

## Organic Wine Grape Production in California

by Karen Klonsky

The California grape industry ranks first in grape production in the nation with roughly 650,000 bearing acres. These produce about ninety percent of the total United States grape crop. Since 1992 grapes are the second largest contributor to farm income in California, with a combined gross value of between \$1.7 and \$1.8 billion for juice, raisin, table, and wine grapes.

Organic agriculture represents approximately 0.5% of the total farmed acres and total gross sales for all agriculture in California excluding dairy and livestock during the 1992-1993 time period. Fruit and nut crops represent forty-two percent of the total farmed acres and forty-four percent of total gross sales for organic agriculture. These organic industry statistics are from the analysis of organic registration data conducted by the UCD Department of Agricultural and Resource Economics in conjunction with the California Department of Food and Agriculture (CDFA).

There is increasing interest in integrated pest management (IPM) and sustainable agricultural practices in the farming community in general and in the wine grape industry in particular. Industry experts consider organic grapes to be a leading organic commodity in the state; the motivation has undoubtedly come from a variety of factors. These include general concerns about consumer attitudes and environmental contamination, more immediate issues such as resistance problems and secondary pest outbreaks in vineyards, and the potential loss of pest control materials through government regulation (currently these include Omite, Benlate, Rovral, Kelthane and Simazine).

Organic production is one indicator of a lower bound on the adoption of sustainable farming practices. Current estimates put organic wine grape acreage in California at about one per cent of total wine grape acreage, making it by far the largest organic acreage of any individual crop in California. Paradoxically, very little of the wine made from organically grown wine grapes is labeled as produced from organic grapes. This leads to the conclusion that the use of organic and sustainable practices is more a perception of quality and a concern for land stewardship than a marketing tactic in and of itself.

Two research projects were initiated in response to the growing interest in organic wine grape production. The first is a 1992 study on organic wine grapes on the North Coast of California; the second is a study completed this year in cooperation with the Lodi-

Woodbridge Wine Grape Commission looking at the economic performance and organic adoption rates of their members.

The 1992 study was done by asking a group of successful organic wine grape producers about the practices they use to develop the "tool box" from which



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they work. A hypothetical vineyard was developed using a subset of these practices. The costs of production were generated using Budget Planner. This program was developed by the UCD Department of Agricultural and Resource Economics to do cost-and-return estimates, using general accounting equations for the interest on capital and capital recovery for long-term assets, and engineering equations for fuel, lube, and repairs.

The Lodi study was based on records of two years of specific practices by farmers whose goals were to reduce pesticide use, not necessarily to grow organically. The data collected for these two studies reveal the actual methods being used by successful wine grape producers without the inclusion of synthetic pesticides or fertilizers. These results were presented at a May 1997 conference in Sicily on organic farming in the Mediterranean. A synopsis of that paper follows.

### Organic Production Practices

Overall organic wine grape yields are similar to those obtained in conventional vineyards for similar varieties under similar growing conditions. Many of

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the production practices for organically grown grapes are similar to those of a conventionally grown crop: Pruning, suckering, brush removal, irrigation, and harvest are essentially the same for organic and conventional vineyards. The major differences occur in the area of vineyard floor management, fertility, and pest control.

Cover crops, a key component of any organic wine grape production system, contribute to pest control, soil fertility, water infiltration, weed suppression, and reduction of soil erosion in hilly areas. Cover crops have long been associated with increased abundance of generalist predators of insect pests and spider mites in perennial crops. Cover crops are usually planted in the fall to take advantage of winter rains for germination.

Although there are a number of diseases that affect California wine grapes, the most prevalent diseases that necessitate treatment are powdery mildew (*Uncinula necator*) and bunch rot (*Botrytis cinerea*). Powdery mildew is often controlled with sulfur applications. In conventional systems *Botrytis* is treated with sterol-inhibiting fungicides; in organic systems bunch rot infections can be reduced by canopy management (removal of leaves around clusters to open the canopy to sunlight and increase air circulation). This tactic also increases berry quality by increasing sugars.

