



A new marketing era for California specialty crops

Harold O. Carter □ Carole Nuckton

The rules may have changed, but California producers of specialty crops seem to have reason for cautious optimism, at least for the near term. The longer term outlook is uncertain and may depend on new marketing techniques and new technology.

Technology, competition, and internationalization of markets are ending a historic era for California's world-famous fruit, nut, and vegetable crops. In the words of a University of California research report on global agricultural market trends: "California is no longer unique as a long-distance specialty crop shipper."

Loss of the enviable position of being the major supplier to the vast U.S. market does not necessarily mean that California's specialty crop industries are out of the race in the United States or elsewhere. It does mean that the rules have changed. The outcome may be different for different crops, depending at least partly on a particular agricultural industry's organization and marketing strategy. Some California specialties—for example, almonds and strawberries—appear to be doing relatively well in the new market environment.

These conclusions were among the findings of six study groups sponsored by the University of California Agricultural Issues Center in 1986-87. Their joint research effort was titled "Marketing California Specialty Crops: Worldwide Competition and Constraints." This article highlights the more significant findings.

Changing competitive position

California's efficiency in producing its specialty crops (fruits, nuts, and vegetables, both fresh and processed) has depended

on such factors as climate, irrigation water, labor, technology, and marketing. In recent years, changes within the state and elsewhere have tended to reduce California's relative advantages in these areas: (1) Production regions with similar climates, as in Mexico, Brazil, and Turkey, have been brought into competition. (2) The era of large new water-development projects apparently is ending. Energy prices for pumping are higher. Urban competition for a limited water supply is increasing. All these imply relatively higher costs for irrigation water. (3) Availability of a large migrant labor force, particularly important to specialty crop growers, has been reduced; farm wages have risen substantially. The new immigration reform law may further increase agricultural labor costs and reduce supply.

Meanwhile, California is no longer virtually alone at the leading edge of agricultural technology for specialty crops. Several trends have speeded up the transfer of technology to competing regions:

■ As UC agricultural and resource scientists have shifted into increasingly complex basic agricultural research, private firms have taken a larger share of the applied research, particularly plant breeding. These entrepreneurs are looking beyond California's borders, for instance by adapting broccoli to climates elsewhere.

■ UC continues to train a sizable group of foreign students who apply California-developed technology when they return home.

■ Large food companies have extended their operations in foreign countries, taking California technology with them.

These trends toward increasing input costs, the entry of new competing regions, and technology transfer have substantially affected California's relative position in the competition to sell specialty crops in U.S. and world markets. For some crops, California is clearly the high-cost producer.

Other important factors in California's changing competitive stance are these:

■ Improved transportation and communication have opened many potential new markets. Better roads in some countries facilitate the movement of California's perishables from port to table, but they also mean easier movement to port of local competing production.

■ U.S. economic, trade and development, agricultural, and food regulatory policies remain major sources of uncertainty for the nation's and the state's agriculture.

■ Governmental policies in importing countries can drastically affect California's market position. For example, the European Economic Community subsidizes Greek raisin processing so that a higher quality Greek product is now on the market in competition with California's raisins. In addition, the Greek product is duty-free in the EEC.

A central force changing California agriculture's competitive environment is the internationalization of the food industry. Large food companies now look for raw products in lower-cost regions throughout the world. Sometimes this competition may even be set up and financed by sectors of California agriculture. This fact makes it very difficult for the state's agricultural industry to speak with one voice.

Trends and constraints

Marketing systems for California specialty crops, among the most sophisticated and technologically advanced anywhere, have nurtured a tremendous increase in the state's farm production by making available new markets, domestic and abroad. Challenges are ahead, however, in virtually every aspect of marketing. These include changes in consumer tastes and preferences (demand); trade barriers and other governmental policies; transportation; and food quality and safety.

