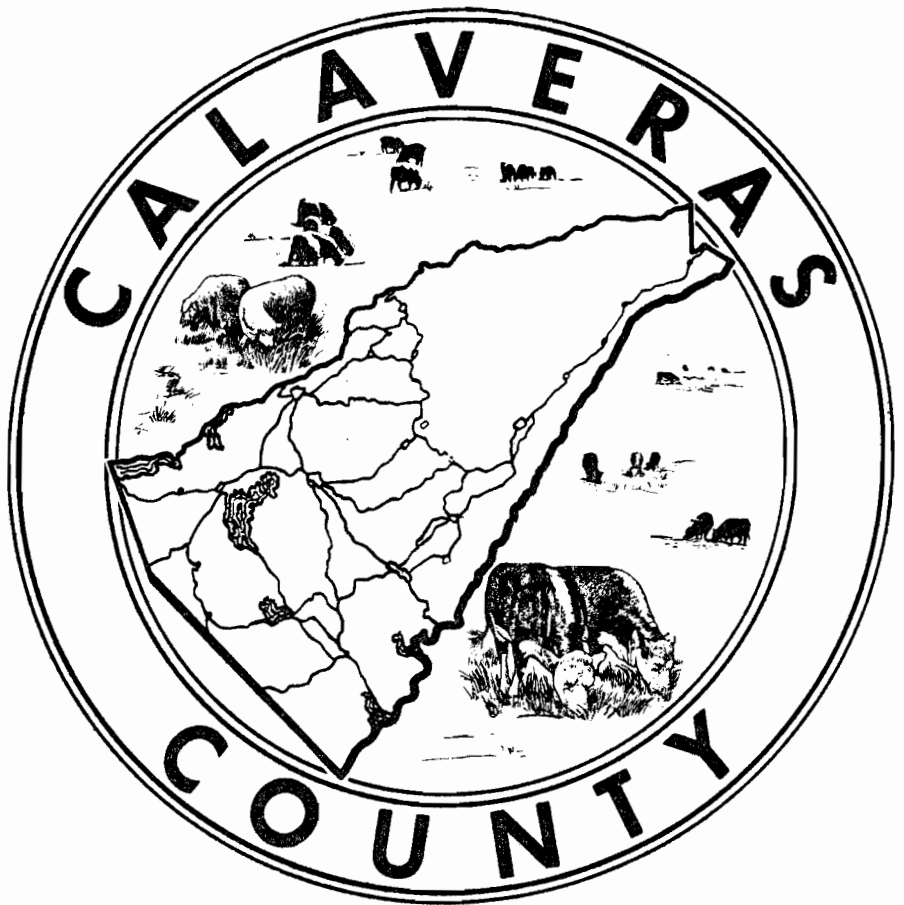


# O LIVE

PRODUCTION



1975

Prepared by Calaveras County Farm Advisors Office  
30 Main Street -- San Andreas  
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## OLIVE PRODUCTION IN CALAVERAS COUNTY \*

The 1973 Calaveras County Agricultural Commissioner's Crop Report indicates that there are 234 acres of bearing olives in the county. Most of these trees are 40 years of age or older. Climate and soil conditions in much of Calaveras County is suitable for olive culture.

As additional agricultural lands come under irrigation, economic conditions will largely determine the future acreage of commercial olive production in this area. Early local plantings were dry-farmed for olive oil production. Since World War II and until recently, the demand and price for olive oil has been limited. Now, we find that the market for olive oil is encouraging for increased production and acreage. During the last three decades the production of processed olives has moved upwards because of improved cultural methods and prices for canning olives and oil.

Recent research and equipment development shows real promise for mechanical harvesting of olives for oil. Cultural practices that makes the tree adaptable to mechanical harvesting indicates no major problems are expected in helping to lower hand picking harvest labor costs.

Because of the alternate bearing tendencies of our present commercial varieties, olive production tends to be erratic. This can be controlled to some extent by fruit thinning and improved cultural practices. The shelf life of processed olives is relatively long when compared to other fruits, so that wise marketing in the future should help to control production depressions and peaks.

### SOIL REQUIREMENTS:

Olive trees tolerate a wide range of soil conditions and are known to produce suitable crops on soils with a rooting depth of 18 inches. Soils with impaired drainage, such as we find with heavy clays, tufts or hardpan layers may cause problems, if not carefully managed; irrigation under such conditions requires special attention. Yields will be difficult to harvest mechanically.

Where olives are planted on rolling hill land or slopes where soil erosion hazards exist, sod culture is encouraged rather than clean cultivation or total weed control throughout the olive grove. Slopes over 20 percent will be difficult to harvest mechanically.

### FERTILIZATION:

About one pound of nitrogen per tree will usually take care of the plant nutrition problems under irrigation. Boron and potassium deficiency may occur and require some attention. Excessive fertilization, whether from commercial fertilizers or manures, results in poor quality fruit and wastes time, money and energy.

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## (Fertilization - cont.)

Leaf or tissue analysis is a most useful guide in the fertilization of olives.

