Prunes: *Cost of* Production; *Cost to* Establish *in the Lower Sacramento Valley* 1976

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Prepared by:

William H. Olson, Farm Advisor, Butte County
Gordon W. Morehead, Farm Advisor, Sacramento County
Larry B. Fitch, Farm Advisor, Sutter/Yuba Counties
David Holmberg, Farm Advisor, Yolo County
A. D. Reed, Extension Economist, Davis
L. A. Horel, Research Associate, Davis

PRUNE PRODUCTION

A few prunes are grown in the Northwest, otherwise California is the exclusive producer of dried prunes in the United States. Over ninety-five percent of the prunes grown in California are of the French type. The remainder are made up primarily of Imperials, Robe de Sergeant, 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 change of total less acres in the state but with a heavier producing capacity.

Crop Statistics

	1969		1974	
	Bearing	Non-Bearing	Bearing	Non-Bearing
Sacramento Valley	54,413	5,810	48,930	14,970
Coastal Areas	21,416	696	45,422	1,780
San Joaquin Valley	5,375	2,205	3,207	3,510
California	81,204	8,711	97,560	20,260

PRUNE CULTURAL BRIEFS

Soil requirements: Prunes grow well, are longer lived and are more productive on deep well drained soils. The trees can be planted on shallower and less well drained soil than peaches, almonds, and 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. Prunes bloom later than some other fruit and nut crops but avoid areas where late frosts may occur. Prunes require cold weather during the winter and generally do not do well in Southern California.

Varieties: Nearly 95% of the prunes in California are the French variety. Others in order of importance are Imperial, Robe de Sergeant, and Sugar.

Planting dates: January through March, but the earlier the better.

Trees per acre: Trees are normally planted 20' x 20' or 108 trees per acre.

Harvest: August 10 - October 10. The harvest and drying are the largest cash costs in prune production. Well cared for orchards normally produce economically until 30 to 35 years of age. Prunes usually begin producing a crop in the fifth year and will probably pay for annual production expense by their seventh year. The crop adapts itself well 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 becoming an increasing problem in this area and cost of drying has about doubled since 1970.

Fertilizer: Nitrogen at 60-100 pounds per acre applied in January or February. Potassium may be required in some areas.

Weed control: Cultivate only enough to control weeds and facilitate irrigation.

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 5-6 feet.

Insect control: Insects which may require control include Pear thrips, mealy plum aphid, various scale insects, red spiders, Peach tree borer, western flatheaded borer, and shot hole borer. Check with your local Farm Advisor for positive identification and control.

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

Soil problems: Prunes may also be affected by excess boron, copper deficiency, and zinc deficiency.

A major problem of prune production in the Sacramento Valley is tree dieback associated with potassium deficiency. Orchards on the heavier and shallow soils have the worst problem. Recent studies have shown that irrigation and moisture availability have a direct bearing on potassium deficiency.

Water management is a definite problem in these heavy shallow soils. Potassium deficiency can be reduced by the use of potassium nitrate sprays. In some situations, potassium sulfate injected into the soil is beneficial. If left unchecked, dieback is followed by sunburn, a disease known as Cytospora, and wood boring insects. The orchard then generally goes into a steady decline.

With large crops, potassium deficiency and tree dieback, comes small fruit size. Annual dormant pruning is 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. Recently, studies with mechanical shaker thinning in May have shown it to be a practical way of reducing crop load and increasing fruit size and it could be used if caught in an over cropping situation.

SAMPLE COSTS TO ESTABLISH PRUNE ORCHARDS
Lower Sacramento Valley - 1976

Based on 100 acres planted 20' X 20', 108 trees per acre, labor at $3.25 including fringe benefits.