Income and lifestyles

Demand for fruits, nuts, vegetables, and their products looks favorable, and the specialty crops' share of consumer food purchasing appears likely to continue increasing, both within the United States and worldwide. However, California's share of these markets is by no means guaranteed. And in markets with already high average consumer incomes—including much of the United States, Canada, Western Europe, and Japan—expansion in demand for specialty crops will come primarily from changes in consumer preferences and lifestyles and only secondarily from overall population or economic growth.

Within the United States:

■ Per capita consumption of fruits and vegetables is projected to increase more than total food demand, which will merely keep pace with population growth. Consumers increasingly tend to favor certain fruits and vegetables in their fresh rather than processed forms. (Figure 1 shows the dramatic increase in per capita consumption of fresh broccoli and cauliflower.)

■ Continuing influences on food consumption will include smaller, more affluent households who tend to eat away from home more often; more emphasis on ethnic foods; and more women at work, extending the quest for convenience foods.

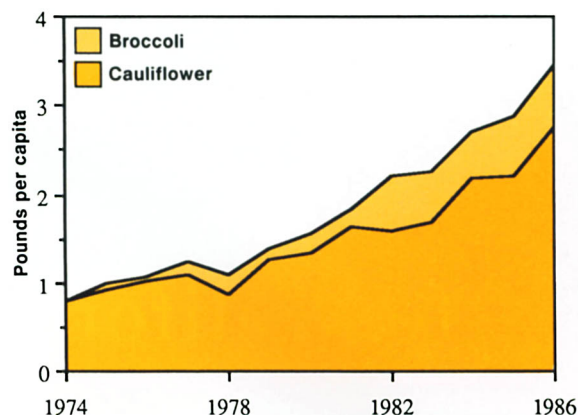


Fig. 1. Consumers increasingly prefer fresh fruits and vegetables over processed forms. The U.S. Department of Agriculture reports that per capita consumption of fresh broccoli increased about threefold over the past decade. Cauliflower consumption nearly doubled.

■ Consumers are showing more interest in new and more varied kinds of fruits and vegetables, in value-added items such as precut vegetables and ready-to-eat salads, and in high quality and flavor such as that sought at farmers' markets.

■ The population is aging. However, the consumption patterns of today's middle-aged people (who are consuming more fruits and vegetables) are probably better predictors of tomorrow's trends than would be the consumption patterns of the current elderly.

Because of the relatively income-sensitive nature of demand for specialty crops, which are considered luxury goods in many places, California's efforts to increase sales abroad should continue to focus on its major markets, the developed nations of Canada, Japan, and Western Europe. However, these markets are mature; competition from local and other producers of fruits, nuts, and vegetables will be intense. So California producers should not lose sight of niches of export opportunities existing among the lesser developed and developing nations.

In newly industrialized areas such as South Korea, Hong Kong, Taiwan, Mexico, and Brazil, consumption patterns are beginning to reflect the influence of outside cultures, including those of the western world. And consumer demand for food is not nearly as constrained by custom and tradition in some foreign countries as was previously believed; in Japan, for instance, there is significant demand for beef and red wine. However, latent consumer demand abroad for the crops that California specializes in may be partly or entirely repressed by foreign governments' restrictions on trade.

A general rule is that substitution among foods occurs as incomes rise with economic development. The share devoted to grains and tubers is reduced as more fruits, vegetables, meats, and meat products are added to the diet. In the final stage, increased expenditures on food go mostly into services added, such as more highly prepared foods and restaurant dining. The point is that, as countries develop, demand for specialty crops increases. This demand could be met by California's exports—or by production from other areas.

Trade barriers

Since the dominant North American market for California specialty crops is mature, a vital need is to further identify and develop foreign markets. Future expansion of California's specialty crop production depends heavily on increases in exports. Reducing or eliminating foreign barriers against imports of U.S. specialty crops, however, will require reciprocation, compensation, or some other incentive.

