

COSTS OF ESTABLISHING AND PRODUCING PRUNES

SACRAMENTO VALLEY - 1982

By

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A few prunes are grown in the Northwest, otherwise California is the exclusive producer of dried prunes in the United States. Over 98 percent of the prunes grown in California are of the French type. The remainder are made up primarily of Imperials, Robe de Sargeant, Sugar, and various other specialty plantings. Heavy planting in the Sacramento Valley occurred during the 1960's shifting production from the coastal areas with a net decrease in state acreage but with a heavier producing capacity.

Soil requirements: Prunes grow well, are longer lived and are more productive on deep well drained soils. However, the trees can be planted on shallower and less well drained soil than peaches, almonds, or walnuts. On these less desirable sites, growers can expect less production, shorter life, and more blow-over problems.

Climate: Prunes require a moderately long season of clear warm weather for proper maturity. They bloom later than some other fruit and nut crops but areas where late frosts may occur should be avoided. Prunes require adequate chilling during the winter and generally do not do well in Southern California.

Varieties: Nearly 98 percent of the prunes in California are the French variety. Others in order of importance are Imperial, Robe de Sargeant, and Sugar.

Planting dates: Late winter or early spring depending on weather condition. January through March, but the earlier the better.

Trees per acre: Trees are often planted 20' x 20' or 108 trees per acre. However, higher density plantings are becoming more popular.

Harvest: August 10 through October 10. Harvest and drying are the largest cash costs in prune production. Prune orchards can produce economically until about 25 years of age. Prunes usually begin producing a crop in the fourth year and will produce economically until about 25 years of age. The crop is well adapted to mechanical harvest. Cooperative or commercial drying is practiced by many growers in order to avoid the heavy capital outlays required for private dehydrator installations. Availability of dryer space is a problem in this area during heavy crop years and cost of drying has about doubled since 1976.

Fertilizer: Nitrogen at 90-150 pounds per acre applied annually. Potassium and zinc is required in many areas.

Weed control: Cultivate or mow enough to control weeds and facilitate irrigation. Strip spraying and mowing is an alternative to cross cultivation or cross mowing.

Irrigation: It is important that the trees have an adequate supply of available moisture at all times. A minimum of 4-5 irrigations is recommended, with each irrigation wetting the soil to rooting depth.

Insect control: Insects which may require control include aphids, scale insects, spider mites, peach twig borer, and other occasional pests. Check with your local Farm Advisor for positive identification and control.

Disease control: Brown rot, bacterial canker, crown gall, cytospora canker, ceratosystis canker, oak root fungus and prune rust are the major diseases that attack prunes. Obtain identification and control measures from your Farm Advisor.

Soil problems: A major problem of prune production in the Sacramento Valley is limb dieback associated with potassium deficiency. Orchards on heavy shallow soils have the worst problem. Recent studies have shown that irrigation and moisture availability have a direct bearing on potassium deficiency. Zinc deficiency is another important problem.

Water management is a definite problem in these heavy shallow soils. Potassium deficiency is best treated through soil application of potassium nitrate sprays and in many situations, foliar application of potassium nitrate is beneficial. If left unchecked, dieback is followed by sunburn, allowing entry sites for a fungus disease known as Cytospora, and wood boring insects. The orchard then generally goes into a steady decline.

With large crops, small fruitsize, potassium deficiency and tree dieback are commonplace. Annual dormant pruning of the proper method to control crop size and extend tree life. The economics of prune production and high labor costs have discouraged many producers from maintaining this practice. Mechanical shaker thinning in May is a practical way of reducing crop load and increasing fruit size. This crop thinning practice could be used if caught in an over-cropping situation.

Cost study assumptions: This study assumes cultivated, flood irrigated establishment costs. Two costs of production are presented--one assuming complete cultivation and one non-cultivation with strip spraying and mowing. Green ton to dry ton ratio is 3.1 to 1.

Labor is charged at \$4.00/hour plus 25 percent for fringe benefits, or \$5.00 per hour total.

The study assumes pumped water and furrow, border, or flood type irrigation.

The study also assumes all new equipment which would not be normal in most cases.

SAMPLE COSTS TO PRODUCE PRUNES - CULTIVATED

SACRAMENTO VALLEY

Date 1982

Based on 3 dry tons per acre. Labor at \$5.00 per hr. total including
 Production data: fringe benefits. 100 acre orchard, 20 x 20 spacing - 108 trees per acre.

