FACTORS AFFECTING THE SUPPLY, DEMAND AND PRICE OF ALFALFA IN 2006

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ABSTRACT

Low carryover inventories and strong demand will likely keep alfalfa prices relatively high for the first half of 2006. Lower milk prices and tighter profit margins for milk may cause some softening of the demand for alfalfa in 2006. This is exacerbated by expected large corn and soybean crops which cause prices for concentrate feeds to become competitive with alfalfa. In California, milk cow numbers are expected to increase and milk production will be higher. Beef prices are expected to be slightly lower in 2006, but not sufficient to create any significant changes in current beef cattle numbers or demand for alfalfa.

Overall, it is expected that alfalfa acreage will increase in California in 2006, and, assuming normal yields, increased production of alfalfa hay. While prices will remain relatively high in the first half of 2006, softening demand for alfalfa by the dairy industry and increased alfalfa supplies will likely cause prices to decline in the second half of 2006 to levels a little lower than 2005 prices.

Key Words: alfalfa, supply, demand, price, outlook, inventories

INTRODUCTION

2005 in Review. A number of factors combined to create the current situation. Decreased acreage of alfalfa and lower hay yields resulted in decreased production and near record high prices for alfalfa hay in 2005. December 2004 carry-over inventories of 1,724,000 tons were the lowest they have been for a number of years (in 1997 inventories fell to 1,589,000 tons). Unexpected early and persistent rainfall in the Fall of 2004 prevented some planting of alfalfa. Late rains in the spring of 2005 contributed to decreased yields and tight supplies. The upturn in milk prices in 2004, and the continuation of moderately high milk prices throughout 2005, created increased demand for alfalfa that contributed to tight supplies and high prices. An infestation of army worms and extreme heat in the summer of 2005 caused yields to decline to around 6.8 tons per acre for the first time in many years (in 1998 yields fell to 6.6 tons per acre).

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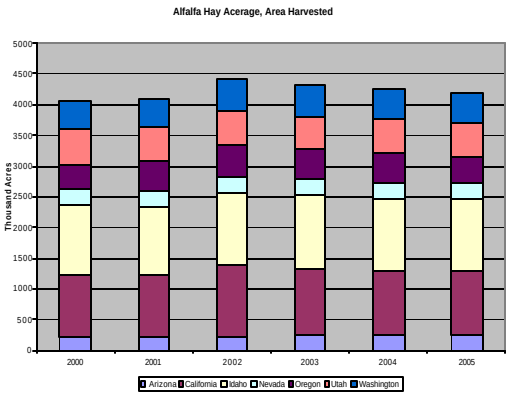
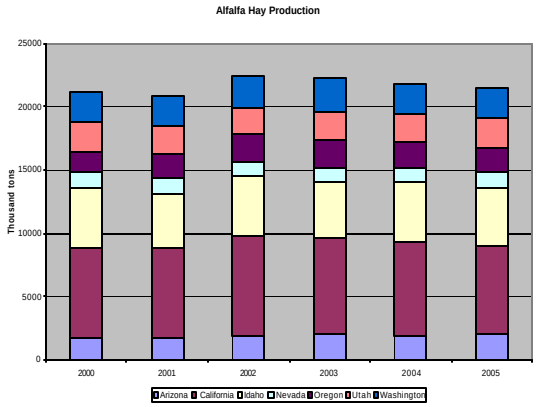
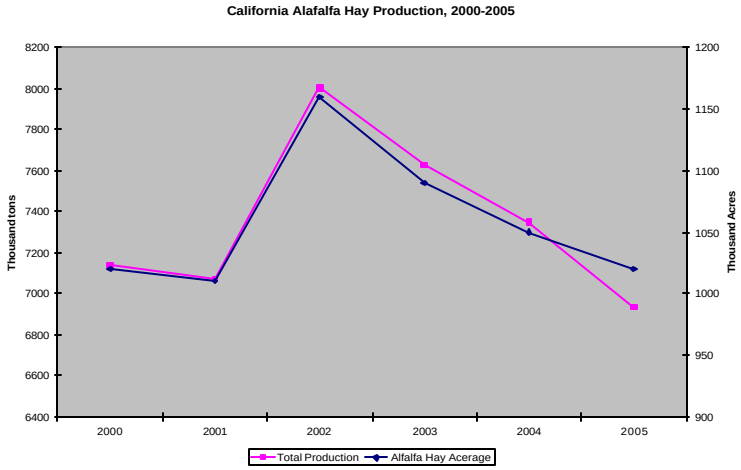




