FRBSF WEEKLY LETTER

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The California-Mexico Agriculture Connection

During the past decade, agricultural links between the U.S. and Mexico have grown considerably. The volume of Mexican agricultural products imported into the U.S. has risen 83 percent since 1982. Mexican imports no longer serve solely to supplement U.S. production during winter months. Increased production along the border, where growing seasons are similar to those in the Southwestern U.S., now allows Mexican farmers to compete in U.S. markets year-round. Moreover, lower costs have induced many California firms to open agricultural operations in Mexico.

As we discuss in this *Letter,* increased agricultural ties with Mexico pose a challenge to California's preeminence in vegetable production. At the same time, these ties offer the opportunity for California firms to move some production and/or processing to Mexico to take advantage of lower labor costs.

Increased competition

Although California's production of fruits and vegetables has been rising, the state's share of national and world production has been falling. California provided 59.6 percent of total U.S. consumption of fresh vegetables in 1982. By 1987 that share fell to 54.6 percent. During this period, U.S. consumption of fresh vegetables rose 11 percent, but California production grew just 1.8 percent. Increased production from non-California sources met the increased demand, and as a result, prices remained relatively constant.

Some of the increase in non-California production came from other parts of the United States, where, because of technological advances, it is now possible to grow vegetables. For example, new strains of broccoli have made Maine a major producer of vegetables, with broccoli production rising from virtually zero in 1981 to over 3000 acres planted in 1986. Additional research, aimed at overcoming disease problems associated with vegetable production in the Southeastern U.S., will boost production further outside California.

Mexican imports

A more important source of competition to California agriculture has come from Mexico. In the 1970s, Mexican vegetable production took place away from the U.S. border and had a different harvesting schedule than did production in California. Consequently, Mexican vegetables tended to *extend* the fresh vegetable season in the U.S., instead of competing with California production.

In recent years, the volume of imported Mexican fruit and vegetables has soared, and production has expanded into other seasons, competing directly with California production. Between 1982 and 1987, U.S. imports of fresh vegetables from Mexico rose 73 percent. During that period, imports of traditional, California-grown crops rose dramatically. Imports of Mexican asparagus, tomatoes, and cucumbers increased over 50 percent, while imports of onions and carrots more than doubled. U.S. imports of Mexican vegetables in 1987 equaled almost nine percent of California vegetable production, up from about five percent in 1982.

Spurred by liberalized attitudes toward foreign direct investment in Mexico, the development of agriculture in border areas like Baja California is a major reason for the increase in Mexican production. Baja production has benefitted from

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investment by Californian and other U.S. agricultural firms. According to experts, most large and many medium-sized growers in California have direct links to Mexican agricultural production. In many cases, firms have established joint ventures with Mexican companies and are actively engaged in production.

The increased investment has accelerated the transfer of agriculture-related technology from California to Mexico. Agricultural production in some areas of Mexico has advanced to the point that yields now are similar to those across the border in Southern California. In fact, in Baja, fresh-market tomato yields increased from five tons per acre in 1970 to over 15 tons per acre in 1986, surpassing the 14 tons per acre achieved by California farmers that year.

Cost competition

One of the advantages of Mexican production is that labor costs are lower in Mexico than in the U.S. For example, farm labor in Baja costs just three dollars per day compared to $40 per day in the San Diego area. In addition to higher labor costs, California growers face other threats to their ability to compete as low-cost producers. Rapid urban growth has increased the demand for water and land, leading to rising farming costs. Also, environmental concerns, such as those expressed in California' toxic chemicals initiative, Proposition 65, may eliminate some low-cost production technologies that rely on chemical applications.

Moreover, competition will increase. The development of strains of vegetables that can survive in other climates will establish production in new regions. Increased capabilities to store and transport fruits and vegetables also will raise the competitiveness of offshore producers.

Competition from Mexico also will increase. Although water shortages and technological limitations should slow the growth of Baja production, the use of higher-yield strains and new technology will encourage production in other growing regions, and imports from Mexico should continue to increase.