Operation	Hours Per Acre	Cash and labor cost per acre			Your Costs
		Labor	Fuel and repairs	Materials Kind and Quantity Cost	
Cultural costs					
Prune - 108 Trees @ \$1.25 per tree		135.00			135.00
Chop or Remove Brush	1.5	7.50	6.30		13.80
Spray, 2X	1.0	5.00	10.00	Materials 50.00	65.00
Fertilize	.3	1.50	2.00	Nitrogen 100 lbs. @ 30c 30.00	33.50
Cultivate, 6X	3.0	15.00	12.45		27.45
Ridge-up & Knock Down, 5X	2.5	12.50	18.65		31.15
Irrigate, 6X	6.0	30.00		3 ac. ft. @ \$15 45.00	75.00
Replants	1.0	5.00	4.00		12.00
Bees: 2 @ \$5 ea.					10.00
Misc. Cultural	1.0	5.00	6.00		19.00
Interest on Oper. Capital				6 mos. @ 16% 34.00	34.00
TOTAL CULTURAL COSTS					
		216.50	59.40	180.00	455.90
Harvest Costs					
Land Preparation	1.0	5.00	4.00		9.00
Harvest				Contract @ \$18/green ton 167.40	167.40
Bin Handling, Hauling				Contract @ \$5/green ton 46.50	46.50
Bin Rental				\$1/green ton 9.3	9.30
Dehydrate				\$75/green ton 697.50	697.50
Hand Sort				\$15/dry ton 45.00	45.00
TOTAL HARVEST COSTS		5.00	4.00	965.70	974.70
Cash overhead					
Misc., office, etc.				121.16	121.16
Taxes				80.00	80.00
TOTAL CASH OVERHEAD					201.16
TOTAL CASH COST		221.50	63.40	1346.86	1631.76

INVESTMENT	Per Acre	Annual Cost		
		Depreciation	Interest @ 14%	
Land	3,000	--	420.00	
Trees	8,334	333.36	583.38	
Irrigation system well pump incl. filter	375	25.00	26.25	
Buildings pipe	150	7.50	10.50	
Equipment	1,025	102.50	71.75	
Total	\$12,884	468.36	1,111.88	1580.24
TOTAL COST PER ACRE				
\$212.00				
Cost per dry ton	@ 3 dry ton	yield		\$1070.67

SAMPLE COSTS TO PRODUCE FRONES - NON-CULTIVATED

SACRAMENTO VALLEY

Date 1982

Based on 3 dry tons per acre. Labor at \$5.00 per hr. total including fringe benefits. 100 ac. orchard, 20x20 spacing - 108 trees per acre.

Operation	Hours Per Acre	Cash and labor cost per acre				Your Costs
		Labor	Fuel and repairs	Materials Kind and Quantity Cost	Total	
Cultural costs						
Pruning - 108 trees @ \$1.25 per tree		135.00			135.00	
Chop or remove brush	1.5	7.50	6.30		13.80	
Spray, 2X	1.0	5.00	10.00	Materials 50.00	65.00	
Fertilize	.3	1.50	2.00	Nitrogen 150 lbs. @ 30¢ 45.00	48.50	
Mow, 7X	2.3	11.50	12.65		24.15	
Irrigate, 7X	6.0	30.00		3½ ac. ft. @ \$15 52.50	82.50	
Herbicide, 2X	.7	3.50	3.15	Materials 24.00	30.65	
Replants	1.0	5.00	4.00		12.00	
Bees: 2 @ \$5 ea.					10.00	10.00
Misc. Cultural	1.0	5.00	6.00		8.00	19.00
Interest on Oper. Capital				6 mos. @ 16%	35.00	35.00
TOTAL CULTURAL COSTS		204.00	44.10		227.50	475.60
Harvest Costs						
Land Preparation	1.0	5.00	4.00			9.00
Harvest				Contract @ \$18/green ton 167.40	167.40	167.40
Bin Handling, Hauling				Contract \$5/green ton 46.50	46.50	46.50
Bin Rental				\$1/green ton 9.3	9.3	9.30
Dehydrate				\$75/green ton 697.50	697.50	697.50
Hand Sort				\$15/dry ton 45.00	45.00	45.00
TOTAL HARVEST COSTS					965.70	974.70
Cash overhead						
Misc., office, etc.					123.46	123.46
Taxes					80.00	80.00
TOTAL CASH OVERHEAD					203.46	203.46
TOTAL CASH COST		209.00	48.10		1396.66	1653.76
INVESTMENT	Per Acre			Annual Cost		
Land	3000			Depreciation		Interest @ 14%
Trees	8334			--		420.00
Irrigation system	375			333.36		583.38
Buildings <small>well, pump, pipe</small>	150			25.00		26.25
Equipment	1025			7.50		10.50
				102.50		71.75
Total	\$12,884			468.36		1,111.88
TOTAL COST PER ACRE						3234.00
Cost per dry ton @ 3 dry ton yield						1078.00

