

California Horticulture: Current Trade and Policy Issues

by
Hyunok Lee

California is the nation's leader in production of horticultural crops. This article surveys the current state of these industries and provides perspective on recent developments in international trade and government policies relevant to California's major horticultural crops. È

The horticulture crop industry in California comprises hundreds of individual fruit, tree nut, vegetable, melon, nursery and greenhouse commodities, and, because of seasonality, location and varietal differences, even more individual markets. Many commodities are produced mainly for fresh markets, others are used mainly in processed form and some products have important uses in both fresh and processed forms. This article outlines the current trade and policy situation and outlook for the industry

Background

In 2001, California farmers grew and sold about \$25.9 billion worth of crops, livestock and livestock products, which is about 13 percent of the national total. About 55 percent of these receipts came from fruits, tree nuts, vegetables and melons, far more than the 11 percent for the rest of the United States. California produces about half the nation's horticultural food production by value.

California leads the nation in production of grapes, lettuce, tomatoes, almonds, strawberries, and dozens more fruit, tree nut, vegetable and melon crops. California is the sole producer of important commodities such as almonds, raisins, walnuts, pistachios, prunes and nectarines. California produces more than 80 percent of national production for avocados, strawberries, wine grapes, table grapes, lemons, plums, broccoli, celery, garlic, lettuce, processing tomatoes, and cauliflower among others. Table 1 provides a list of horticultural food crops in California that generated more than \$300 million of cash revenue in 2000. The six vegetables in Table 1 accounted for 54 percent of total vegetable revenue in 2001, while the five fruit and nut crops accounted for 71 percent of the fruit and tree nut total.

Trade is important to many of these industries, but the United States remains that most important market overall. Per capita fruit, tree nut, vegetable and melon consumption in the United States is trending upward, with about eight percent per capita consumption growth over the decade through 2000. Consumption of fresh vegetables increased even faster by about 17 percent.

International Trade

The U.S. exported about \$4.6 billion in fruits, fruit products and nuts (about \$1.0 billion in tree nuts) and about \$4.4 billion in vegetables and vegetable products in 2000. During this same time, fruit and nut imports to the U.S. totaled about \$6.5 billion, with banana imports alone accounting for about \$1.1 billion. Vegetable imports totaled about \$4.7 billion. The expansion of imports and exports reflects the increasing availability of fresh produce in what is "off-season" in the local region. The U.S.

Table 1. California's Leading Fruit, Nut and Vegetable Crops

Vegetables			Fruits and tree nuts		
Crop	Cash Revenue (\$million)		Crop	Cash Revenue (\$million)	
	2001	2000		2001	2000
Lettuce	1370	1,484	Grapes	2,654	2,836
Tomatoes, processed	497	617	Strawberries	841	767
Broccoli	438	537	Almonds	732	710
Carrots	434	347	Navel oranges	386	507
Tomatoes, fresh	269	334	Avocados	313	358
Celery	260	310			

Source: Resource Directory 2001, CA Department of Food and Agriculture and Economic Research Service Web site: www.ers.usda.gov/data/farmincome/finfidmu.htm

is a major exporter of table grapes and fresh tomatoes during the spring and summer season, but a major importer of these crops from Mexico and South America in the off-season months.

California has a significant share in the nation's exports of fruits, tree nuts, vegetables and melons. In 2001, California exported about 60 percent of the national total for fruits and about 70 percent of the vegetables, and is the only state that exports significant amounts of tree nuts. These commodities also comprise a substantial share of the state's agricultural exports.

To get a better handle on California agricultural exports, the University of California Agricultural Issues Center (AIC) has been assembling California agricultural export statistics annually. In 2001, fruit, tree nuts and vegetables accounted for 49 percent of agricultural exports from California, with 25 percent for fruit products (seven percent for wine alone), 15 percent for tree nuts and nine percent for vegetables. The top ten export products in 2001 are presented in Table 2. Processed tomatoes and lettuce are among the top ten export commodities, and there are another 13 vegetables on the list of top 50 commodities exported from California. Among fruits, all three major uses of grapes—wine, fresh grapes and raisins—are major export items.

Table 2 also presents the export share of total production. Almonds top the list with about 71 percent of the almond crop being exported, compared to about 40 percent of prunes and walnuts and about 27 percent of oranges. Among the vegetables, only about 13 percent of the processed tomatoes and eight percent of lettuce are exported.

