

California's olive growers and processors are feeling the impact of substantial increases in acreage and production of olives in the last three years. The result: high stocks of canned olives and projected return prices not much above grower costs.

Marketing solutions may include: removal of marginal acreage and varieties, continued research to reduce the cyclical production patterns, and marketing programs to increase consumption of olives.

Bearing acres of olives in California remained fairly constant from 1960 to 1976, but increased by 25 percent between 1976 and 1978 (table 1). In 1978 production reached a new high, 126,000 tons.

Trends in production regions

Olives are grown commercially in three regions of California. Since 1970, the central California counties of Tulare, Kings, Fresno, and Madera have accounted for 72 percent of the state's production. In 1978, Tulare County production represented 51 percent of the state's total. The Central Valley should continue to dominate the state's production, because most nonbearing acreage is in this region.

Northern California (Tehama, Butte, Glenn, and Shasta) represents 28 percent of California olive production since 1970. Tehama accounted for 51 percent of regional production in 1978, and was the third leading county, after Tulare and Kings counties.

Southern California, mostly in Riverside County, produces a very small percentage of the state's total.

Fluctuations in production averaged 28 percent for northern California counties, during 1960 to 1978, compared with 53 percent for Central Valley counties.

Plantings before 1970 were primarily to replace removals, and remained fairly constant, averaging 3,860 acres annually. Starting in 1970, plantings doubled. Nonbearing acreage reached 10,360 acres, and continued to increase to 14,117 nonbearing acres in 1973. They remained at high levels through 1976, with the result that a strong productive base now exists for California olives. Bearing acres are expected in 1979 to reach 43,613, and then remain constant or decline slightly (figure 1). Because many new plantings are at twice the number of trees per acre than in older orchards, a greater than proportionate impact is possible on total production.

Alternate and uneven bearing characterizes olive trees in California. Despite good cultural practices, the tendency for olive trees to bear uneven crops is well docu-

California olives: Situation and outlook

Wide fluctuations in yield have resulted in an unstable market for growers.

mented, although causes are not precisely known. (See *Olive Production in California*, Leaflet 2474, Division of Agricultural Sciences, University of California.)

Although bearing acres remained fairly constant during 1960-1976, the low production of 14,000 tons in 1967 was followed in 1968 by 86,000 tons. For 1960-1977, annual mean production was 56,094 tons, with a standard deviation of 17,534 tons. The 1978 high of 126,000 tons was 70,000 tons more than the mean annual production for 1960-1977.

The alternate bearing characteristics appear to occur within a larger pattern of cyclical production which repeats at about 5-year intervals.

Yields and grower returns

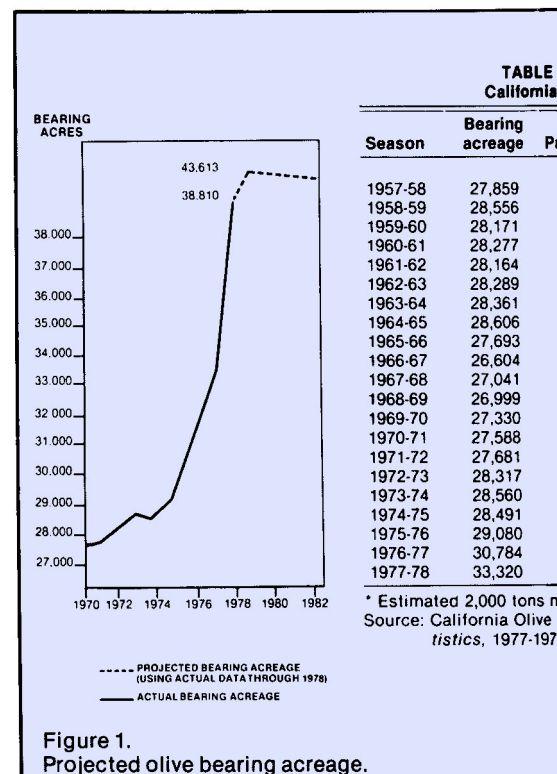
Yields of olives per acre in California fluctuate a great deal. The lowest yield averaged one-half ton per acre for the state in 1967. Highest average yield was 3.5 tons per acre in 1978. Such instability has resulted in equally unstable grower returns.

