Situation and Outlook for Alfalfa in the Western U.S. in 1995

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Abstract

The market for alfalfa hay in the Western U.S. is limited, by transportation costs, to a seven-state region that includes Arizona, California, Idaho, Nevada, Oregon, Utah and Washington. The following situation and outlook for alfalfa hay in the Western U.S. reviews some of the factors that have influenced the current situation, and uses an econometric model to project the outlook for 1995. In 1995, the alfalfa acreage for the seven-state region is expected to increase by about 4 percent resulting in an increase in total production of about 3.2 percent. The projected increase in the supply of alfalfa together with decreases in the prices of milk and meat and competing feeds should conspire to cause alfalfa prices in 1995 to decrease by about 7 percent below 1994 prices.

Alfalfa Hay Stocks (Tables and 2)

On December 1, 1991, the seven-state region had the largest stock of alfalfa hay on record since 1987. Dismal milk prices and heavy culling of dairy cows, combined with more than adequate stocks and a decrease in the demand for alfalfa in early 1992 caused alfalfa hay prices to decline. By May 1992, the on-farm inventory of alfalfa hay was still in excess of 9 percent of the total U.S. inventory, and prices for alfalfa throughout 1992 were relatively low. The December 1, 1992 stocks were lower than those in 1991, but were still about 10 percent of total U.S. stocks. In 1993, milk prices took a steep turn upward in the spring and this buoyed demand for alfalfa. By May 1, 1993, the seven-state region stocks of alfalfa hay was less than 5 percent of the total U.S. on-farm inventory. Prices for alfalfa began to climb, and, for the whole of 1993, averaged over 20 percent higher than 1992 average prices.

By December of 1993, alfalfa hay stocks for the seven-state region were almost back to normal, but Arizona, California and Washington all had large deficits. By May 1, 1994, the situation was back to normal, with the seven-state region maintaining an inventory of about 2.2 million tons, or about 9.6 percent of the total U.S. inventory. However increases in the demand for alfalfa hay, mainly by the dairy industry, have kept prices high. Average prices for alfalfa hay in 1994 are estimated to be about 10-12 percent above 1993 levels - higher than 1989 and 1990 prices, and the highest since before 1981 (Figure 1).

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Regional Acreage's, Average Yields and Production (Tables 3, 4 and 5)

The seven-state region harvested acreage of alfalfa for 1994 is estimated to be about 3.8 million acres - down slightly from 1993 levels, and lower than the 1986 record levels of almost 4 million acres.

Harvested acreage declined in only two states in 1994, California and Idaho. With the exception of Oregon and Washington, all other states reported an increase in acreage. Regional yields however, are estimated to have decreased in 1994 in most states, with the exception of Arizona whose yields appear to have increased to around 8.0 tons per acre.

Total regional production of alfalfa hay for the whole of 1994 is expected to be over 18.6 million tons; slightly lower than 1993 levels. Total production actually increased in Arizona and Oregon in 1994 while production in all other states of the seven-state region decreased.

Demand for Alfalfa Hay

Approximately 70 percent of the total production of alfalfa hay in the Western U.S. is sold for dairy feed. The other 30 percent is about evenly split between beef cattle and horses. Therefore, economic conditions that affect the dairy industry, and to a lesser extent, the beef industry, also affects the demand for alfalfa hay.

Alfalfa competes in animal feed markets with other animal feeds such as corn, oats, wheat, barley and cottonseed, as well as a variety of other dairy feeds, particularly in California. However, while alfalfa is one of the most important components of dairy cattle diets, its use in rations is significantly determined by its price relative to other (competing) feeds.

In recent years the Western region has increased its national share of dairy cows and milk production. The number of milk cows in the seven-state Western region has increased from 15.5 percent of the U.S. herd in 1986 to over 20 percent in 1994. In addition, typical milk yields in the West average 15-17 percent above the national average.

Over 60 percent of the total milk cows on farms in the seven-state Western region reside in California, but California produces only 37 percent of the total alfalfa grown in the same seven states. A considerable amount of alfalfa hay is imported into California from neighboring states. Therefore, the economic conditions of the California dairy industry significantly influences the supply of, and demand for alfalfa hay and other dairy feeds in the Western region.