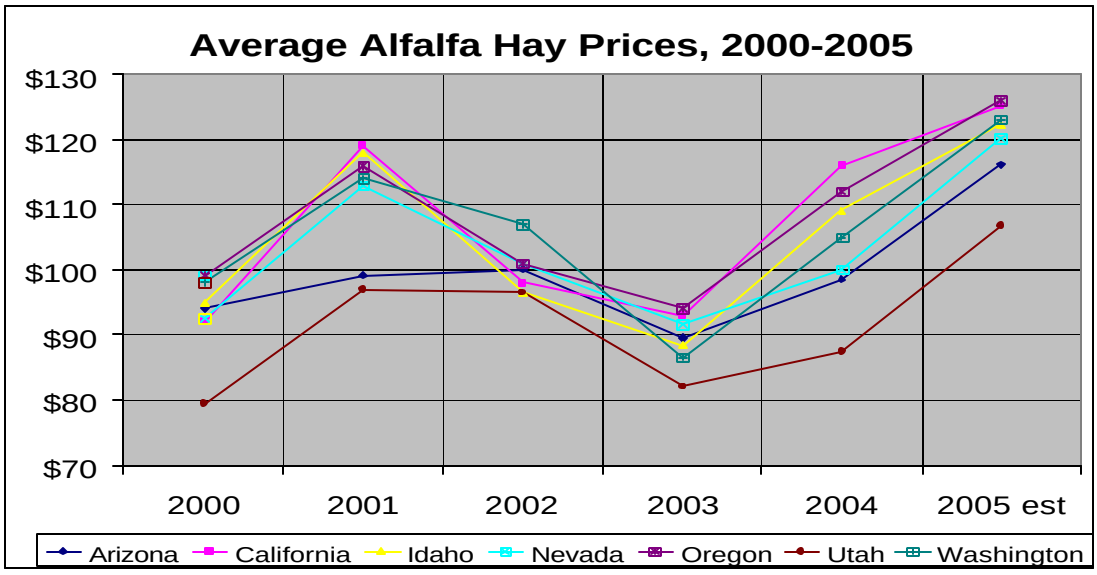


FACTORS AFFECTING SUPPLY AND DEMAND FOR ALFALFA

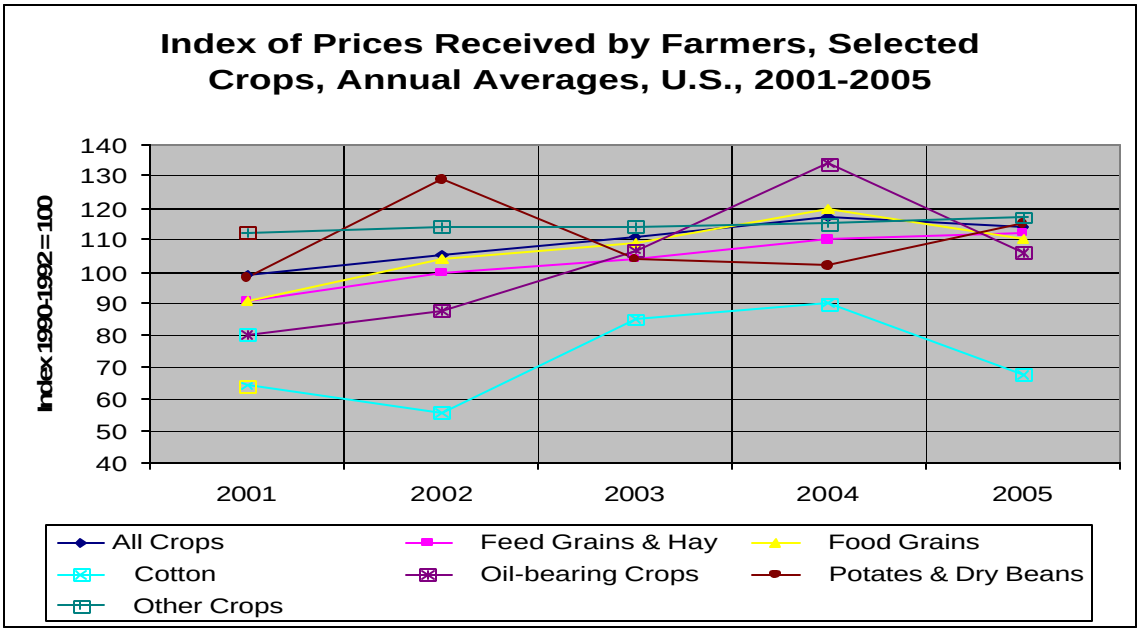
There are a number of important factors that influence the supply and demand for alfalfa, and these in turn influence the prices received (or paid) for alfalfa. The following factors are considered to be the most influential for alfalfa supply and demand.

Factors affecting supply:

1. Price of alfalfa in the previous 2 years. One of the most important factors that influence the supply of alfalfa is the price that producers received for alfalfa in the previous two years. In general, if prices have been relatively high in the previous two years, we would expect increased acreage of alfalfa. Obviously, the price received for alfalfa in the immediate past year will have a heavier weighting than the prices of 2 years ago. In this case we are looking at the prices of 2004 and 2005. In both years, prices have been higher than historical price trends indicate, and therefore we could expect an increase in the number of acres of hay planted/harvested in 2006.