Particularly low grower returns occurred in 1958, 1960, 1961, 1964, 1971, and 1978, all years of large production. The mean price for the 19-year period was \$271 per ton, with a standard deviation of \$101. Thus, average price swings of 37 percent in grower prices have prevailed during these years. Annual swings in production averaged 31 percent.

When the influence of inflation is removed from prices received by growers, the total value of olive production had been fairly constant for 1960-1967 when the mean value of annual production was \$9,392,380 (figure 2). Beginning with the 1968 and 1969 crops total value doubled compared with preceding years, and later stabilized at a higher level. For 1970-1978, the deflated mean value of annual production was \$13,810,000, reflecting a 47 percent increase over 1960-1967. Produc-

tion of olives increased by a lesser amount, 27 percent, reflecting an improvement in the price-production relationship over 1960-1967.

Bearing acres and yield determine current production, but total supply of olives available for marketing includes carry-in stocks from previous years' production and imports. Carry-in stocks of canned ripe and green ripe (whole and pitted) olives have changed substantially. Very low carry-in was experienced in 1968 and 1973, and very high in the intervening years. Burdensome carry-in stocks influence prices growers receive, but they add considerable stability to available supply for marketing, particularly for a commodity that experiences wide swings in produc-



tion. The mean carry-in for the period 1960-1976 was 2,611,000 cases (24/300 basis), with a standard deviation of 1,191,000 cases from the mean. The mean available supply, meanwhile, was 8,662,500 cases, with a standard deviation of 1,681,500 cases from that mean.

The greater stability in available canned olive supplies results from the use of carry-in to supplement low production. However, there is evidence that excessive carry-over of canned olive inventory has occurred. In some years, such as 1969, 1970, and 1971, the carry-in has averaged more than two-thirds of the industry pack. Years of high supplies available are reflected in low grower prices and vice versa.

There are four traditional outlets for canned ripe and green ripe olives: retail consumer, institutions, exports, and government purchases. Consumer shipments account for nearly three-fourths of total shipments. Institutional sales reflect increased consumption of meals eaten or prepared outside the home and in recent years have represented 20 to 24 percent of total shipments. Shipments to both consumer and institutional outlets have trended upward during the past 10 years, with more stability in shipments to institutional outlets. When total supplies may be lower during the off years, processors have tended to protect industrial users' needs, while allowing supplies to consumer outlets to fluctuate. Fluctuating shipments to re-

tail consumers reflect changes in production rather than changes in consumer preferences and eating habits.

For the period 1970-1976, California production of canned green olives was only 10 percent of total current supply, including imports. In 1976-1977, California production of green olives was 3,127,000 gallons; imports were 14,735,000 gallons.

Imports have comprised an important percentage of total supplies of canned green olives to U.S. consumers. Although export sales have been small in terms of total shipments, they have been increasing in recent years. Sales to government channels, including military forces, have declined.

Per capita consumption

Consumption of olives in the U.S. is low. Estimated consumption amounted to .79 pound per person since 1960. More than half of this consumption is of brined olives, including imported Spanish-type green olives, and the balance of all forms of ripe olives.

Although consumption has remained fairly stable, some studies suggest that demand could be expanded. For example, of those who use olives, less than 50 percent serve olives more than once a month. Apparently price, changes in supplies, and inadequate knowledge of olives are obstacles to more purchases. Meanwhile, institutional and industrial uses of ripe olives are still

small relative to the total, but are increasing.

Olive producers have few alternative outlets for their crops. Data provided by the Olive Administration Committee show that the number of processors has decreased from 12 in 1968 to seven in 1978. Two processors are cooperative operations; the remainder are proprietary-type corporations.

Since olive production has increased in recent years, and the number of processors is fewer, the average olive production handled by the remainder has accordingly increased. There is a question whether existing processing capacity will be adequate when the nonbearing acreage comes into production. Nor is there good evidence that the entire farm production if it does become possible to process the increased tonnage, given existing consumer demand for olives.