The following outlook for 1995, therefore, is heavily influenced by past and projected conditions in California - particularly the California dairy industry.

Outlook for Alfalfa in 1995

Supply

Changes in the supply of alfalfa hay are influenced by both long term and short term phenomena. In the long term, changes in planted acreage are mainly responsive to profitability of alfalfa relative to other competing crops. As the price of alfalfa increases relative to other crops, acreage tends to increase.

Changes in the short term supply of alfalfa are mainly dependent on factors that affect yield. Thus, if winter rains are not sufficient to provide substantial water supplies in the spring, or if late spring rains should spoil the first or second cuttings of alfalfa hay, then alfalfa supplies can vary up or down by as much as 10 percent.

Increases in the demand for alfalfa in the last 2 years have substantially increased the price for alfalfa, especially relative to those of competing crops. 1994 prices are about 30 percent above 1992 prices. As a consequence, alfalfa acreage is expected to increase in 1995 by about 4 percent over 1994 acreage's, bringing the total acreage planted in the seven-state region to about 3.92 million acres.

Provided winter conditions are normal, and late Spring rains do not spoil the crop, the total quantity of alfalfa produced in 1995 should increase by about 3.2 percent to over 19.2 million tons.

Demand

Changes in the demand for alfalfa, as reflected in the price of alfalfa, are mainly due to changes in milk and beef prices, the prices of competing feeds, the number of dairy and beef cattle in the region and the supply of alfalfa.

Milk and meat prices are expected to decrease in 1995 by about 5 percent while competing feed prices are expected to decrease by up to 10 percent. These factors will be offset slightly by the continued expansion in dairy herds, which should increase cattle numbers by about 3 percent. But the projected increase in the supply of alfalfa together with the decreases in the prices of milk and meat and competing feeds should conspire to cause alfalfa prices in 1995 to decrease by about 7 percent below 1994 prices.

Index of Alfalfa Hay Prices
Western US, 1981-1994 (1989=100)