The opportunities

California growers have responded to the competition from lower-cost Mexican production by diversifying their own production into Mexico and taking advantage of these cost differences. Many California farmers are moving labor-intensive crops and production to Mexico, where possible, and allocating California farmland to machine-intensive crops. For example, broccoli that is chopped by machine and used for soup can be produced competitively in Salinas, California, but sprigs that must be cut by hand are produced more cheaply in Mexico.

Similarly, production of vine-ripened tomatoes, which are picked by hand, has been shifting to Mexico, while hardier machine-picked tomatoes have become the norm in California. In 1982, Mexico supplied 19 percent of U.S. consumption of hand-picked fresh tomatoes, while California held 24 percent of this market. By 1987, however, Mexico was the more important producer, with Mexican imports accounting for 24 percent of U.S. consumption and California products slipping to 22 percent. In contrast, California's production of machine-picked processing tomatoes has increased dramatically since 1978.

Some California farmers also have responded to increased competition by selecting products that command a premium from consumers, such as organic vegetables. At the 1988 U.S. Department of Agriculture's Outlook conference, marketing and product differentiation were central themes, suggesting increased awareness of the profit potential in "niche" markets. Growers that can establish such niche markets often capture greater profits because their products do not have to compete directly with the generic world crop. One option being considered by some California vegetable growers is to capitalize on consumer concerns about chemical use by switching their production to chemical-free techniques.

Of course, chemical-free production has pitfalls. It still is not known how willing consumers are to purchase the less attractive fruit and vegetables that typically are produced using chemical-free techniques. Moreover, as past events in the market clearly demonstrate, when high returns are being realized, competitors will emerge to imitate that success. Consequently, the need for continuous innovation by California farmers to retain their market shares will not diminish.

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DISTRICT INDICATORS
(Seasonally Adjusted)

