The potential market for California plums and nectarines in Japan

Kirby S. Moulton

As production of plums and nectarines increases over the next decade, California growers will need to develop new markets. To analyze the potential of one market—Japan—the California Tree Fruit Agreement entered into a contract with the University of California. The following report summarizes the results of the analysis.

Interviews were conducted with 50 people in the United States and Japan to evaluate consumer and trade procedures and attitudes. Data from government and private sources in Japan contributed to a description of the market structure. Statistical analysis was used to generate a set of hypothetical prices in Japan and to project potential import requirements resulting from price changes and future economic growth. Finally, structural analysis was used as the basis for recommending a strategy for entering the Japanese market.

Production and marketing

The Japanese market for fresh plums and nectarines is served entirely by domestic production. The primary barrier to imports is a quarantine on fruit from areas infested by the codling moth (and other pests), unless it is fumigated by a process approved by the Japanese. After the process is approved, the fruit is subject to Japanese inspection before shipment and after arrival. Costs of complying with this procedure and risks entailed in its implementation are substantial. The issue for California shippers is whether the costs of market entry will be repaid by future market profits.

The current area planted to plums in Japan is estimated to be 6,500 to 7,000 acres, from which "normal" production is 28,000 to 30,000 short tons—less than one-fifth of California's "normal" production. Wholesale marketings in 1980 were the equivalent of 1.9 million boxes with an average price of $16.80 per box. Average shipments from the Tokyo Central market increased by 30 percent during the 1970s.

Only about 900 acres are planted to nectarines in Japan, and production is usually about 8,850 short tons (805,000 boxes). Nectarine consumption has grown rapidly over the past 10 years, during which shipments on the Tokyo market almost tripled. The average wholesale price in 1980 was equivalent to $16.50 per 22-pound box.

Plums and nectarines are not very significant to the total fruit market: in Tokyo in 1980, plums gained a maximum market share of 3.7 percent in July, and nectarines a maximum share of 1.1 percent in August.

Potential import prices

Anticipated profits from market development depend significantly on competitive pricing of California plums and nectarines. To investigate the likely competitive situation for these fruits, a set of hypothetical prices on the Tokyo market from 1976 through 1980 was calculated and compared with prices for domestic fruit.

Price differentials generally were adverse to plum imports from 1976 through 1980 (table 1). The imputed price for California plums was below the reported Tokyo wholesale price in 6 out of 20 observations. Four of these occurred in 1979, when California grower prices sank to their lowest level since 1972.

The situation is different for nectarines (table 2). The imputed price for imported nectarines from California was lower than the Japanese wholesale price in 21 out of 25 observations. The 4 price differentials favoring domestic nectarines were much smaller than the 21 that favored imports. Three of them occurred in 1976, when the dollar was very strong against the yen. The consistency with which the calculated California price was below the Japanese price suggests a comparative advantage for California nectarines.

Potential demand

Estimates of consumer responses to changes in fruit prices caused by the availability of imported fruit and to changes in their income resulting from continued economic growth in Japan were used to project the volume of California plums and nectarines that might be sold in Japan. These responses were measured by using the price elasticity of demand, which estimates purchase changes caused by a 1 percent change in price, and the income elasticity of demand, which estimates the corresponding response to a change in buyer income. The values for these parameters were derived from other studies of the Japanese and California fruit markets. Values used for nectarines were: price elasticity, -2.3; income elasticity, 1.45. The corresponding values for plums were -1.30 and 0.78.

Current market prices for nectarines in Japan are significantly above the price at which California nectarines could be sold. It is reasonable to expect that the market price would drop if imported fruit were available, and that this would stimulate added consumption.

If Japanese market prices declined by 20 percent in the face of U.S. competition, sales would increase by 370,000 boxes. This represents one measure of potential import demand.

Income growth would also motivate additional demand for nectarines. A 2 percent annual growth in real consumer income would increase demand to 2.1 million boxes in 1990, if the competitive price structure previously described were maintained. The Japanese project 1990 production at approximately 1.3 million boxes; hence, the net import demand would be 800,000 boxes.

TABLE 1. Comparison of Tokyo wholesale market prices and hypothetical import prices for California plums, 1976-1980

Year and source	Tokyo wholesale prices*†			
	June	July	August	September
	$ per 28-lb box			
1976				
California	19.21	17.96	16.24	13.65
Japan	18.46	16.40	12.38	13.25
Difference	0.75	1.56	3.86	0.40
1977				
California	24.20	16.27	13.62	12.21
Japan	16.46	14.15	11.34	10.58
Difference	7.74	2.12	2.28	1.63
1978				
California	32.87	17.39	15.23	14.86
Japan	20.38	13.72	10.20	24.99
Difference	12.49	3.67	5.03	-10.13
1979				
California	19.22	18.01	14.84	15.72
Japan	23.02	21.35	21.57	27.53
Difference	-3.80	-3.34	-6.73	-11.81
1980				
California	25.44	20.98	18.98	20.95
Japan	20.10	17.11	14.20	24.70
Difference	5.34	3.87	4.78	-3.75

SOURCE: Tokyo Fruit and Vegetable Marketing Authority, *1980 Fruits Marketed at Tokyo Central Markets*, April 1981. Federal-State Market News Service. (*Marketing California Plums*), Sacramento, various annual issues.
*Size 4 × 4 plums packed in 28-lb boxes.
†Hypothetical import prices calculated from FOB California prices with adjustment for 15-day transit time, freight, duty, and other marketing charges. Yen values converted to dollars at rates published by the Japanese government.