In sod culture, clover production in an olive grove may add considerable organic matter and nitrogen to the soil. Organic nitrogen supplied by clovers may total as much as 40 pounds per acre. Many growers successfully graze livestock on the forage produced from sod culture in their olives. Stock rarely browse on olive trees while forage is available. If browsing becomes a problem, stock should be removed or wire tree trunks for protection.

## REQUIREMENTS:

Olives tolerate both excessive soil moisture and drought compared to the survival of other crops. However, under these conditions, a crop may be produced but high yields cannot be expected. Trees in areas where prolonged soil drainage is poor become stunted, weak and eventually die.

The most critical time for available soil moisture is during the flowering and fruit setting period. Water shortage to the tree at this time causes poor fruit set and crop failure. Heaviest water use is found to be during the hot weather of June, July, August and September. Total water application varies with season and soil; 2.5 to 3 acre feet of water per acre for large bearing trees throughout the growing season for satisfactory yields.

## CLIMATE:

It is important to avoid locations where early fall frosts occur. Frost damaged fruit is unsuitable for canning and reduces yields of olives used for oil. Areas subject to poor air drainage and especially areas above 3000 feet elevation that are subject to low winter temperatures and late spring frosts should be avoided.

## VARIETIES:

There are two dual-purpose olive varieties that are well adapted to Calaveras County; Manzanillo and Missions. Each variety helps to cross pollinate the other. A ratio of at least one pollinizer row to each 8 to 10 rows of the variety is usually recommended.

Manzanillo is the most important commercial variety grown in California. Trees are relatively low growing and spreading and fairly easy to harvest. Fruit processes easily with a high flesh to pit ratio. It is an excellent quality, heavy yielding canning variety. Frozen or cull fruit may be used for oil. The trees are more susceptible to low temperature winter injury than Missions. Manzanillo cuttings grown on their own root usually grow more vigorously and yield better than grafted trees.

Mission is more cold resistant than the Manzanillo variety. The fruit has a high oil content and lends itself to mechanical harvesting. Mission trees tend to grow tall as desired for mechanical harvesting; unless they are kept low by pruning, hand harvesting becomes more difficult and expensive. There appears to be several distinct strains of Mission in this area.

#### OUTLOOK.

As the local olive production industry develops and we find that canning olive production proves to be satisfactory, Sevillano, Ascolano or some other variety may well be worthy of planting for canning purposes. On the other hand, it may develop that olives for oil is the best use of the land. It could very well be that some of the varieties known to yield high quality oil in larger quantities than the canning varieties will be the ones to plant here in Calaveras County.

Olive production costs are considerable and relatively fixed. Costs per unit goes down with increasing production. Top quality commands the best prices. Maximum yields with good quality brings the best returns.

Reference publications for further reading that are available from your County Farm Advisors Office:

1. Olive Production in California, U.C. Circular #540,  
By: Hartman and Opitz.
2. Pruning Olives in California, U.C. Bulletin #771  
By: Hartman, Opitz & Hoffman
3. Olive Spray Thinning, OSA-82, By: Sibbett & Opitz
4. Olive Harvest Mechanization in California, U.C. Bulletin  
By: Fridley, et al. #855
5. Home Pickling of Olives, HXT-#29, By: Creuss & Vaughn.
6. Olive Pollination in California, U.C. Bulletin #869  
By: W. H. Griggs, et al

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SAMPLE COSTS TO PRODUCE OLIVES IN  
CALAVERAS COUNTY - 1975

YIELD: 3.0 tons per acre. Spacing 30' X 30'; 40 trees per acre.

OPERATION:	Hrs./ Acre	Cash and Labor: Costs per Acre			Total
		Labor	Fuel & Repairs		
<u>Cultural Costs</u>					
Prune 1/3 trees/yr.	15.0	37.50			37.50
Brush Disposal	1.5	4.50	3.38		7.88
Fertilize				Contract 40 lbs. N. applied	17.80
Irrigate 7X	10.5	26.25	Power: 2½' at \$5.36+5.10SB		18.50
Chop Grass Cover 3X	.9	2.70	2.16		4.86
Strip Weed Spray	.3	.90	1.20	Herbicide	5.00
Misc. Pest Control	1.0	2.50	2.50	Pickup	5.00
Water			2½Ac.ft. @ \$15/Ac.ft.		37.50
<b>Total Cultural Costs</b>		<b>74.35</b>	<b>9.24</b>	<b>78.80</b>	<b>162.39</b>

Harvest Costs:

Picking, contract - hand labor	\$130.00 per ton	390.00	390.00
Hauling: \$12 per ton		36.00	36.00

(Mechanical harvest: contract for oil- \$80.00/ton)

<b>Total Harvest Costs</b>		<b>426.00</b>	<b>426.00</b>
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Cash Overhead:

Misc., Office, business cost - 6% of above			33.30
Taxes on land, trees and equipment. (2415X25%X\$8)			48.30
<b>Total Cash Overhead</b>			<b>81.60</b>
<b>Total Cash Costs</b>			<b>669.99</b>