Given the extent of nonbearing acres, it is obvious that production will increase. To project for the years 1979-1982, we have had to make assumptions on bearing acres for each year and yields per acre. (Estimates are given in table 2.) Mean production for the years 1970-1978 in California was 2.07 tons per acre, with a standard deviation of .71 ton, so that the range in production per acre is estimated between 1.36 tons and 2.78 tons. Given these ranges, production can vary from 59,314 tons to more than 121,000 tons in 1979.

TABLE 1. Acreage, Yield and Price of California Olives, 1957-1958 to 1977-1978.

Production	Yield per acre	Average price	Total value
(tons)	(tons)	(per ton)	(\$1,000)
37,000	1.33	236	8,732
66,000*	2.38	101	6,666
27,000	0.96	229	6,183
66,000	2.33	157	10,362
44,000	1.56	160	7,040
52,000	1.84	214	11,128
57,000	2.01	193	11,001
54,000	1.89	138	7,452
50,000	1.81	220	11,000
63,000	2.37	241	15,183
14,000	0.52	383	5,362
86,000	3.19	368	31,648
70,000	2.56	328	22,960
52,000	1.88	247	12,844
55,000	1.99	148	8,140
24,200	0.85	415	10,043
70,000	2.45	399	27,930
58,500	2.05	434	25,389
68,700	2.36	337	23,152
80,000	2.60	304	24,320
43,000	1.29	403	17,329

* Not harvested 1958-1959.
Source: Olive Advisory Board, California Olive Industry Statistics, 1979.

TABLE 2. Projected Production of Olives, 1979-1983.

Year	Estimated bearing acres	Estimated production*			Estimated production†		
		(tons)			(tons)		
		low	mean	high	low	mean	high
1979	43,613	59,314	90,279	121,244	67,164	102,927	138,689
1980	43,572	59,258	90,194	121,130	67,100	102,830	138,559
1981	43,514	59,179	90,074	120,969	67,012	102,693	138,375
1982	43,282	58,864	89,574	120,324	66,654	102,146	137,637
1983	43,132	58,660	89,283	119,907	66,423	101,792	137,160

* Based on statistics for years 1970-1978. Mean production per acre, 2.07 tons, with a standard deviation of .71 ton.

† Based on statistics for years 1975-1978. Mean production per acre, 2.36 tons, with a standard deviation of .82 ton.

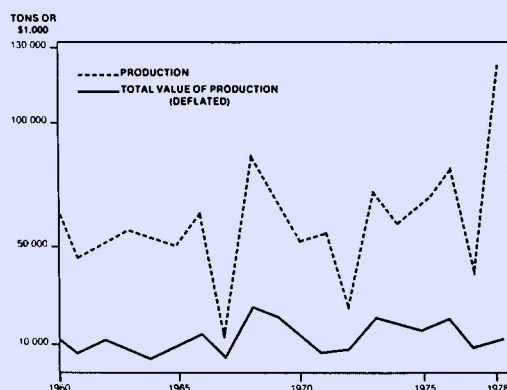


Figure 2. California olives: production and total value.

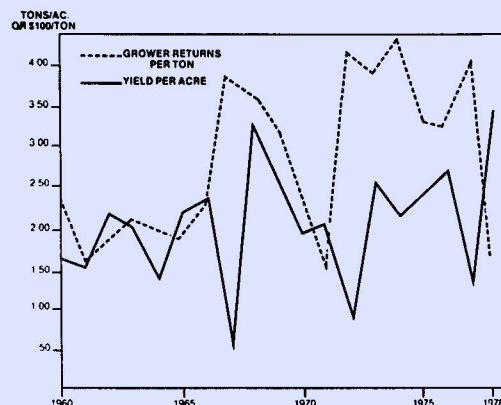


Figure 3. California olives: yields and grower returns.

Although these projections are subject to error, they do reflect that the olive industry faces a production potential substantially greater than previously experienced. If that occurs, there may be serious marketing and price problems for growers. Production such as that projected, with no changes in consumer acceptance of canned olives, will have serious price impacts if carry-overs of canned olives are also high (table 2 and figure 3). If production exceeds or is below the mean production and carry-over stocks remain proportionately the same, grower prices would be different from those projected.