Table 3 presents California's major export markets by commodity group. East Asia was the top export region in 2001, receiving about 41 percent of the total export value, followed by North America and Europe. While exports to East Asia include a substantial portion of field crops and animal products, exports to North America (most to Canada) and Europe are primarily horticultural crops. Canada alone received about 63 percent of vegetable exports and Europe received 51 percent of tree nut exports. Fruit exports are concentrated on the Pacific Rim, with 48 percent shipped to East Asia and 33 percent to North America.

Table 2. California's Top Ten Export Specialty Crops

Crop	Export Value (\$ million)		Export Share (of total CA production)	
	2001	2000	2001	2000
Almonds	685.6	662.4	0.67	0.71
Wine	470.9	510.4		
Table Grapes	394.5	363.4	0.37	0.36
Oranges	295.5	284.5	0.27	0.27
Processed Tomatoes	211.7	208.1	0.13	0.13
Walnuts	179.1	169.3	0.33	0.46
Dried Plums	149.5	140.3	0.69	0.40
Raisins	144.1	145.9	0.31	0.30
Lettuce	142.6	148.2	0.08	0.08
Strawberries	136.1	137.5	0.13	0.15

Source: University of California Agricultural Issues Center

Recent issues for California horticultural exports include the Asian financial crisis of 1998 and the continuing economic problems in Japan. Most recently, the strength of the U.S. dollar relative to both customer and competitor currencies has limited export growth. The weakening of the dollar in 2002 has been welcomed news on this front. The North American Free Trade Agreement (NAFTA) has led to increased shipments to Mexico and Canada for a number of commodities (such as table grapes) while contributing to additional imports of some fruits and vegetables (such as avocados).

Government Policy

The U.S. provides large subsidies for grains, oilseeds and cotton, but very little direct subsidy for horticultural crops. Of the approximately \$20 billion annual payments for crop producers projected for the Farm Security and Rural Investment Act of 2002 (FSRIA), horticultural crops will receive less than two percent despite accounting for about 30 percent of crop revenue. Small direct producer payments to horticultural crop producers are typically tied to ad hoc disasters. FSRIA also directs some additional funds to be used to purchase horticultural crops for school lunch programs and other government uses.

A more inclusive measure of policy support is the production support equivalent (PSE). The PSE is designed to capture the gross revenue transfer or cost reductions for producers under government farm

**Table 3. California Export Share
by Destination and by Commodity Category**

Commodity group	East Asia		Europe		North America		ROW
	Japan	Total	EU-15	Total	Canada	Total	Total
Animal products	27%	61%	0%	1%	1%	9%	29%
Field crops	27	61	5	5	16	24	10
Fruits	18	48	11	12	28	33	7
Tree nuts	12	22	49	51	6	9	18
Vegetables	16	23	3	5	63	70	3
Wine	10	15	62	64	17	17	4
Other	6	11	12	12	49	73	4
All commodities	19	41	20	21	22	28	11

ROW: Rest of the world Source: UC Agricultural Issues Center

policies. A PSE for any given commodity includes the value of direct payments and also indirect assistance through import barriers, government research outlays, input assistance, marketing orders and any other support. The PSE is often reported as a share of gross revenue. The Organisation for Economic Cooperation and Development (OECD) and the U.S. Department of Agriculture (USDA) provide PSE calculations for major field crops, but official estimates are not available for horticultural crops. The AIC reported such estimates in 1997 for California, and, with no major change in policy for horticultural crops, these calculations continue to be roughly applicable in discussing current policy.

For the 1995 to 1997 period, fruits and tree nuts in California had a PSE of about six percent and vegetables had a PSE of about three percent. These figures compare to about 34 percent for dairy, 69 percent for sugar and 40 percent for rice in those years.

Unlike many field crops, trade barriers for California fruit and vegetable crops have been low and direct payments negligible. The small PSE for the horticultural crops reflect a wide variety of government services such as research and extension services, and marketing and inspection services. Crop insurance benefits, export marketing aids and irrigation water subsidies complete the list of government support.

Despite the low level of overall subsidy, it is useful to consider some of the roles that the government has taken in horticultural industries:

Marketing orders: Federal and state governments in the United States have authorized voluntary industry

programs that often set minimum quality standards and may specify per unit assessments to fund research or generic promotion efforts on behalf of an industry. These programs do not offer a general subsidy, but they may provide industry benefits that are paid for by both consumers and producers. There are about 20 federal marketing orders

for fruits, three for tree nuts and 12 for vegetables, including six for potatoes and four for onions. Most of these marketing orders cover limited areas (states or parts of states) and have limited mandate and scope. In some cases, these programs have implications for international trade, as marketing order rules also typically apply to imports under the notion that they too benefit from quality standards and generic promotion.