An important step is to determine the real reason or reasons for a particular restriction imposed by a foreign nation on imports of a particular California crop. There are many possible motivations: (1) to benefit the importing nation's domestic producers, importers, or processors; (2) to alleviate a foreign exchange crisis, as part of an internationally sanctioned plan, a common reason in less developed countries; (3) to raise government revenues, also common in less developed countries; (4) to increase domestic self-sufficiency in food production; (5) to protect infant industries; (6) to retaliate against barriers to the importing nation's exports; and (7) to favor low-income consumers through income redistribution. (Many of California's specialty crops are viewed by importing nations as luxuries to be consumed by the wealthy.) Barriers also are sometimes imposed for legitimate health and food safety concerns, although these often are a guise for protectionism.

Untangling the real reasons behind a particular trade barrier is difficult, because official policies rarely make them explicit. Analysis of trade barriers in Pacific Rim countries and the European Economic Community against three important California exports, almonds, raisins, and oranges, indicates that:

- If the commodity is also grown in the importing country, trade barriers probably are intended to protect domestic producers. One such case is citrus in Japan.

- Balance of payments problems, as in Indonesia, lead to restrictions on imports in general.

- If import barriers are higher on "luxury" foods than on staples such as rice and wheat, the intent is to favor lower income consumers. Korea, Taiwan, and Indonesia all have considerably higher tariffs on California specialty crops than on imported wheat.

There is a good chance that, as the newly industrialized and certain developing countries become more affluent, they will lower import restrictions against specialty crops that they consider luxury foods—especially if they do not produce those particular crops themselves.

The delivery system

Technology and global economic trends have dramatically affected handling and transportation of California specialty crops. In general, the system still works well. California growers and shippers, however, face increasing competition based on quality as well as price, both within the nation and abroad, and the transportation system is a crucial factor in marketplace quality.

Meanwhile, an important change in transportation patterns that implies higher costs for California growers has taken place in recent years—a shift in the balance of eastbound and westbound freight across the United States, so that the eastbound now dominates. A chief cause is that the United States now imports more from Pacific Rim countries than from Europe. Technology-based changes also are significant. For example, publications that formerly were printed in the East and trucked westward are now transmitted electronically to West Coast printing plants. This shift in balance of freight flow means that California specialty crops now have less access to trucks seeking loads to "backhaul" eastward. The net result is that, particularly during the period of peak demand for eastbound trucking, California's produce transportation rates must cover the likely cost of an empty return.

Whether foreign or domestic, future market expansion for California specialty crops depends on quality products delivered at an acceptable price. With regard to transportation, there are four constraints:

- Limits on capacity. Especially at the height of the summer and fall shipping season, there is a shortage of well-equipped trucks and containers, especially refrigerated transport for fresh produce within the United States. This is demonstrated by the



Jack Kelly Clark

California strawberries: A competitive success—for the moment

California strawberries have successfully maintained a competitive edge in the U.S. market. Besides the natural advantages of climate and soil conditions, there are a number of reasons:

- Industry structure. The industry is highly organized in cooperatives and grower-shipper corporations; no firm dominates, so cooperative effort is easier. The marketing order has contributed relatively large amounts to research, advertising and promotion.

- Research and development. By 1960 the California Strawberry Advisory Board was funding UC research. A remarkable aspect was its emphasis on plant breeding. Larger berries and very high yields were the result).

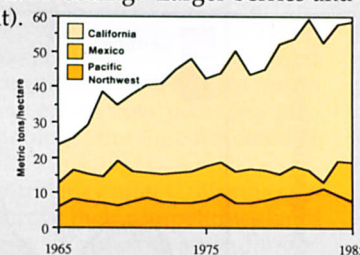
- Technological and marketing barriers to entry. Although there are still enormous labor requirements, it has developed into a capital-intensive, high-technology crop, making use of scientific knowledge, research stations, cooling facilities, and transport arrangements.

- Dual markets. Along the southern California coast when it becomes too hot for fresh market berries, the late berries go to processing for

little more than their harvest costs. The overhead has already been covered by the profitable fresh market crop. This subsidization by the fresh market has contributed to the processing strawberry market's remaining competitive—even using berries that were specially bred for the fresh market.