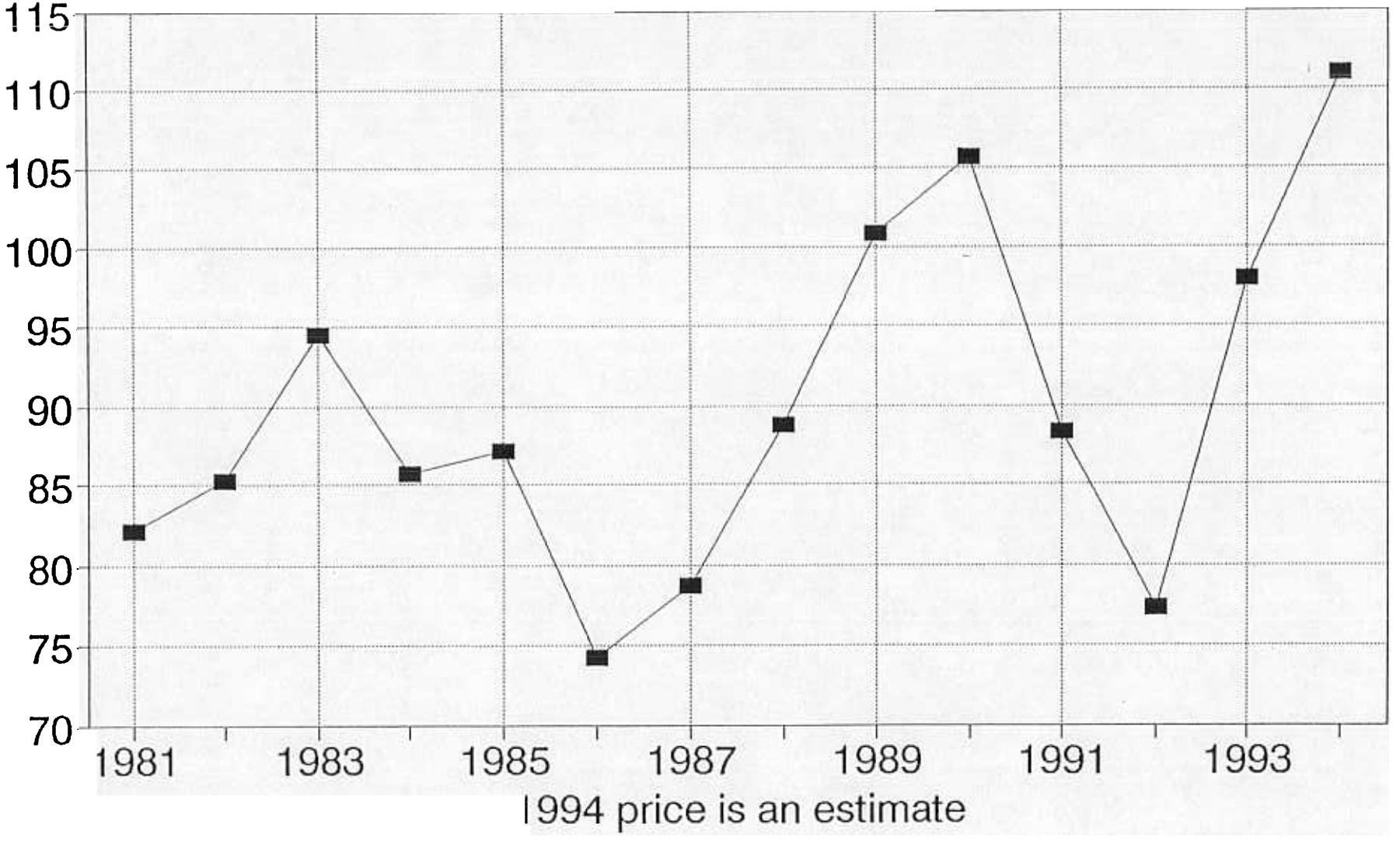

Table 1
Hay Stocks on Farms and Ranches
December 1, 1980-94

STATE	December 1 1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
	-1000 Tons-														
Arizona	164.0	365.0	207.0	137.0	116.0	118.0	290.0	263.0	133.0	115.0	213.0	171.0	269.0	124.0	
California	2,043.0	2,708.0	2,669.0	1,606.0	1,323.0	1,414.0	2,330.0	2,341.0	2,163.0	1,675.0	1,911.0	2,841.0	2,589.0	1,670.0	
Idaho	2,682.0	3,120.0	3,073.0	2,712.0	2,850.0	3,036.0	3,304.0	4,008.0	3,648.0	2,183.0	2,287.0	3,221.0	2,193.0	2,955.0	
Nevada	703.0	657.0	628.0	749.0	781.0	806.0	963.0	897.0	668.0	658.0	680.0	695.0	499.0	651.0	
Oregon	1,798.0	2,382.0	2,165.0	1,958.0	2,185.0	2,023.0	2,100.0	2,200.0	1,591.0	1,243.0	1,498.0	1,684.0	1,537.0	1,686.0	
Utah	1,276.0	1,338.0	1,530.0	1,328.0	1,089.0	1,231.0	1,559.0	1,503.0	1,176.0	1,013.0	1,274.0	1,593.0	1,344.0	1,518.0	
Washington	1,621.0	1,733.0	1,652.0	1,337.0	1,528.0	1,471.0	1,868.0	2,104.0	1,700.0	1,351.0	1,986.0	2,228.0	1,777.0	992.0	
7 Western States	10,287.0	12,303.0	11,924.0	9,829.0	9,872.0	10,101.0	12,414.0	13,316.0	11,079.0	8,438.0	9,849.0	12,433.0	10,468.0	9,596.0	
United States	106,204.0	91,983.0	99,476.0	106,650.0	89,280.0	100,632.0	121,734.0	119,845.0	90,312.0	101,158.0	104,873.0	111,578.0	105,601.0	101,888.0	
Seven Western United States	0.0951	0.1338	0.1199	0.0922	0.1106	0.1004	0.1020	0.1111	0.1227	0.0834	0.0939	0.1114	0.0993	0.0942	