Investment	Per Acre	Annual Cost		7% Interest
		Depreciation		
Land	\$700			49.00
Trees	1000	50yrs.	20.00	35.00
Sprinkler irrig. system	300	15 "	20.00	10.50
Buildings	15	20 "	.75	.53
Equipment	250	15 "	22.09	8.75
Irrig, Supply Line	150	30 "	5.00	5.25
<b>Total Investment Costs</b>			<b>67.84</b>	<b>109.03</b>
<b>Total Cost Per Acre</b>				<b>846.86</b>
<b>Total Cost Per Ton at 3 tons per acre yield</b>				<b>282.29</b>

Olives: Total production of olives in 1973 was 72,400 tons, nearly tripling the 1972 production. However, average grower price was \$421 per ton, up 4 percent from 1972. Bearing acreage continued to increase while new plantings declined.

Olives: Production by varieties, price and value, California, 1972-73

Year	Manzanillo	Mission	Sevillano	Ascolano	Other Varieties	Total production <sup>1/</sup>	Average price	Total Value
1972	11,900	3,400	6,200	2,400	300	24,200	<u>2/404</u>	---
1973	45,000	7,200	13,800	5,000	1,400	72,400	390	---
1972	11,900	3,400	6,200	2,400	300	24,200	<u>3/415</u>	10,043
1973	45,000	7,200	13,800	5,000	1,400	72,400	399	28,888

<sup>1/</sup>Includes 200 tons per year for home use.

<sup>2/</sup>Average return to grower.

<sup>3/</sup>Price at processing plant door.

Olives: Quantity canned and price by variety, California, 1972-73

Year	Manzanillo		Mission		Sevillano		Ascolano		Other varieties		Total Canned	
	Quantity	Price	Quantity	Price	Quantity	Price	Quantity	Price	Quantity	Price	Quantity	Price
	Tons	Dol.	Tons	Dol.	Tons	Dol.	Tons	Dol.	Tons	Dol.	Tons	Dol.
1972 <sup>1/</sup>	10,000	446	2,650	438	5,100	448	2,000	459	250	444	20,000	447
1973 <sup>1/</sup>	38,700	447	4,000	402	10,600	443	3,800	437	400	333	57,500	442
1972 <sup>2/</sup>	10,000	458	2,650	450	5,100	460	2,000	471	250	456	20,000	459
1973 <sup>2/</sup>	38,700	457	4,000	412	10,600	453	3,800	447	400	343	57,500	452

<sup>1/</sup> Average return to grower.

<sup>2/</sup> Price at processing plant door.

OLIVES: California Acreage, Yields, Production, and Returns to Growers

Crop Year	Acreage		Total production	Yield per bearing acre	Growers' returns <sup>a/</sup>		Value of production
	Bearing	Non-bearing			Per bearing acre	Per ton	
	<u>acres</u>	<u>acres</u>	<u>tons</u>	<u>tons</u>	<u>dollars</u>	<u>dollars</u>	<u>\$1,000</u>
1940	27,278	1,167	69,000	2.53	193	76	5,258
1945	27,551	3,590	30,000	1.09	293	269	8,070
1950	27,432	5,245	42,000	1.53	354	231	9,702
1955	28,743	2,466	36,000	1.25	303	242	8,712
1956	27,707	3,155	70,000	2.53	450	178	12,460
1957	27,859	3,156	37,000	1.33	313	236	8,732
1958	28,556	3,121	68,000	2.38	233	101	6,666
1959	28,171	4,043	27,000	.96	219	229	6,183
1960	28,277	3,821	66,000	2.34	366	157	10,362
1961	28,164	4,086	44,000	1.56	250	160	7,040
1962	28,291	3,919	52,000	1.84	393	214	11,128
1963	28,361	4,538	57,000	2.01	388	193	11,286
1964	28,606	3,663	54,000	1.89	255	135	7,452
1965	27,693	2,889	52,000	1.88	402	214	11,000
1966	26,600	2,700	63,000	2.37	547	231	15,183
1967	27,040	3,460	14,000	.52	198	374	5,362
1968	27,000	3,440	86,000	3.20	1,207	369	32,594
1969	27,330	6,040	70,000	2.56	840	318	22,960
1970	27,590	10,360	53,000	1.92	459	228	12,667
1971	27,681	15,241	55,000	1.99	276	139	7,645
1972	28,320	14,260	24,200	0.85	343 <sup>b/</sup>	404	10,043
1973	28,556	13,545	72,800	2.56	893	349	26,062
1974 <sup>c/</sup>	29,030						

a/ Returns for naked fruit at Growers' first delivery point.

b/ Computed by multiplying yield per bearing acre by growers' return per ton.

c/ Estimate

Source: California Fruit and Nut Statistics, California Crop and Livestock Reporting Service; California Fruit & Nut Acreage, California Crop and Livestock Reporting Service.

OLIVES  
July, 1974  
-Table 21A