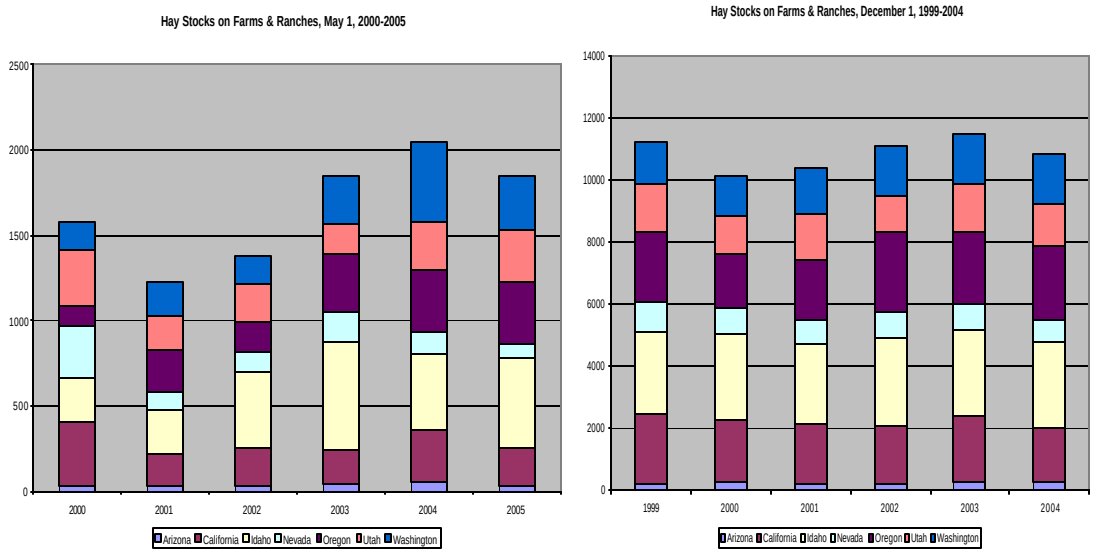


2. Price of competing crops in the previous 2 years. Another important factor that influences the supply of alfalfa hay in any year is the prices received by growers for those crops that compete with alfalfa for acreage. Competing crops include cereals such as corn, wheat, barley, sorghum and rice, and more specialty crops such as tomatoes, sugarbeets, dry beans and cotton. These crops are alternatives to alfalfa for many mixed crop producers who are contemplating how to maximize profits from the land that they farm. If the price for alfalfa in the previous 2 years has been high *relative* to the prices that were received for these other competing crops, then we would expect a decrease in the acres devoted to competing crops and an increase in the acres planted to alfalfa. If the prices for alfalfa in the previous 2 years have been low *relative* to the prices that were received for these other competing crops, we would expect to see an increase in the acres devoted to the competing crops and a relative decrease in acres planted to alfalfa.



3. Carry-over Inventories. Each year California relies on having hay stocks equivalent to about 4-5% of the total alfalfa production for the year in midyear (May 1) to carry-over into the second half of the season, and about 25-30% of the total alfalfa production for the year at the end-of-year (December1) to carry-over the winter into spring the following year. When hay inventories are lower in mid year (May1) it tends to put pressure on prices for the second half of the year. When hay inventories are lower than about 25% at the end of the year (December 1), it decreases the total supply of alfalfa the following year, and contributes to higher prices.

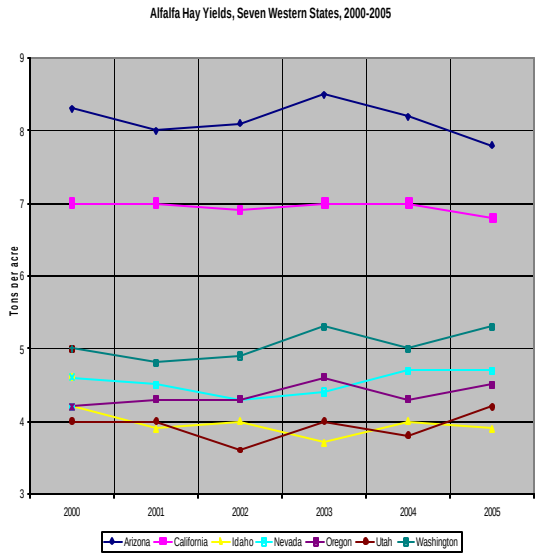
The effects of shortages or excesses can be either tempered or exaggerated by the magnitude of carry-over inventories in the other 6 Western states.