Leafhoppers and mites are the most common arthropod pests found in California vineyards. Strategies such as winter cover crops are being used to con-

trol leafhoppers. Winter cover crops provide habitat for predators, such as spiders, and affect nutrient and water status in the vineyard. Naturally occurring blackberry patches also are being maintained as refuges for the grape leafhopper parasites (*Anagrus spp.*); prune trees have been planted in some vineyards for the same purpose. Organic growers use strategies including application of insecticidal soap or yellow sticky tape for trapping leafhoppers.

Spider mites are managed through a variety of techniques including water management to avoid vine stress, cover crops to reduce dust, and release of predatory mites to assist in spider mite control. Weeds in vine rows can be controlled without herbicides by mechanical cultivation with an in-row cultivator.

**Certification and Registration of Organic Commodities**

Growers who choose to produce and market their crops as organic must register on a yearly basis with the State of California under the California Organic Foods Act (COFA) of 1990; the law contains rules and regulations that must be adhered to by all producers, processors, and handlers of organic commodities. As of January 1, 1996, commodities must be produced on land where no prohibited substances have been applied for a minimum of three years immediately preceding harvest of the crop in order to qualify as organic. Annual registration fees are levied by the state and an initial registration fee is assessed. The state program is administered through the CDFA.



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A federal law, the Organic Foods Production Act, was passed in 1993 but still has not been implemented or enforced. Once it is in place it will override any state laws and will be administered by USDA. The federal law will require that all growers with over \$5,000 dollars in annual sales be certified by an accredited agency.

**Organic Production Versus Organic Processing**

California follows the standards and guidelines of the COFA to regulate processing of organic products including organic wine. Organic wines currently represent only a very small segment of the total wine market. At issue in the winemaking process are naturally

occurring *versus* added sulfites. Although sulfites are naturally produced at extremely low levels during wine fermentation, they are normally added during wine processing to decrease the risk of oxidation and microbial spoilage. Under the COFA sulfite additives are prohibited in organic wine production. Therefore, wines with added sulfites may not be labeled as organic regardless of whether or not the wine grapes used in processing were organically grown. However, these wines may be labeled as produced from organically grown wine grapes. When no sulfites are added wine can be labeled as organic provided all regulations governing organic commodities are met and that organically grown wine grapes are used.

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given the jump in the cost of imported U.S. fruits in *peso*-denominated terms.

Nevertheless, consumer demand is slowly beginning to recover and the rapid development of the supermarket industry in Mexico favors imports. Large Mexican retailers increasingly require imports to meet the growing demand for year-round availability of consistent quality fresh produce. Fortunately most California industries made a concerted effort to maintain ties with Mexican importers and retailers during the economic crisis. In the long run this good will should pay off for our exporters as the standard of living increases and Mexican consumers improve the quality of their diets, in part through greater consumption of imported fresh produce.

**To Summarize**

When considering the relative competitiveness of the Mexican and U.S. horticultural sectors, one can summarize as follows:

- So far the effects of the *peso* devaluation have been much more important than NAFTA in influencing trade flows.
- The devaluation has been more important in influencing short term trade flows than in fundamentally changing the relative competitiveness of the fruit and vegetable sectors.
- The U.S., Mexican, and Canadian fruit and vegetable industries are gradually evolving toward an integrated North American horticultural sector, simultaneously raising the performance standards for firms in all three countries.

- This integration is being driven by retail and food service demand for year-round supply of consistent quantities and qualities of fresh produce.

**NAFTA Produces Other Benefits**

Analysts should not lose sight of a less direct but nevertheless highly significant benefit of NAFTA. NAFTA (in conjunction with Mexico's 1986 entry into the GATT and later entrance into the OECD) has institutionalized many of the market reforms introduced over the last decade. Despite Mexico's recent economic crisis, Mexico has remained on the path of trade liberalization, not closing its borders as it did during the economic crisis in the early 1980s. Indeed, U.S. exports to Mexico have already rebounded to pre-NAFTA levels.

**Conclusions**

Mexico is likely to remain a major importer of U.S. processed food products and basic agricultural commodities. Major annual variation in U.S. exports of field corn, wheat, dry beans, and other basic commodities can be expected depending on annual weather conditions. Mexico's agricultural exports to the U.S. will remain dominated by horticultural products.

Trade liberalization, in conjunction with Mexico's geographic proximity to the U.S. and its expanding population of ninety million, insure that the long-standing U.S.-Mexico trading relationship will continue to grow.

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