For strawberries and for any other successful California crop, there remains a potential for competition. The frozen strawberry market in particular is vulnerable. Of special note is the recent resurgence of the Mexican frozen berry industry. Meanwhile, California's fresh market varieties are now being raised in France, Italy, and Spain, precluding hopes for exports to Europe. The development of day-neutral (less sensitive to length of day) varieties may mean expanded production in other regions of the United States.

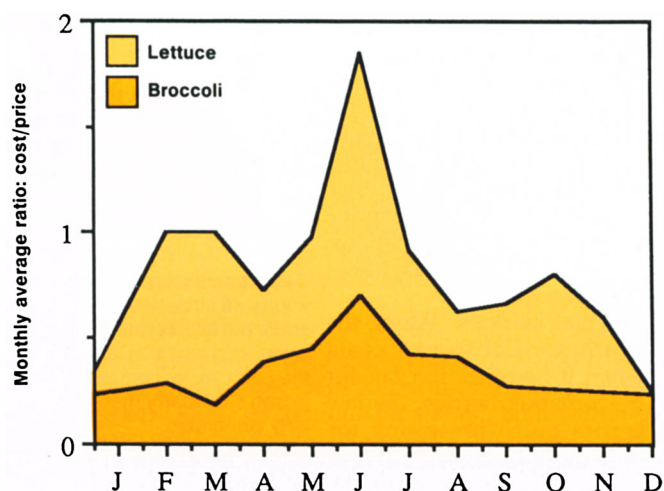
Based on a case study written by David Runsten for the Competitiveness group of the UC Agricultural Issues Center marketing study.



California research has dramatically improved strawberry yields in the state, but other areas have also increased production, thereby raising the potential for competition. The frozen strawberry market is particularly vulnerable.



Jack Kelly Clark



high cost of transportation relative to product prices at those times (fig. 2).

- Use of available technology. More shippers are making good use of their equipment, but many still do not understand the importance of air circulation and temperature control.

- Incentives to minimize product loss and transportation costs. Benefits of improvements do not always go to those who pay the costs. For instance, insurance rates that differentiated according to the quality of packaging and handling procedures as well as the quality of transport equipment would provide additional incentive to make improvements.

- Public policies on such issues as trailer design and containers, as well as speed laws, export shipment regulations, and deregulation of the transport industry.

Fig. 2. A shortage of refrigerated trucks at the height of the summer and fall vegetable shipping season from California to New York increases transportation costs relative to product prices. Transportation costs have also increased as the balance of freight flow from east to west has shifted. The need for trucks to move growing imports from Pacific Rim countries to eastern U.S. markets has meant fewer trucks seeking east-bound backhaul loads of specialty crops.

Food safety and quality

California specialty crops have new opportunities to reach consumers who are willing to pay for fresher, more flavorful commodities. The situation is complicated, however, by the issue of food safety, particularly concerns about pesticide residues.

Surveys in recent years indicate persistent public concern, with implied effects on consumer demand, about pesticide residues on food. There is a substantial discrepancy between the concerns of consumers, who believe pesticide residues are fairly high in risk, and the concerns of scientists and other experts, who rate microorganisms and excess fats in foods as more threatening. This difference in perception raises the issues of risk assessment and consumer understanding of risks. Meanwhile, it remains extremely difficult to measure actual risk to consumers. Tolerance levels and licensing and registration procedures will, therefore, probably tend toward the conservative side.

Increased consumer concern about food safety and nutrition might even increase demand for California specialty crops, particularly fresh produce with high levels of vitamin A, vitamin C, and fiber, or "antioxidative" compounds that may help protect against cancer.

(Because the food safety issue has recently come to the forefront of the policy agenda, the UC Agricultural Issues Center has undertaken a major study for 1987-88 titled "Chemicals in the Human Food Chain: Sources, Options, and Public Policy.")