	89Q1	88Q4	88Q3	88Q2	88Q1	87Q4	87Q3	87Q2	% CHANGE FROM: 88Q4	% CHANGE FROM: 88Q1
AGRICULTURE										
U.S. CROP PRICES, 1985=100	117.2	112.4	111.0	104.5	102.4	100.3	98.9	99.4	4.22	14.42
DISTRICT CROP PRICES, 1985=100	121.6	112.4	110.7	92.9	97.8	104.4	99.1	102.1	8.18	24.29
FARM CASH RECEIPTS, MILLION $	N/A	2353.5	2318.9	2237.6	2236.4	2182.9	2129.0	2111.9	N/A	N/A
CATTLE ON FEED, 1985=100	93.5	96.6	96.1	95.9	94.5	94.8	93.8	85.3	-3.25	-1.03
CATTLE PRICES, CALIFORNIA, $/CWT.	61.2	60.1	61.4	63.4	61.6	57.8	58.0	56.4	1.89	-0.60
FORESTRY										
LUMBER PRODUCTION, MILLIONS BOARD FEET	1600.2	1806.2	1547.1	1647.5	1718.1	1661.9	1687.1	1756.1	-11.41	-6.87
NORTHWEST LUMBER INVENTORY, MIL. BOARD FEET	2462.9	2575.3	2470.5	2501.7	2512.0	2469.4	2607.4	2641.7	-4.36	-1.96
U.S. LUMBER PRICES, 1985=100	113.0	109.6	113.4	113.3	110.6	109.4	111.8	107.2	3.11	2.19
ENERGY										
SPOT PRICE OF OIL, $/BARREL	18.5	14.8	15.2	17.3	16.7	18.8	20.4	19.3	25.01	11.15
U.S. RIG COUNT	772.8	800.1	957.8	1061.7	973.8	1002.2	1037.5	880.0	-3.42	-20.64
DISTRICT RIG COUNT	67.1	65.8	93.4	96.9	79.1	99.5	102.9	82.6	1.93	-15.15
FUEL MINING EMPLOYMENT, 1985=100	77.8	79.1	82.7	83.4	81.4	82.0	79.5	78.5	-1.55	-4.41
U.S. SEISMIC CREW COUNT	135.4	151.1	184.0	201.9	199.1	189.8	181.9	173.8	-10.43	-32.01
MINING										
MINERAL PRICES, 1985=100	176.6	178.1	150.7	153.4	152.0	145.9	131.5	120.2	-0.85	16.16
METAL MINING EMPLOYMENT, 1985=100	173.5	167.1	161.3	153.3	146.6	132.2	126.4	119.9	3.83	18.32
CONSTRUCTION										
NONRESIDENTIAL AWARDS	1435.4	1349.2	1571.7	1316.0	1463.8	1608.1	1476.1	1504.2	6.39	-1.94
RESIDENTIAL PERMITS	31470	36229	32725	30907	27923	28694	30783	30200	-13.14	12.70
WESTERN HOUSING STARTS, THOUSANDS	27.9	33.0	36.3	36.8	28.5	27.9	37.6	40.1	-15.22	-2.04
CONSTRUCTION EMPLOYMENT, THOUSANDS	986.9	967.5	946.8	934.4	919.4	903.6	899.2	901.5	2.00	7.34
MANUFACTURING										
WAGES, CALIFORNIA, $/HOUR	11.0	11.0	10.9	10.8	10.8	10.9	10.8	10.7	0.61	2.04
EMPLOYMENT, THOUSANDS	3157.1	3131.6	3095.3	3094.0	3086.4	3054.4	3031.2	3009.6	0.81	2.29
DURABLES, 1985=100	104.3	103.4	102.7	102.5	102.3	101.5	100.7	99.8	0.87	2.04
CONSTRUCTION DURABLES, 1985=100	114.2	112.4	109.8	111.1	111.4	110.0	109.0	107.8	1.67	2.52
AEROSPACE, 1985=100	116.8	115.4	114.2	113.6	113.6	112.4	112.1	111.9	1.23	2.76
ELECTRONICS, 1985=100	100.0	100.4	99.1	97.8	97.0	95.2	94.7	94.0	-0.42	3.09
SEMICONDUCTOR ORDERS, MILLIONS $, NOT S.A.	1300.0	1066.0	1222.0	1269.0	1126.2	1056.8	967.3	980.7	21.95	15.43
WHLS/RETAIL TRADE EMPLOYMENT, THOUSANDS	4628.3	4559.2	4527.3	4479.9	4448.3	4395.6	4351.3	4314.8	1.51	4.05
RETAIL SALES, PACIFIC DISTRICT, MIL. $	N/A	21842	20738	20559	20615	20133	19722	19531	N/A	N/A
SERVICES EMPLOYMENT, THOUSANDS	4910.6	4860.7	4793.8	4742.1	4693.2	4636.6	4569.8	4504.8	1.03	4.63
HEALTH CARE, 1985=100	116.2	115.5	114.3	113.3	112.3	111.5	110.2	109.0	0.66	3.46
BUSINESS SERVICES, 1985=100	128.7	127.1	126.2	124.8	122.3	119.5	117.3	114.8	1.22	5.22
HOTEL, 1985=100	125.3	124.9	121.9	119.8	119.5	118.2	114.8	112.1	0.32	4.86
RECREATION, 1985=100	110.9	108.5	104.6	105.7	106.7	108.6	106.2	105.3	2.21	3.88
FINANCE, INSUR. AND REAL ESTATE EMPLOYMENT	1226.7	1218.7	1212.7	1207.6	1204.9	1201.8	1199.7	1195.9	0.66	1.80
GOVERNMENT EMPLOYMENT, THOUSANDS										
FEDERAL GOVERNMENT	627.5	617.8	610.0	608.7	611.7	612.4	607.4	606.5	1.58	2.59
STATE AND LOCAL	2644.8	2618.4	2594.0	2577.4	2548.5	2533.9	2511.9	2504.6	1.01	3.78

Data are weighted aggregates of available 12th District state data and are expressed as monthly rates unless otherwise noted. District Indicator data are constructed by FRBSF research staff from public and industry sources.