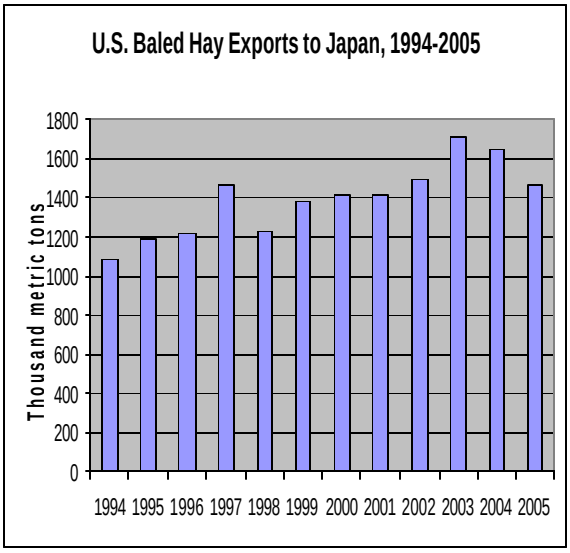


4. Yields and quality. Yields, of course, can have serious and mostly unpredictable consequences on the supply and on the quality of alfalfa hay, and any number of factors can affect yield. Availability of water, droughts, hot weather in mid-summer, unexpected rains in the spring and fall, insect infestations, and a number of other local and regional seasonal occurrences can all contribute to fluctuations in the yield and quality. Mostly however, average local and regional yields are fairly constant and do not have a large impact on overall supplies. Fluctuations in quality, on the other hand, have had impacts on the amount of hay available to dairy and beef producers and horse owners at times when they required (or could pay for) higher quality alfalfa hay. Of course, in many instances, shortages of supreme and premium alfalfa hay can be mitigated by supplies from out-of-state.

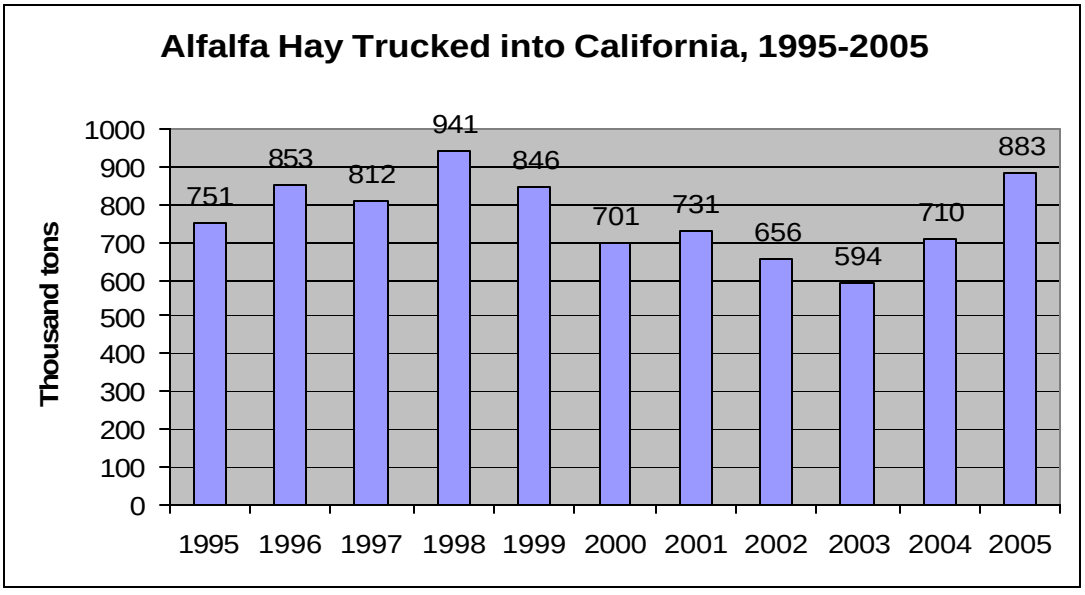
5. Alfalfa export markets. While the export market for baled and pelleted alfalfa has increased in recent years, particularly markets in Eastern Asia, these markets have not had a sizeable impact on local or regional supplies. Baled hay exports from the U.S. in the last 5 years have increased from about 1.4 million metric tons to about 1.8 million metric tons. That constitutes about 8% of the total alfalfa hay production in the 7 western

states. Exports of baled hay from California constitutes about 1-2% of our total production.