Prices at the projected levels do not portend prosperous times for typical olive growers, inasmuch as production costs per ton are near the projected prices.

Regardless of past experiences, the California olive industry faces a potential for production and inventory carry-overs at levels not often experienced previously. This should tax the ingenuity of growers

and processors to work toward marketing solutions that provide reasonable solutions. Taking a long-run review, several potentials appear promising.

1. *Removal of marginal acreage and varieties.* This adjustment by itself is not expected to alleviate the large productive capacity that exists, however, in the newly planted groves. Although mostly low-grade and cull olives are used for oil crushing, it is doubtful that replacing imported olive oil with the Mission cultivar grown in California is practical because of the extremely low farm prices that prevail for olives for crushing.

2. *Continued research* to find ways to reduce the cyclical production pattern. Many agricultural industries collect research funds through marketing orders to partially finance such production research.

3. *Minimizing of the impact of cyclical production* and the adverse effect on widely changing grower prices and available supplies to consumers. Some industries use

a market reserve program to achieve such stability. However, even with an off-year, production may equal or exceed tonnage produced in on-years before the new plantings are bearing. Thus, this proposal may be adaptable for short-run problems, rather than for coping with large tonnages over the longer period.

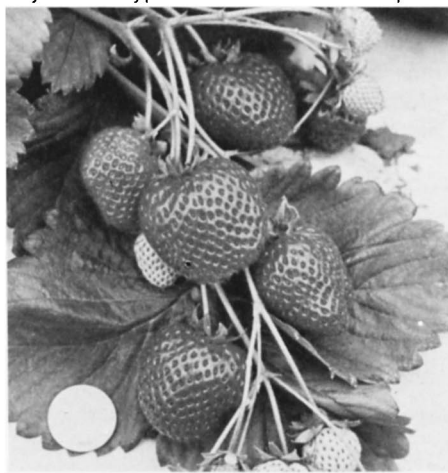
4. *Financing of market expansion programs* to increase consumption of olives to reflect more closely production capabilities. Such market expansion programs need to be developed with great care to assure results for growers.

5. *Continuing efforts to replace a part of the imported Spanish-style olives* with California production, using technology available to pit and mechanically stuff Spanish-style olives.

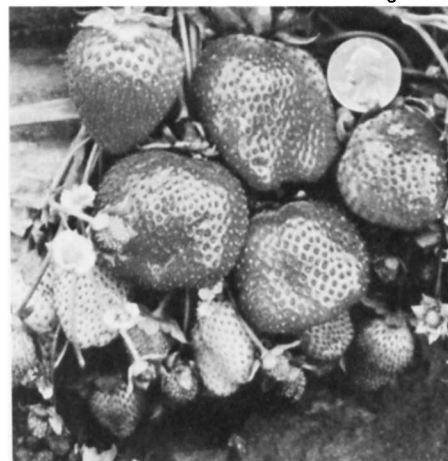
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Day-neutral types:

'Aptos'



'Brighton'



Six new strawberry varieties released

Royce S. Bringhurst □ Victor Voth

Before 1945, California produced only enough strawberries for its own needs. Most commercial production was concentrated on the East Coast. With large-scale introduction in 1945 of varieties developed at the University of California, production in this state began to expand rapidly, and today California supplies 75 percent of the nation's fresh and frozen strawberries.

Continuing improvement in strawberry varieties suitable for growing in the state has had a major impact on the industry in terms of shelf life, flavor, appearance, and overall consumer acceptance. We have now completed the development of six new varieties (announced in the November-December 1979 issue of *California Agriculture*) which could fill important production gaps and further improve yields and berry flavor.

Three of the new varieties—'Douglas', 'Pajaro', and 'Vista'—are intended for commercial fruit production and are "short-day" types. The other three—'Aptos', 'Brighton', and 'Hecker'—are "day-neutral" types and are likely candidates for home gardeners, as well as of possible interest commercially.

Research on the commercial types came partly out of a need for earlier, high-quality winter planting varieties for southern California, and 'Vista' and 'Douglas' seem to be particularly promising. 'Brighton' and 'Hecker' may also prove useful in producing early fruit.

'Hecker'