Strategy for response

Effective market strategies for California fruit, nut, and vegetable crops must be tailored to an era of rapid change and shifting economic advantages. The forces that create competitive advantages, such as input costs, shifting technology, internationalization of markets, and government policies, operate differently for different California specialty crops. Within each crop industry, however, there are possibilities of increasing the competitive advantage by such means as altering relative price structures, gaining a technological edge, or differentiating products in the marketplace.

A basic question in designing a strategy is whether or not the competition has an underlying cost advantage. If there were no trade barriers, California wine growers could compete head-on with Europe, where costs are similar. But in competing against frozen vegetables from Mexico, where costs of producing broccoli, for example, are only about 40 percent of California's, or against processed tomatoes from Turkey, California growers and shippers must turn to other advantages besides cost.

Hurdles for new competitors

Costs are lower in many parts of the world than in California, but the existence of a comparative advantage doesn't mean it can be easily exploited. For one thing, it takes time for a newly competing production region to build infrastructure, adopt new technologies, and meet international quality standards. This process, however, is often cumulative; as success attracts new capital, production synergies take place.

Developing regions that compete with California also may be hampered by other factors—lack of capital, shortages of basic inputs such as labor or water, disease or pest problems, difficulty in training growers, or government interference.

Another hurdle is access to markets. Multinational corporations are the usual channel through which new producing areas reach markets in developed countries. For instance, the Mexican frozen vegetable industry benefits from the presence of Birdseye, Green Giant, and Campbells. Joint ventures between importers and exporters also provide a way to reach markets. For example, much of the processed tomato products coming into the United States is imported by U.S. entrepreneurs.

A critical question in analyzing the competition facing any specialty crop is how products that compete against California reach the market—specifically: Who are the players marketing those products?

Two approaches

Strategic options for California specialty crops can involve the production process or the marketing process, or both. Since other regions generally have lower input costs, a production strategy probably would seek to establish or increase a technological advantage. Advanced technology, largely growing out of public research, already has paid off in California agriculture, such as in processing tomatoes, strawberries, and wine.

However, technology tends to spread to the competition. In fact, the University of California has become, in effect, a worldwide research center for agriculture, including many specialty crops.

Attempting a general restriction of publicly funded agricultural research to certain users would be impractical, and also probably unwise from the viewpoint of California agriculture. UC agricultural research is supported not only by state funds, but by federal funds. Furthermore, the reciprocal exchange of information among scientists throughout the world has enormous value for California agriculture. The early development of drip irrigation in Israel is one such case.



Almonds have become one of the more successful of the state's major export crops, primarily because of packaging, labeling, and consumer promotion strategies. Such products still face trade barriers in some foreign countries where they are considered luxuries.

In specific cases, however, California agricultural industries could explore alternative arrangements under which they might fund research and attempt to retain partial or entire control of the results. Biotechnology and new patent laws provide a possible basis for controlling new technology. But the costs could be substantial, and the gains elusive.

The complex problem of pest control may offer California specialty crop growers one way to improve their competitive stance with more sophisticated technology. California agriculture is raising concerns over chemical use on imported produce. Such a strategy should be accompanied by an intensified effort to lower the cost of alternative pest control methods. These methods are sophisticated and difficult to transfer to developing countries. This might give California a competitive advantage as more stringent restrictions are placed on chemical residues.

If tighter domestic regulations on pesticide residues are on the way—which seems likely—and alternative technologies are not available or not used, then those controls could erode the competitiveness of California specialty crops in both domestic and foreign markets.

The marketing option

The strategy that emphasizes marketing, particularly product differentiation or market segmentation, has been very successful for some of the state's major export crops, such as almonds.

The key to product differentiation is to market an item perceived as different enough from its competitors to warrant a premium price. New product forms, packaging, labeling, and expanded consumer promotion and advertising are all parts of the trend to product differentiation.

One potent form of differentiation is by gaining a reputation for quality. Another is by establishing a brand name. Brands are being used increasingly on fresh produce as well as on processed



Individually priced, premium-quality products identified by brand names are one way specialty-crop growers are attempting to improve their position in highly competitive markets.

products. However, surveys show that branding efforts should go beyond simply labeling the item and should also offer, for example, information on nutrition, preparation, or ripening.