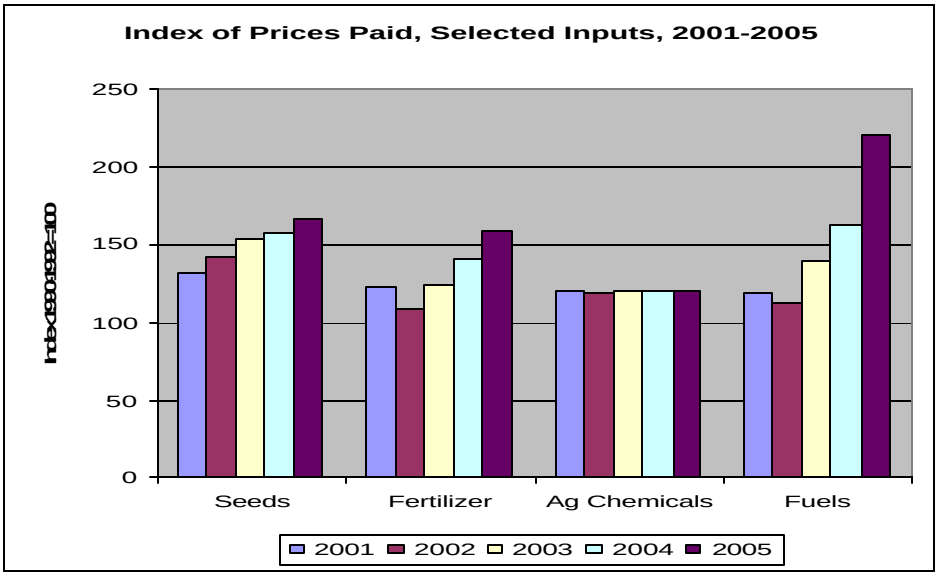




6. Imports of Alfalfa from out-of-state. In recent years, the amount of alfalfa hay being imported into California has fluctuated quite dramatically depending on in-state supplies, carry-over inventories and demand. The amount of hay trucked into California peaked in 1998 with almost 1 billion tons, or 14% of our total production of alfalfa hay. In 2005, the volume of alfalfa hay trucked into California was the second highest since 1995.



7. Availability and Price of Inputs. The availability of inputs such as seed, water, fertilizer, pesticides, (herbicides and insecticides), fuel and other energy related inputs. Of particular concern currently are the prices of diesel and other fuels. There has also been a reported shortage of certain types of alfalfa seed which may limit production in some areas. Water of course is always a concern in the west, and it is impossible to project availability



Factors Affecting Demand:

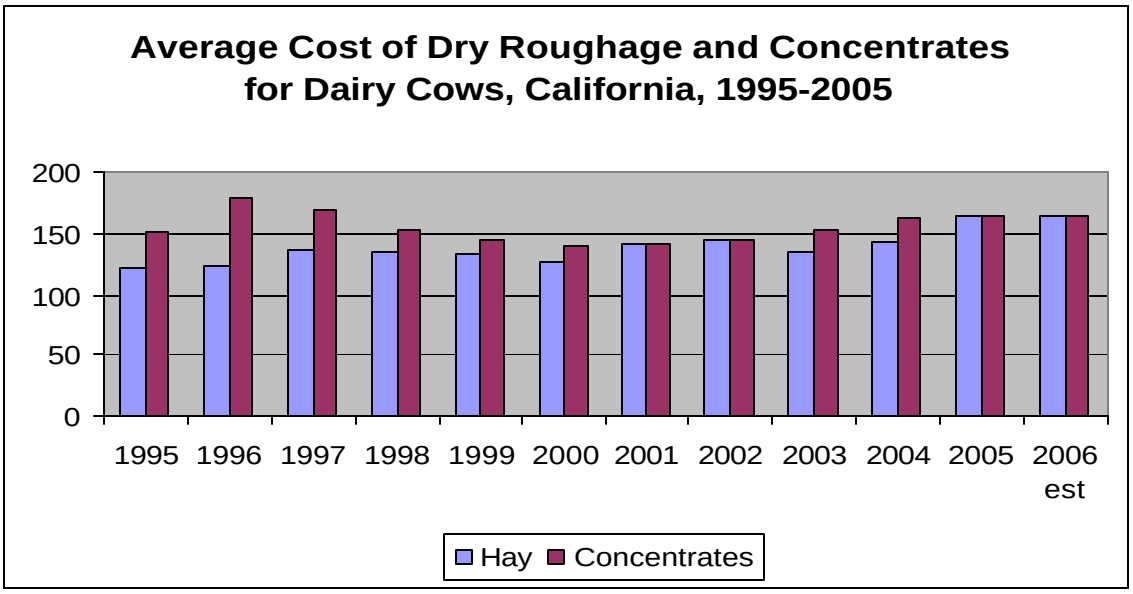
1. Price of Alfalfa Hay. The main factor that affects the demand for alfalfa is the price that buyers must pay for it.

2. Availability and Price of Concentrate Feeds. Another important factor that affects the demand for alfalfa is the availability and price of concentrate feeds. In recent years, the availability of many higher energy concentrate feeds has been higher and the prices have been lower, causing some dairy and beef producers to increase the amount of concentrates they feed. This is particularly challenging for the alfalfa industry when the price of concentrates *relative* to the price of alfalfa causes substitution of concentrate feeds for alfalfa. That is, many producers will actually decrease the quantities of alfalfa they feed and increase the quantities of concentrates.