Research and extension programs and related services: Federal and state governments in the U.S. fund agricultural research and extension programs that benefit commodity industries broadly. No accounting is available for how much of these funds go to horticultural crops, but most evidence suggests that the share of research is roughly equal to the share of the crop value, or about 15 percent of the U.S. total. The federal research budget is about \$2 billion per year, and the total of state contributions is several times this figure. The AIC estimates research outlays for commodity research and extension at about \$160 million in California, with about 40 percent or \$70 million going to horticultural industries. A significant share of this research is devoted to environmental improvement and related broad benefits, rather than productivity growth, and thus benefits are spread much more widely than simply to producers and consumers of a particular commodity.

The federal government and some state governments, especially California, also provide inspection and related services that limit the spread of exotic agricultural pests and diseases. These services also provide food safety and environmental benefits.

The budget costs are small, about \$500 million per year nationally. Based on the shares of production and imports, I estimate that less than ten percent of this budget is attributable to California horticultural agriculture. Despite small direct budget costs, the benefits to the horticultural industry are thought to be very large because in many cases an outbreak of exotic pests can be devastating if not eradicated, or very expensive to control if allowed to spread.

Irrigation subsidy: Large irrigation infrastructure projects, most dating back 50 years or more, continue to provide relatively low-cost water to farmers. The irrigation subsidy in California, according to the AIC, is about \$240 million per year. However, most of the subsidy goes to crops such as cotton, rice and hay, and to irrigated pasture. Perhaps 15 percent is applied to tree crops and vegetables grown in the Central Valley. Processing tomatoes and grapes are likely to be the largest single beneficiaries of irrigation subsidies among the vegetable and fruit crops.

Crop Insurance: Federally subsidized crop insurance has been available for most field crops and about 25 tree crops. However, the federal government has been expanding its role for several years in providing subsidized crop insurance for vegetable crops and more tree crops, and the USDA has a mandate to provide crop insurance programs for as many crops as is feasible. Of the total crop insurance outlays of approximately \$2 billion per year, only about ten percent is provided as insurance subsidies to horticultural crops. Through the Non-insured Assistance Program, free crop insurance for crop disasters is provided for horticultural crops with outlays averaging \$100 million in recent years. Of this money, somewhat less than half would be allocated to California crops.

The USDA Federal Crop Insurance Corporation is mandated by Congress to provide crop insurance for selected vegetables in 2003. However, program design for vegetable crops is particularly complex due to seasonality, price variability, quality issues and very localized growing conditions. In California, the news of crop insurance expansion is receiving mixed reactions from growers because some growers do not want to encourage additional planting of crops in less favored areas motivated by incentives to collect insurance benefits.

Conservation and environmental programs: Fruit, tree nut and vegetable producers have always been eligible for conservation funds to idle land, but

typically these lands are far too valuable to make participation economically feasible. However, the FSRIA expands funds for environmental programs such as Environmental Quality Incentive Program (EQIP) and creates a new Conservation Security program. The FSRIA also provides subsidies to undertake environmentally friendly practices on land that remains in production. However, the new program funds are small (less than 0.1 percent of industry revenue).

Trade Programs: For many years, the U.S. has operated programs which provide matching funds for industries and firms that undertake promotion programs in foreign markets. The FSRIA expands this funding to \$200 million per year, after ten years of spending less than half that amount. More than half of these funds go to fruit, tree nut and vegetable industries. Almonds, wine, walnuts and oranges have been among the major participants. Funds are used for trade shows, direct in-store displays and even media advertising in many markets—Europe and Asia especially.

Conclusion

The horticultural industry in the U.S. is large and diverse but California has the largest. Horticultural industries face considerable international competition in the U.S. market, and for many horticultural industries in California, exports are important to improving market prospects.

For the most part, the large U.S. farm subsidy programs do not benefit horticultural crops. The relatively small programs that do exist provide little direct subsidy and have relatively little impact. The role of government is crucial in providing public good services. For horticultural crops, one vital but relatively low-cost, public good is border protection against exotic (non-indigenous) pests.

Hyunok Lee is a research economist in the Department of Agricultural and Resource Economics at UC Davis. She can be reached by telephone at (530)752-3508 or by e-mail at hyunok@primal.ucdavis.edu.