TABLE 2. Comparison of Tokyo wholesale market prices and hypothetical import prices for California nectarines, 1976-1980

Year and source	Tokyo wholesale prices*†				
	June	July	August	September	October
	$ per 22-lb box				
1976					
California	14.42	11.41	10.38	10.17	10.65
Japan	15.50	13.54	10.27	10.00	10.52
Difference	-1.08	-2.13	0.11	0.17	0.13
1977					
California	12.75	11.82	11.13	9.33	9.70
Japan	20.62	15.00	10.79	12.36	15.65
Difference	-7.87	-3.18	0.34	-3.03	-5.95
1978					
California	16.29	13.44	11.43	11.78	12.12
Japan	16.86	19.12	14.87	19.63	21.12
Difference	-0.57	-5.68	-3.44	-7.85	-9.00
1979					
California	15.27	13.43	10.37	11.69	11.30
Japan	33.13	19.91	14.35	15.34	16.68
Difference	-17.86	-6.48	-3.98	-3.65	-5.38
1980					
California	16.51	12.55	12.78	12.46	10.60
Japan	59.63	20.23	14.98	16.03	12.05
Difference	-43.12	-7.68	-2.20	-3.57	-1.45

SOURCE: Tokyo Fruit and Vegetable Marketing Authority, *1980 Fruits Marketed at Tokyo Central Markets*, April 1981. Federal-State Market News Service (*Marketing California Nectarines*), Sacramento, various annual issues.
*Size 70-72 nectarines, except some late-season 56-64; packed 22-lb, 2-layer tray.
†Hypothetical import prices calculated from FOB California prices with adjustment for 15-day transit time, freight, duty, and other marketing charges. Yen values converted to dollars at rates published by the Japanese government.

If the Japanese economy follows the 7 percent growth path, then total market demand in 1990 would be 3.4 million boxes and import demand would jump to 2.1 million boxes.

The potential for plums is different. Because there is no opportunity to enter the market on a price basis as there is with nectarines, market share must be gained through strategies based on quality, packaging, and promotion. Limited penetration might be gained by exploiting special market situations.

The outlook for income-stimulated demand growth is a little better, but not much. At 2 percent annual income growth, increased demand for plums could be met entirely from expected domestic production. At a 7 percent growth rate, import demand would probably be 1.3 million boxes by 1990.

Estimates of potential import demand can be summarized as follows: (1) at recent average California prices, little or no import demand exists for plums, but there is a potential demand for nectarines of approximately 370,000 boxes; (2) at a 2 percent average annual economic growth rate, an import demand for plums by 1990 is unlikely, but the import demand for nectarines might be 800,000 boxes; and (3) at a 7 percent growth rate, import demand for plums in 1990 might be 1.3 million boxes, and for nectarines 2.1 million boxes.

Regardless of which projections are realized, there is no assurance that imports will share in this growth. The official Japanese government policy is to increase self-sufficiency in most food products including fruit. Unless this policy and the various regulations used to impede imports change significantly, the prospects for profitable California exports remain uncertain.

Whether or not to exploit the potential opportunities is a business decision, in which the risks of economic changes, bureaucratic barriers, and consumer acceptance must be considered.

Distribution channels

Not to be overlooked in the evaluation is the choice of alternative market strategies. Among the possible distribution channels, the two most promising strategies developed through interviews in Japan are wholesaler-importers and direct-importing supermarkets. Wholesalers give less geographic coverage but can coordinate promotional efforts with many retailers. Supermarkets provide a channel limited to one type of outlet but offer excellent promotional opportunities.

One strategy would be to condition consumer acceptance by early promotion efforts, follow up with distribution of very high-quality fruit through specialty stores, and then extend distribution to supermarkets and other mass outlets. Regardless of the strategy chosen, considerably more time is needed for profitable market penetration in Japan than most Americans realize, according to the trade people interviewed.

Costs of developing the Japanese market depend on the distribution strategy utilized. A "middle of the road" strategy using half-time representation, a program of in-store promotional activity, and modest media advertising would cost approximately $200,000 to $250,000 per year. Certain promotional expenses will qualify for rebates from the U.S. Foreign Agricultural Service. Exports can also be made without promotional assistance. In this case, shippers have no control over market development.

Kirby S. Moulton is Economist, Cooperative Extension, University of California, Berkeley.