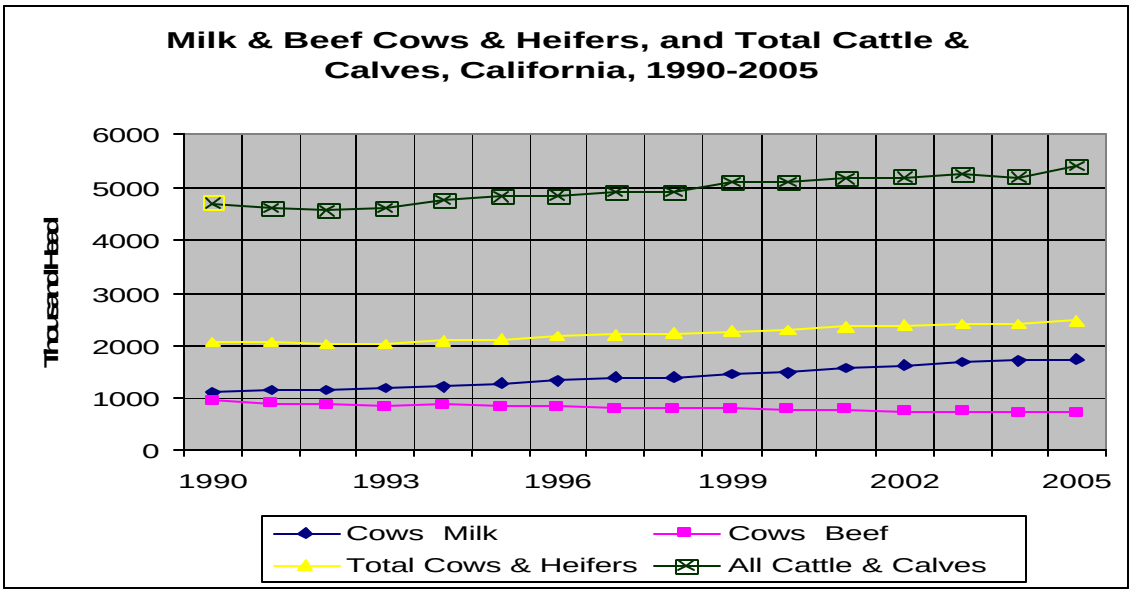
Increased production of competing or alternative crops (discussed previously) may also increase the supply of concentrate (high energy) feeds which dairy and beef producers use to increase milk or beef production. So, if the supply of competing crops increases (due to higher prices in previous years), this will cause prices for concentrate feeds to decrease and thus increase the demand for them, thereby decreasing the demand for alfalfa.

The following is a brief summary of the outlook for feed grains and concentrates in 2006:

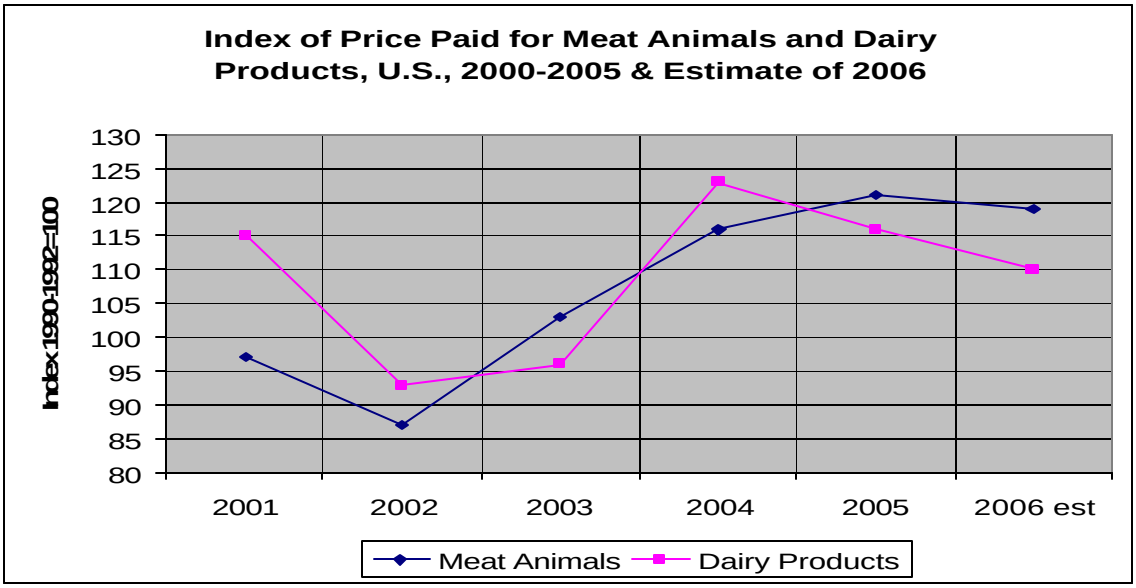
- 2005 is expected to result in the second largest ever crop of corn and soybeans. Despite a drought in the Midwest, yields have been high.
- Large carryover stocks of corn and soybeans are expected to increase supplies in 2006.
- This should result in relatively low feed grain/protein meal prices for 2006
- Hurricane Katrina has added to the surplus situation by preventing the normal exports of grain out of Gulf ports.
- Domestic demand for feed grains has been relatively high and is expected to continue to be high, offsetting somewhat, the increased surplus
- High fuel prices for transportation, and a relative shortage of rail cars has resulted in higher prices than expected and lower supplies to feed plants in California.
- World production of feed grains and protein meals is forecast to be relatively high, and is exacerbated by the avian flu epidemic which has resulted in the decreased supplies of poultry and demand for protein meals.
- High gas prices and expensive nitrogen could limit the plantings of corn in 2006, and suggests a much larger soybean crop.
- Overall, feed grains and concentrates are expected to be in plentiful supply in 2006 and at prices similar to or lower than 2004 and 2005.