Source: National Agricultural Statistics Service, Crop Production, May issue

Table 2
Hay Stocks on Farms and Ranches
May 1, 1980-94

STATE	May 1 1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
	-1000 Tons-														
Arizona	77.0	25.0	109.0	333.0	73.0	66.0	55.0	25.0	41.0	27.0	26.0	71.0	71.0	37.0	25.0
California	620.0	542.0	471.0	337.0	368.0	314.0	400.0	345.0	360.0	173.0	256.0	332.0	775.0	155.0	152.0
Idaho	619.0	835.0	757.0	489.0	393.0	522.0	245.0	1,066.0	901.0	310.0	485.0	408.0	644.0	292.0	678.0
Nevada	216.0	164.0	105.0	125.0	195.0	135.0	130.0	206.0	207.0	67.0	88.0	109.0	162.0	32.0	166.0
Oregon	360.0	745.0	289.0	267.0	281.0	218.0	179.0	669.0	392.0	159.0	318.0	198.0	384.0	73.0	521.0
Utah	304.0	453.0	328.0	236.0	206.0	238.0	271.0	470.0	381.0	283.0	238.0	297.0	319.0	246.0	323.0
Washington	424.0	578.0	508.0	262.0	237.0	158.0	182.0	517.0	405.0	312.0	225.0	336.0	327.0	148.0	312.0
7 Western States	2,620.0	3,342.0	2,567.0	2,049.0	1,753.0	1,651.0	1,462.0	3,338.0	2,687.0	1,331.0	1,636.0	1,751.0	2,682.0	983.0	2,177.0
United States	33,346.0	25,429.0	26,155.0	29,052.0	20,558.0	26,863.0	26,698.0	32,416.0	27,353.0	17,507.0	27,089.0	27,023.0	28,599.0	21,102.0	22,714.0
Seven Wester United States	0.0786	0.1314	0.0981	0.0705	0.0853	0.0615	0.0548	0.1030	0.0982	0.0760	0.0604	0.0648	0.0938	0.0466	0.0958

Source: National Agricultural Statistics Service, Crop Production, May issue

Table 3
Alfalfa Hay Acreage
Seven Western States, 1980-94

STATE	Area Harvested														
	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994e
	-1000 Acres-														
Arizona	165.0	160.0	160.0	145.0	150.0	145.0	155.0	160.0	155.0	150.0	165.0	170.0	150.0	150.0	160.0
California	1,030.0	1,050.0	960.0	950.0	1,020.0	1,030.0	1,080.0	1,150.0	1,100.0	1,020.0	1,060.0	1,050.0	960.0	950.0	920.0
Idaho	1,090.0	1,100.0	1,020.0	1,030.0	1,050.0	1,020.0	1,100.0	1,020.0	920.0	930.0	960.0	1,030.0	910.0	1,050.0	1,020.0
Nevada	215.0	210.0	215.0	230.0	235.0	235.0	240.0	245.0	250.0	245.0	240.0	235.0	230.0	235.0	240.0
Oregon	425.0	425.0	420.0	440.0	445.0	450.0	460.0	430.0	415.0	400.0	420.0	425.0	400.0	420.0	420.0
Utah	470.0	475.0	470.0	455.0	470.0	460.0	470.0	465.0	480.0	470.0	485.0	490.0	490.0	500.0	525.0
Washington	505.0	500.0	490.0	440.0	475.0	450.0	470.0	460.0	490.0	480.0	470.0	480.0	480.0	480.0	480.0
7 Western States	3,900.0	3,920.0	3,735.0	3,690.0	3,845.0	3,790.0	3,975.0	3,930.0	3,810.0	3,695.0	3,800.0	3,880.0	3,620.0	3,785.0	3,765.0