Market segmentation means moving away from mass marketing toward specialized strategies for different components of the market. Economic opportunities for California's specialty crops can be developed by adding value—that is, by marketing foods that have incorporated more or even all of the traditional home preparation into the product being sold.

So far, foreign competitors, particularly the European Economic Community, are ahead in marketing value-added foods. In 1980, the U.S. share of this trade in world markets was about 10 percent. In 1986, the U.S. imported more added-value foods than it exported.

Demand for new convenience and specialty food products is expected to increase in both highly developed and middle-income countries. But because the competition is so strong, U.S. food industries may have to make major efforts just to maintain their own domestic markets.

Development of new food products can take place anywhere in the production system. Some come from the farmer's field—such as kiwifruit and Flame Seedless grapes. Others, such as salad vegetables bagged and ready to use, have value added while fresh. Still others may be partially or entirely processed, or used as ingredients in further processing.

A central challenge in new product development is market intelligence, which, among other things, means identifying long-range population trends as well as food preferences of specific consumer groups. Two promising market niches for California's value-added fruit, nut, and vegetable crops are (1) health-conscious consumers and (2) the fast-growing markets of the Pacific Rim. In both cases, market intelligence is required.

A related issue is the role of public and private research. Food processing firms, even though they have substantial research and development budgets, still apparently depend on publicly funded research for some of their product development needs. However, public sector research should stop short of market application.

Institutional forces

Marketing strategy, whether emphasizing technological advantages or specialized products for targeted consumer groups, is shaped by institutional factors, including industry organization.

In California, agricultural industries with a high degree of organization—those with major cooperatives and/or marketing orders and commissions—have been able to mount successful research and marketing programs. Examples are citrus, almonds, strawberries, and raisins. The decline in the cling peach industry has probably been less rapid because it is highly organized.

Whatever strategy is pursued, specialty crop producers must deal with economic and regulatory activity by governments at home and abroad, including trade barriers and protectionism; agricultural programs with direct and indirect impacts on specialty crops; and environmental and food safety regulations. Other activities of U.S. and foreign governments, such as exchange rate manipulations, investment and export subsidies, and export promotion efforts, also influence the export market.

Uncertainty and choice

Recovering from a decade of ups and downs in market conditions, California fruit, nut, and vegetable industries seem to have reason for cautious optimism in the near term—but major uncertainty in the longer term. The domestic market remains dominant for most specialty crops, but export markets have grown in both absolute and relative importance. And the economic tide continues to run against marketing of bulk, undifferentiated products. The marketing of foods has become increasingly similar to the marketing of any other product or service in our economy.

Furthermore, since dealing in the world market often means competing with entire nations, industry organization has become almost essential for both economic and political purposes.

In any case, attempting to compete on a cost basis appears to be increasingly less viable for many agricultural products in California. There is an alternative—to seize the high ground of top quality, differentiated goods that are produced, handled, shipped, and sold with the newest technology.

Harold O. Carter is Director of the University of California Agricultural Issues Center, which sponsored this study on Marketing California Specialty Crops, and is Chair, Department of Agricultural Economics, UC Davis. Carole Frank Nuckton, Program Associate for the Center, was project coordinator of the marketing study. They wish to acknowledge the assistance of Ray Coppock, Communications Specialist, UC Cooperative Extension, in the preparation of this article.

Several reports from the study have been published and are available upon request from: Division of Agriculture and Natural Resources Publications, 6701 San Pablo Avenue, Oakland, CA 94608-1239:

AIC-R1 Demographic Shifts, Trends, and Other Factors Affecting Demand, and New Product Development for California Agriculture

AIC-R2 Postharvest Handling: Transportation Aspects

AIC-R3 Trade Barriers and Other Factors Affecting Exports of California Specialty Crops

AIC-R4 Competitiveness at Home and Abroad

AIC-R5 Food Quality and Safety: Impacts on Marketability