EQUIPMENT INVESTMENT FOR PRUNE PRODUCTION
SACRAMENTO VALLEY - 1982

Item	Cost	Operation Cost Per Hour
Tractor, 60 HP Wheel Diesel	\$ 20,000	\$7.00
Tractor, 30 HP Wheel Diesel	14,000	4.00
PTO Sprayer, 500 Gal.	12,500	3.00
Buck Rake	1,000	.20
Frontend Tractor Mounted Forlift Attach.	4,000	.90
Harrow, Offset Disc 10'	5,000	1.15
Landleveler	5,000	1.00
Ridger	1,500	.35
Checkbreaker	500	.10
Roller 11'	1,600	.40
Ladders & Pruning Equipment	1,100	
Nurse Tank and Pump	2,800	.60
Weed Sprayer	2,500	.50
Mower, Rotary	6,000	1.50
Pickup, 1/2 Ton	9,000	
Truck, 1 1/2 Ton	16,000	
 Total Investment	 <u>\$102,500</u>	
Per acre on <u>100</u> acres	<u>\$ 1,025</u>	
Depreciation per acre	<u>\$ 102.50</u>	
Interest per acre @ 14%	<u>\$ 71.75</u>	

COSTS TO ESTABLISH PRUNE ORCHARD

SACRAMENTO VALLEY - 1982

Based on 100 acres planted 20' x 20', 108 trees per acre. Labor at \$5.00 per hr. total, including fringe benefits.

	1st Year	2nd Year	3rd Year	4th Year	5th Year	6th Year
Yield: dry tons				.5	1.0	2.0
<u>Pre-Harvest Cash Costs:</u>						
Land Preparation*, Shallow Subsoil	\$50.00					
Disc	25.00					
Survey, Dig Holes, Plant, Paint @ \$1.25	135.00					
Trees @ \$3.00	324.00					
Total Planting Costs	\$534.00					
<u>Cultural Costs:</u>						
Dormant Prune & Chop Brush	\$15.00	\$22.00	\$36.00	\$50.00	\$65.00	\$86.00
Fertilizer and Application	4.00	10.00	16.00	20.00	24.00	37.00
Spray & Application	6.00	15.00	30.00	35.00	70.00	70.00
Cultivate: 2.2 hrs. per acre	26.75	26.75	26.75	26.75	26.75	26.75
Ridge-up and Knock-down: 2.5 hrs.	31.25	31.25	31.25	31.25	31.25	31.25
Irrigate - Water & Labor	35.00	50.00	65.00	70.00	75.00	75.00
Replant	--	10.00	5.00	--	--	--
Supervision	60.00	60.00	60.00	60.00	60.00	60.00
Miscellaneous Cultural	20.00	20.00	20.00	20.00	20.00	20.00
Taxes, Real & Personal Property	38.00	38.00	38.00	78.00	78.00	78.00
Repairs	40.00	40.00	40.00	40.00	40.00	40.00
Office & Business Costs	22.00	26.00	29.00	35.00	39.00	42.00
Interest on Operating Capital	24.00	28.00	32.00	37.00	42.00	45.00
Pre-Harvest Cash Costs	\$322.00	\$377.00	\$429.00	\$503.00	\$571.00	\$611.00
<u>Harvesting Costs:</u>						
Bin Handling & Rental, Haul to Dryer, Dehydrate & Hand Sort Contract @ \$350/dry ton	--	--	--	175.00	350.00	700.00
Total Cash Costs	\$322.00	\$377.00	\$429.00	\$678.00	\$921.00	\$1,311.00
<u>Depreciation:</u>						
Irrigation System	\$25.00	\$25.00	\$25.00	\$25.00	\$25.00	\$25.00
Buildings & Equipment	110.00	110.00	110.00	110.00	110.00	110.00
Total Depreciation	\$135.00	\$135.00	\$135.00	\$135.00	\$135.00	\$135.00
<u>Interest on Investment @ 14%:</u>						
Irrigation System	\$26.25	\$26.25	\$26.25	\$26.25	\$26.25	\$26.25
Building & Equipment	82.25	82.25	82.25	82.25	82.25	82.25
Land	420.00	420.00	420.00	420.00	420.00	420.00
Interest on Accumulated Costs	--	137.97	302.96	498.32	710.40	940.68
Total Interest on Investment	\$528.50	\$666.47	\$831.46	\$1,026.82	\$1,238.90	\$1,469.18
Total Costs for the Year	\$985.50	\$1,178.47	\$1,395.46	\$1,839.82	\$2,294.90	\$2,915.18
Credit for Fruit @ \$650/Dry Ton	--	--	--	\$325.00	\$650.00	\$1,300.00
Net Cost for the Year	\$985.50	\$1,178.47	\$1,395.46	\$1,514.82	\$1,644.90	\$1,615.18
Accumulated Net Cost	\$985.50	\$2,163.97	\$3,559.43	\$5,074.25	\$6,719.15	\$8,334.33

*In some areas, pre-plant fumigation may be required. The additional cost for this operation would be about \$400 per acre.

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Irrigate - Water & Labor	35.00	50.00	65.00	70.00	75.00	75.00
Replant	--	10.00	5.00	--	--	--
Supervision	60.00	60.00	60.00	60.00	60.00	60.00
Miscellaneous Cultural	20.00	20.00	20.00	20.00	20.00	20.00
Taxes, Real & Personal Property	38.00	38.00	38.00	78.00	78.00	78.00
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