Source: National Agricultural Statistics Service, Crop Production, August Issue

e=estimated

Table 4
Alfalfa Hay, Average Yields
Seven Western States, 1980-94

STATE	Yield														
	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989e	1990	1991	1992	1993	1994e
	-Tons-														
Arizona	7.0	7.0	7.3	7.3	7.2	7.1	7.6	7.8	7.9	7.6	7.9	7.7	7.3	7.4	8.0
California	6.4	6.3	6.7	6.4	6.5	6.5	6.6	6.7	6.6	6.7	6.6	6.7	6.7	6.9	6.7
Idaho	3.5	3.6	3.7	3.9	3.8	3.5	3.8	3.9	3.8	4.0	3.9	3.8	3.7	4.0	3.9
Nevada	3.5	3.6	3.5	3.9	4.0	4.1	4.1	4.2	4.2	4.4	4.0	3.7	3.8	4.4	4.3
Oregon	4.2	4.1	4.2	4.2	4.1	4.1	4.2	4.2	4.1	4.3	4.1	4.2	4.0	4.2	4.0
Utah	3.9	4.1	4.0	3.9	4.0	3.9	3.9	4.1	3.9	3.7	3.8	4.0	4.0	4.4	4.1
Washington	3.7	3.7	4.3	4.0	4.3	3.9	4.2	4.3	4.2	4.3	4.8	4.5	4.6	4.5	4.5

Source: National Agricultural Statistics Service, Crop Production, August Issue

e=estimated

Table 5
Alfalfa Hay, Total Production
Seven Western States, 1980-94

STATE	Production 1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994e
	1,000 Tons														
Arizona	1,155.0	1,120.0	1,168.0	1,059.0	1,080.0	1,147.0	1,178.0	1,248.0	1,225.0	1,140.0	1,304.0	1,309.0	1,095.0	1,110.0	1,280.0
California	6,592.0	6,615.0	6,432.0	6,080.0	6,732.0	6,592.0	7,128.0	7,705.0	7,260.0	6,834.0	6,996.0	7,035.0	6,432.0	6,348.0	6,365.0
Idaho	3,815.0	3,960.0	3,774.0	4,017.0	3,936.0	3,852.0	4,180.0	3,978.0	3,496.0	3,720.0	3,744.0	3,914.0	3,367.0	4,200.0	3,978.0
Nevada	753.0	746.0	753.0	897.0	940.0	936.0	984.0	1,029.0	1,050.0	1,078.0	984.0	858.0	874.0	1,034.0	1,032.0
Oregon	1,785.0	1,743.0	1,764.0	1,848.0	1,825.0	1,776.0	1,932.0	1,806.0	1,702.0	1,720.0	1,806.0	1,785.0	1,600.0	1,764.0	1,680.0
Utah	1,833.0	1,948.0	1,680.0	1,775.0	1,680.0	1,833.0	1,833.0	1,907.0	1,872.0	1,739.0	1,843.0	1,960.0	1,960.0	2,200.0	2,150.0
Washington	1,869.0	1,850.0	2,107.0	1,760.0	2,043.0	2,050.0	1,974.0	1,978.0	2,058.0	2,064.0	2,256.0	2,160.0	2,208.0	2,160.0	2,160.0
Western States	17,802.0	17,982.0	17,878.0	17,436.0	18,436.0	18,186.0	19,209.0	19,651.0	18,863.0	18,295.0	18,933.0	19,021.0	17,536.0	18,816.0	18,645.0

