000
Kings	41,800	40,600	43,000	44,500	50,000	51,000
Madera	14,500	12,800	13,600	14,500	16,000	16,500
Merced	70,300	68,200	73,400	78,000	79,000	82,000
San Joaquin	53,600	56,200	53,200	60,000	59,000	59,000
Stanislaus	87,700	83,400	86,300	91,000	94,000	102,000
Tulare	89,600	89,800	102,200	104,000	104,500	114,000
SIERRA MOUNTAIN	3,100	3,100	3,600	2,150	1,400	1,250
SOUTHERN CALIFORNIA	227,700	236,200	249,300	254,000	264,200	283,100
Los Angeles	16,100	20,000	21,500	11,500	11,000	5,300
Riverside	55,500	68,200	69,000	71,000	81,000	90,000
San Bernardino	120,500	116,100	128,000	141,000	143,500	163,000
San Diego	22,800	19,500	19,600	18,500	18,700	16,000
ALL CALIFORNIA	810,000	809,000	846,000	860,000	878,000	909,000

Source: California Crop and Livestock Reporting Service