3. Number of Animals fed Alfalfa. The alfalfa industry provides feed for the dairy industry (70%), beef cattle (20%) and horses (10%). Therefore, the number of animals to be fed is a relevant factor affecting the demand for alfalfa. As the number of animals that are fed alfalfa increases, then clearly the demand for alfalfa increases.



4. Milk and Meat Prices. While dairy and beef producers are important buyers of alfalfa, their demand for alfalfa is strongly influenced by the prices they receive for their respective products; milk and beef. In general, as the prices for milk and beef increase, the demand for alfalfa increases.



The following is a brief summary of the current situation and outlook for the California dairy industry in 2006.

- Nationally, high milk prices in 2004 and through 2005 have encouraged dairy herd expansion and stronger milk production per cow, resulting in increased milk production.
- Cows and milk production continue to move west.

- The CWT program has been effective in reducing cow numbers and maintaining milk prices throughout this period, but milk production has continued to increase because herd elimination usually results in only the least productive cows being removed.
- Dairy replacements continue to be expensive and dairy cow slaughter is down about 6% for the year.
- The milk-price ratio is relatively high – about 3.0 – thus encouraging increased growth in milk production.
- Large corn and soybean crops and large stocks portend lower concentrate prices and leading to increases in milk production, although quality hay has been in short supply in some regions.
- Dairy product consumption has been very strong over the last 18 months and kept markets fairly tight for most of 2005. Dairy product prices have remained below retail price increases.
- Prices are currently trending down at the end of 2005, and are expected to remain at lower levels for the first half of 2006.

The California Dairy Outlook (see Table 7) for 2006 is:

- Dairy cow numbers are expected to increase almost 3% to over 1.8 million
- Production per cow will likely be lower than historical trends at around 1% increase over 2005
- Total milk production in 2006 is expected to a record 39.2 billion pounds.
- Milk prices in 2006 will likely be lower than 2005 prices and considerably lower than 2004 prices.
- Average cost of milk production has been historically higher over the last 3 years, but is not likely to get any higher in 2006.
- Profit margins (price less cost of production) are likely to much tighter in 2006 – around 40% lower than 2005 margins.

5. Quality. As mentioned previously, fluctuations in quality have had impacts on the amount of hay available to dairy, and beef producers and horse owners at times when they required (or could pay for) higher quality alfalfa hay. This in turn may create changes in the demand for alfalfa when dairy and beef producers substitute higher energy concentrate feeds or other alternatives for alfalfa. This trend can be exacerbated when concentrate feeds are plentiful and prices are low relative to alfalfa. On the other hand, because fluctuations in quality are usually local or regional, shortages of certain classes of alfalfa hay can be mitigated by supplies from other regions.

OUTLOOK FOR ALFALFA IN CALIFORNIA FOR 2006

- Prices for alfalfa have been relatively high in the last two years – therefore we could expect increased acreage of alfalfa in 2006.
- Prices for competing crops have been lower relative to alfalfa in the last two years. This tends to reinforce the trend toward increased acreage of alfalfa in 2006.
- Carryover inventories are likely to be low for year-end 2005 into 2006. Therefore, supplies are likely to be tight for the first half of 2006, and prices will likely remain relatively high.
- Imports of alfalfa hay from out-of-state are likely to be higher in 2006 due to tight supplies and continued demand for alfalfa in the first half of 2006.
- Higher prices for seed, fertilizer and particularly fuel may offset the trend to increased production.
- The availability and price of concentrate feeds may encourage substitution of concentrates for alfalfa and dampen demand for alfalfa in 2006.
- Increased animal numbers in California will tend to offset demand dampening effects of concentrates and inputs.
- However, decreased milk prices and tighter margins will likely soften demand for alfalfa, at least in the second half of 2006.

Low carryover inventories and strong demand will likely keep alfalfa prices relatively high for the first half of 2006. Lower milk prices and tighter profit margins for milk may cause some softening of the demand for alfalfa in 2006. This is exacerbated by expected large corn and soybean crops which cause prices for concentrate feeds to become competitive with alfalfa. In California, milk cow numbers are expected to increase and milk production will be higher. Beef prices are expected to be slightly lower in 2006, but not sufficient to create any significant changes in current beef cattle numbers or demand for alfalfa.