Source: National Agricultural Statistics Service, Crop Production, August Issu

e=estimated

Table 6
Total Alfalfa Supply
Seven Western States, 1980-94

STATE	Total Supply Available 1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994e
	1,000 Tons														
Arizona	1,232.0	1,145.0	1,277.0	1,392.0	1,153.0	1,297.0	1,233.0	1,273.0	1,229.0	1,167.0	1,330.0	1,380.0	1,166.0	1,147.0	1,305.0
California	7,212.0	7,157.0	6,903.0	6,417.0	7,100.0	6,906.0	7,528.0	8,050.0	7,600.5	7,007.0	7,252.0	7,367.0	7,207.0	6,503.0	6,517.0
Idaho	4,434.0	4,795.0	4,531.0	4,506.0	4,331.0	4,374.0	4,425.0	5,064.0	4,501.0	4,030.0	4,229.0	4,322.0	4,011.0	4,492.0	4,656.0
Nevada	969.0	910.0	858.0	1,022.0	1,135.0	1,071.0	1,114.0	1,235.0	1,232.0	1,145.0	1,072.0	967.0	1,036.0	1,066.0	1,198.0
Oregon	2,145.0	2,488.0	2,053.0	2,115.0	2,106.0	1,996.0	2,111.0	2,495.0	2,109.1	1,879.0	2,124.0	1,983.0	1,984.0	1,837.0	2,201.0
Utah	2,137.0	2,401.0	2,208.0	2,011.0	2,086.0	2,071.0	2,104.0	2,376.5	2,269.0	2,022.0	2,081.0	2,257.0	2,279.0	2,446.0	2,473.0
Washington	2,293.0	2,428.0	2,615.0	2,022.0	2,280.0	2,208.0	2,156.0	2,495.0	2,450.8	2,376.0	2,481.0	2,496.0	2,535.0	2,308.0	2,472.0
7 Western States	20,422.0	21,324.0	20,445.0	19,485.0	20,191.0	19,923.0	20,671.0	22,988.5	21,411.4	19,626.0	20,569.0	20,772.0	20,218.0	19,799.0	20,822.0
United States	113,225.0	109,221.0	116,668.0	111,264.0	110,575.0	111,911.0	116,250.0	116,972.0	96,635.0	94,715.0	110,644.0	110,818.0	108,251.0	105,092.0	106,704.0
Seven Western/ United States	0.18	0.20	0.18	0.18	0.18	0.18	0.17	0.20	0.22	0.21	0.19	0.19	0.19	0.19	0.20

Source: National Agricultural Statistics Service

e=estimated

Table 7
California Hay Crop Production and Yield: 1978-94
Alfalfa and Other Hay Mixtures

Year	Alfalfa	Yield	Other Hay	Yield	Total Crop	Avg. Yield
	-'000 acres-	-Tons-	-000 acres-	-Tons-	-000 acres-	-Tons-
1978	1,090	5.5	520	2.0	1,610	4.31
1979	1,050	6.0	510	2.0	1,560	4.67
1980	1,030	6.4	520	2.2	1,550	4.99
1981	1,050	6.3	515	2.4	1,565	5.01
1982	960	6.7	510	2.4	1,470	5.20
1983	950	6.2	530	2.5	1,480	4.87
1984	1,020	6.6	530	2.4	1,550	5.16
1985	1,030	6.5	540	2.4	1,570	5.02
1986	1,080	6.6	600	2.5	1,680	5.14
1987	1,150	6.5	520	2.5	1,670	5.39
1988	1,100	6.6	580	2.4	1,680	5.15
1989	1,020	6.7	650	2.6	1,670	5.10
1990	1,060	6.6	570	2.3	1,630	5.10
1991	1,050	6.7	630	2.5	1,680	5.13
1992	960	6.7	490	2.7	1,450	5.35
1993	920	6.9	460	2.7	1,380	5.50
1994	950.0	6.9	560	2.9	1,510	5.4

Source: California Crop and Livestock Reporting Service
e = estimated

Table 8
California Hay Crop Production and Inventories: 1978-94

Year	Carryover May 1	Alfalfa Production	Other Hay Production	Total Crop Production	Total Supply	Carryover December
			-1000 Tons-			
1978	1,082	5,940	1,014	6,954	8,036	2,226
1979	765	6,300	995	7,295	8,060	2,043
1980	620	6,592	1,144	7,736	8,356	2,708
1981	542	6,615	1,236	7,851	8,393	2,669
1982	471	6,432	1,224	7,656	8,127	1,800
1983	337	5,890	1,325	7,215	7,552	1,608
1984	368	6,732	1,272	8,004	8,372	1,323
1985	314	6,592	1,296	7,888	8,202	1,414
1986	400	7,128	1,500	8,628	9,028	2,330
1987	345	7,705	1,300	9,005	9,350	2,341
1988	360	7,260	1,392	8,652	9,012	2,163
1989	173	6,834	1,690	8,524	8,697	1,875
1990	256	6,996	1,311	8,307	8,563	1,911
1991	332	7,035	1,575	8,610	8,942	2,841
1992	775	6,432	1,323	7,755	8,530	2,869
1993	155	6,348	1,242	7,590	7,745	1,670
1994	152	6,365	1,624	7,989	8,141	

Source: California Crop and Livestock Reporting Service
e = estimated