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Address Correction Requested

* The index is constructed from a survey of approximately 75 business leaders in the 12th Federal Reserve District.

PERSONAL INCOME
ANNUALIZED PERCENT GROWTH RATES

	88Q4	88Q3	88Q2	88Q1	87Q4	ANNUAL GROWTH 1988	1987	1986
ALASKA	9.8	3.9	8.6	2.1	2.6	6.0	-0.4	-1.4
ARIZONA	9.2	8.1	7.3	-1.2	14.4	5.8	9.2	9.0
CALIFORNIA	8.7	12.6	9.7	0.2	12.0	7.7	9.4	7.5
HAWAII	8.5	9.0	8.6	5.3	13.5	7.8	9.6	7.9
IDAHO	12.3	6.2	10.9	7.5	-0.4	9.2	4.3	4.1
NEVADA	17.8	15.4	14.7	5.8	13.1	13.3	11.9	9.0
OREGON	9.5	5.5	9.3	6.1	8.6	7.6	7.6	5.7
UTAH	11.9	9.3	11.6	-2.0	9.2	7.5	6.6	3.4
WASHINGTON	12.7	6.4	8.1	6.6	10.2	8.4	6.0	8.8
12TH DISTRICT	9.5	11.0	9.5	1.4	11.5	7.8	8.7	7.4
U.S.	8.7	7.3	7.4	4.6	11.6	7.0	8.5	5.9

NON-AGRICULTURAL EMPLOYMENT
ANNUALIZED PERCENT GROWTH RATES

	89Q1	88Q4	88Q3	88Q2	88Q1	ANNUAL GROWTH 1989*	1988	1987
ALASKA	6.4	8.1	-1.4	-5.8	1.4	6.4	0.5	-1.7
ARIZONA	1.8	2.8	0.1	-0.7	2.3	1.8	1.1	3.1
CALIFORNIA	4.3	3.1	3.1	3.1	3.6	4.3	3.2	3.8
HAWAII	9.6	5.6	1.5	1.6	4.7	9.6	3.4	3.8
IDAHO	3.0	5.3	-3.9	13.2	5.5	3.0	5.1	1.0
NEVADA	5.6	11.1	7.7	5.3	9.6	5.6	8.7	6.7
OREGON	6.5	8.2	4.7	0.9	6.9	6.5	5.3	3.5
UTAH	1.3	5.2	3.2	6.2	1.9	1.3	4.2	1.4
WASHINGTON	6.9	7.2	4.0	3.7	4.8	6.9	5.0	4.5
12TH DISTRICT	4.6	4.2	3.0	2.9	4.0	4.6	3.6	3.7
U.S.	3.6	3.3	3.3	3.6	3.8	3.6	3.5	3.3

* Year-to-date

UNEMPLOYMENT RATES
AVERAGE QUARTERLY DATA

	89Q1	88Q4	88Q3	88Q2	88Q1	ANNUAL AVERAGE 1989*	1988	1987
ALASKA	8.5	9.0	8.8	8.9	9.3	8.5	9.0	10.8
ARIZONA	5.9	6.2	6.8	6.5	5.6	5.9	6.3	6.3
CALIFORNIA	4.8	5.0	5.3	5.6	5.3	4.8	5.3	5.7
HAWAII	3.5	3.1	3.0	2.9	3.5	3.5	3.1	4.0
IDAHO	5.5	5.5	5.5	6.3	7.4	5.5	6.2	8.0
NEVADA	5.4	4.3	4.9	5.5	5.7	5.4	5.1	6.3
OREGON	5.5	5.1	6.0	6.1	6.0	5.5	5.8	6.2
UTAH	4.3	4.1	5.1	4.9	5.2	4.3	4.9	6.3
WASHINGTON	6.0	5.7	6.7	6.6	7.0	6.0	6.5	7.6
12TH DISTRICT	5.2	5.1	5.6	5.8	5.6	5.2	5.5	6.1
U.S.	5.2	5.3	5.5	5.5	5.7	5.2	5.5	6.2

* Year-to-date