Overall, it is expected that alfalfa acreage will increase in California in 2006, and, assuming normal yields, increased production of alfalfa hay. While prices will remain relatively high in the first half of 2006, softening demand for alfalfa by the dairy industry and increased alfalfa supplies will likely cause prices to decline in the second half of 2006 to levels a little lower than 2005 prices.

Table 1: Alfalfa Hay Acreage, Seven Western States and U.S., 2000 - 2005

	2000	2001	2002	2003	2004	2005
		(thousand acres)				
Arizona	205	215	230	235	240	260
California	1020	1010	1160	1090	1050	1020
Idaho	1130	1120	1170	1200	1180	1180
Nevada	275	265	275	265	250	260
Oregon	390	460	495	480	480	440
Utah	575	560	565	545	560	550
Washington	470	470	510	510	480	470
7 Western States	4065	4100	4405	4325	4240	4180
U.S.	23463	23952	22923	23529	21707	22118

Table 2: Alfalfa Hay Average Yields, Seven Western States and U.S., 2000 - 2005

	2000	2001	2002	2003	2004	2005
		(tons per acre)				
Arizona	8.3	8	8.1	8.5	8.2	7.8
California	7	7	6.9	7	7	6.8
Idaho	4.2	3.9	4	3.7	4	3.9
Nevada	4.6	4.5	4.3	4.4	4.7	4.7
Oregon	4.2	4.3	4.3	4.6	4.3	4.5
Utah	4	4	3.6	4	3.8	4.2
Washington	5	4.8	4.9	5.3	5	5.3
7 West States (Ave)	5.3	5.2	5.2	5.4	5.3	5.3
U.S.	3.47	3.35	3.19	3.24	3.47	3.43

Table 3: Alfalfa Hay Production, Seven Western States and U.S., 2000 – 2005

	2000	2001	2002	2003	2004	2005
		(thousand tons)				
Arizona	1702	1720	1863	1998	1968	2028
California	7140	7070	8004	7630	7350	6936
Idaho	4746	4368	4680	4440	4720	4602
Nevada	1265	1193	1183	1166	1175	1222
Oregon	1638	1978	2129	2208	2064	1980
Utah	2300	2240	2034	2180	2128	2310
Washington	2350	2256	2499	2703	2400	2491
7 Western States	21661	21379	22717	23170	22411	22214
U.S.	81417	80239	73124	76234	75323	75865

Table 4: All Hay Stocks on Farms May 1, 2000-2005

	2000	2001	2002	2003	2004	2005
			(thousand tons)			
Arizona	27	33	28	45	55	35
California	381	180	228	200	306	215
Idaho	257	258	444	635	445	535
Nevada	298	115	111	167	121	80
Oregon	128	241	183	340	371	362
Utah	326	200	215	175	279	300
Washington	165	195	170	285	470	322
7 West States (Ave)	1582	1222	1379	1847	2047	1849
U.S.	28848	21248	22458	22013	24947	22708

Table 5: All Hay Stocks on Farms December 1, 1999-2004

	1999	2000	2001	2002	2003	2004
			(thousand tons)			
Arizona	184	250	223	203	280	250
California	2285	1977	1930	1840	2086	1724
Idaho	2617	2790	2568	2824	2772	2782
Nevada	970	824	776	882	857	741
Oregon	2245	1766	1901	2550	2357	2366
Utah	1564	1196	1494	1210	1495	1383
Washington	1377	1303	1513	1600	1620	1560
7 West States (Ave)	11242	10106	10405	11109	11467	10806
U.S.	109115	106412	110384	102978	111027	114294

Table 6: Average Alfalfa Hay Price, Seven Western States & US

	2000	2001	2002	2003	2004	2005 est
			($/ton)			
Arizona	$94.00	$99.00	$100.00	$89.50	$98.50	$116.07
California	$92.00	$119.00	$98.00	$93.00	$116.00	$125.00
Idaho	$95.00	$118.00	$96.50	$88.50	$109.00	$122.35
Nevada	$92.50	$113.00	$101.00	$91.50	$100.00	$120.17
Oregon	$99.00	$116.00	$101.00	$94.00	$112.00	$125.97
Utah	$79.50	$97.00	$96.50	$82.00	$87.50	$106.78
Washington	$98.00	$114.00	$107.00	$86.50	$105.00	$123.19
7 West States (Ave)	$92.86	$110.86	$100.00	$89.29	$104.00	$119.93
U.S.	$88.90	$104.00	$100.00	$90.80	$97.50	$116.12

Table 7: California Dairy Outlook for 2006

California	**2002**	**2003**	**2004**	**2005**	**2006**
Milk Cows (000's)	1648	1688	1725	1757	1809
Production per cow	21277	20993	21139	21522	21677
Total milk Production	35.1	35.4	36.5	37.8	39.2
Average Price Milk	$11.09	$11.55	$14.74	$14.16	$13.30
Ave Cost of Prod	$11.28	$11.20	$12.44	$12.75	$12.45
Margin	-$0.19	$0.35	$2.30	$1.41	$0.85