Operation	Year 1	2	3	4	5	6	7
Yield - ton					1.0	2.0	2.8
Income @ $400/ton					$ 400	$ 800	$1,120
Planting Costs							
Land preparation	$ 50						
Plant, survey, dig holes	40						
Trees @ $1.45	156						
TOTAL PLANTING COSTS	246						
Cultural Costs							
Prune & remove brush	3	$ 10	$ 16	$ 26	44	81	116
Fertilizer		4	12	16	20	24	32
Spray	6	15	22	26	30	36	48
Cultivate	18	20	23	25	27	30	30
Irrigate	30	30	30	36	36	36	38
Whitewash	7	7	7				
Replant		8	5				
Misc. cultural	10	10	10	10	10	10	23
TOTAL CULTURAL COSTS	74	104	125	139	167	217	287
Harvest Costs							
Bin handling & rental, haul to dryer, dehydrate & contract @ $160					160	320	448
Overhead Costs							
Misc. overhead	29	9	13	16	24	34	38
Taxes	70	70	70	97	97	97	97
Management	35	35	35	35	35	40	56
Depreciation	84	84	84	84	84	84	84
Interest 8%	152	208	248	294	348	389	420
TOTAL OVERHEAD COSTS	370	406	450	526	588	648	695
TOTAL COST PER ACRE	690	510	575	665	915	1,085	1,430
Net Cost Per Acre					515	385	310
Accumulated Cost	690	1,200	1,775	2,440	2,955	3,340	3,650
Investment							
Land	1,400	1,400	1,400	1,400	1,400	1,400	1,400
Trees		690	1,200	1,775	2,440	2,955	3,340
Irrigation system	300	300	300	300	300	300	300
Buildings	50	50	50	50	50	50	50
Equipment	660	660	660	660	660	660	660
TOTAL INVESTMENT	2,410	3,100	3,610	4,185	4,850	5,365	5,750

Total accumulated cost through 7th year = $3,650.

SAMPLE COSTS TO PRODUCE PRUNES
Lower Sacramento Valley - 1976

Yield 3 tons per acre (10 green tons). Labor @ $3.50 per hour including fringe benefits. Based on 100 acres with 20' x 20' spacing - 108 trees per acre.

Operation	Hours per acre	Cash and labor cost per acre				
		Labor	Fuel & repairs	Materials Kind & quantity	Materials Cost	Total
		Dollars				
Cultural Costs						
Prune - 108 trees @ $1/ tree	1.5	108.00				108.00
Chop or remove brush	1.5	5.25	2.40			7.65
Spray - 3X	1.0	3.50	8.25	Materials	36.00	47.75
Fertilize	.3	1.05	.65	Nitrogen 100# @ 20¢	20.00	21.70
Disc - 5X	2.2	7.70	5.35			13.05
Ridge up & knock down 5X	2.2	7.70	8.10			15.80
Irrigate 7X	7.0	24.50		3 ac.ft. @ $4.50	13.50	38.00
Replants	1.0	3.50			1.50	5.00
Misc. cultural	1.0	3.50	3.00		4.00	10.50
Interest on crop loan				6 mo. @ 9%	12.50	12.50
TOTAL CULTURAL COSTS		164.70	27.75		87.50	279.95
Harvest Costs						
Land plane	.5	1.75	1.75			3.50
Harvest				Contract @ $12 ton	120.00	120.00
Bin handling & haul to dryer					12.00	12.00
Bin rental				$6/acre	6.00	6.00
Dehydrate				$33/ton	330.00	330.00
TOTAL HARVEST COSTS		1.75	1.75		468.00	471.50
Cash Overhead						
Misc., office, etc.					38.65	
Taxes					97.00	
TOTAL CASH OVERHEAD					135.65	135.65
TOTAL CASH COST		166.45	29.50		691.15	887.10
Management 5% of 3 tons @ $400 ($1,200)						60.00

Investment	Per acre	Annual cost Depreciation	Annual cost Interest 8%	
Land	$1,400		$112.00	
Trees	3,650	$146.00	146.00	
Irrigation system	300	15.00	12.00	
Buildings	50	2.50	2.00	
Equipment	660	66.00	26.40	
Total	6,060	229.50	298.40	527.90
TOTAL COST PER ACRE				1,475.00
Cost per ton @ 3 ton yield				491.67

EQUIPMENT INVESTMENT FOR PRUNE PRODUCTION

Lower Sacramento Valley - 1976

Item	Cost	Operation Cost Per Hour
Tractor, 50 hp wheel diesel	$12,300.00	$ 1.65
Tractor, 30 hp wheel diesel	7,900.00	1.45
Speed sprayer, 500 gal. (50 WD)	15,400.00	6.60
Buck rake (30 WD)	825.00	.15
Harrow, offset disc 10' (30 WD)	2,200.00	1.00
Land plane (50 WD)	7,800.00	1.85
Float 12' (50 WD)	600.00	.30
Fertilizer spreader	550.00	
Pick-up, ½ ton	5,000.00	7.80
Truck, 1½ ton	7,700.00	13.20
Ridger (50 WD)	1,100.00	.20
Roller 18' (30 WD)	2,750.00	.40
Ladders & pruning equipment	1,100.00	.15
Weed sprayer	275.00	.20
Miscellaneous	500.00	
Total Investment	$66,000.00	
Per acre on 100 acres	660.00	
Depreciation per acre	66.00	
Interest per acre	26.40	