

PRUNE ORCHARD

DEVELOPMENT

COSTS

NAPA

COUNTY

1966

PREPARED BY

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## PRUNE ORCHARD DEVELOPMENT COSTS IN NAPA COUNTY

### Introduction

Planting a new orchard and developing it to maturity is a long and expensive process. Not only must the orchardist worry about soils, water supply, planting distances, pruning methods and other cultural practices, but also the economic conditions of the industry at the time the orchard will come into production. He must analyze carefully the size of the operation and the equipment necessary to operate the orchard. It may be more economical to have some jobs performed by custom operators (if they are available) rather than to own the necessary equipment. Usually, dehydrating operations can be performed at lower cost by a central plant rather than in the grower's own facilities.

The purpose of these sample costs for developing a new prune orchard in Napa County is to give growers an approximate idea of development costs and what may be expected on land well adapted to prunes and with good farm management practices. Development costs will vary widely from orchard to orchard. Sample costs in this circular were developed by the Agricultural Extension Service working with a committee of experienced growers and with the technical assistance of an Extension economist.

For the purposes of this study, it was assumed that 80 acres of orchard would be planted on level land with trees planted on a 24 x 24 foot spacing. An irrigation system and buildings (other than dwellings) are included as well as equipment needed for bringing the orchard into production.

### Explanation of Tables

The first table is arranged to show all cash, depreciation, and interest costs for each of the first five years of orchard development. This table is not intended to show actual investment costs for equipment, buildings, and other facilities. It merely shows a sample cost for the development of the trees. It does, however, include depreciation and interest costs on equipment and facilities purchased. This table will give the operator an approximate idea of the amount of capital needed each year for tree development. At the end of the fifth year, the total cost of tree development is shown as \$1269.27 per acre.

The second table is designed to show sample investment costs required for orchard development. The table includes actual estimated investment costs in land, buildings, equipment, and facilities as well as the cost of tree development for the first years, which is shown in detail in the first table.

From this table, a person going into the prune business without land or facilities, may gain some approximate idea of the total investment involved. The agricultural value of raw land suited to prunes has been arbitrarily assigned a value of \$1000 per acre. If it is necessary to pay prices higher than this for raw land, it is generally recommended that the amount paid in excess of \$1000 be assigned to factors other than agriculture, such as homesite or speculative value.

Established growers who have land and other equipment and facilities available and suited to prune production would deduct these items from this table to determine orchard re-establishment costs.

SAMPLE COSTS PER ACRE TO DEVELOP A SPRINKLER IRRIGATED PRUNE ORCHARD  
NAPA COUNTY----1966

Based on the development of an 80-acre orchard. Man labor at \$1.50 and \$1.75 plus Security and Compensation Insurance, \$.14 & \$.16=\$1.64 & \$1.91. Cash costs per hour 30-40 HP wheel & crawler tractors @ \$1.20 & \$1.60 and sprayer @ \$4.00.

	1st year	2d year	3d year	4th year	5th year
Yield, dry ton per acre					1.0
<b>PREHARVEST CASH &amp; LABOR COSTS:</b>					
Land preparation 1/	25.00				
Mark & stake: 2 M hrs., 225 stakes @ 3¢	10.30				
Dig holes: 2 hrs. M., TR. & auger vent	7.22				
Plant: (inc. trimming) 5 M hrs.	8.20	1.00	.50		
Trees: 75, 2 & 1 @ \$1.00	75.00	2.00	1.00		
Whitewash: 2 M hrs. + mat. 50¢	3.78	3.78	3.78	3.78	3.78
Tanking & hoe: 1st yr. 9M & 6 TR hrs.	23.58				
Prune: incl. summer train 1st 2 yrs	1.64	6.56	6.56	13.12	26.24
Chop brush: 4th & 5th Yr. ½ hr M & Tr				1.56	1.56
Fertilize: labor plus N @ 11¢/lb.		4.01	5.35	5.35	7.55
Spraying: application & material		3.25	3.75	10.75	11.75
Irrigate: after 1st yr.-3x-4M. Hrs.		7.38	7.38	7.38	7.38
Water: power to apply 12 inches		8.60	8.60	8.60	8.60
Cultivate: 4 hr. M & TR + hoe after 1st yr.	14.04	17.32	17.32	17.32	17.32
Misc. labor & material 2/	13.00	14.00	15.00	15.00	15.00
County taxes	21.40	22.00	23.75	23.75	23.75
Office, car, int. on oper. capital, etc.	10.30	4.75	4.92	5.60	11.42
Repairs, ex. tract., pickup & sprayer	3.00	5.00	5.50	5.50	5.50
<b>TOTAL PREHARVEST CASH AND LABOR COST</b>	<b>216.46</b>	<b>99.65</b>	<b>103.41</b>	<b>117.71</b>	<b>139.85</b>
HARVESTING AND DEHYDRATION @ \$100/ton					100.00
<b>TOTAL CASH AND LABOR COST</b>	<b>216.46</b>	<b>99.65</b>	<b>103.41</b>	<b>117.71</b>	<b>239.85</b>
<b>DEPRECIATION COSTS: 3/</b>					
Buildings for equip.: cost \$50, 25 yrs.	2.00	2.00	2.00	2.00	2.00
Sprinkler irrig. after 1st yr: cost \$240, 16 yrs.		15.00	15.00	15.00	15.00
Tractors & pickup: cost \$140, 9 yrs.	15.50	15.50	15.50	15.50	15.50
Sprayer after 1st yr: cost \$70, 14 yrs.		5.00	5.00	5.00	5.00
Other equip & shop: cost \$40, 10 yrs.	4.00	4.00	4.00	4.00	4.00
<b>TOTAL DEPRECIATION COST</b>	<b>21.50</b>	<b>41.50</b>	<b>41.50</b>	<b>41.50</b>	<b>41.50</b>
<b>TOTAL CASH AND DEPRECIATION COST</b>	<b>237.96</b>	<b>141.15</b>	<b>144.91</b>	<b>159.21</b>	<b>281.35</b>
<b>INTEREST ON INVESTMENT @ 6%:</b>					
Bldgs for equip: on ½ cost (\$25)	1.50	1.50	1.50	1.50	1.50
Sprinkler irrig. facil: on ½ cost(\$120)		7.20	7.20	7.20	7.20

SAMPLE COSTS PER ACRE TO DEVELOP A SPRINKLER IRRIGATED PRUNE ORCHARD  
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 (continued)

	1st year	2d year	3d year	4th year	5th year
Tractors & pickup: on ½ cost (\$70)	4.20	4.20	4.20	4.20	4.20
Sprayer: on ½ cost (\$35)		2.10	2.10	2.10	2.10
Other equip & shop: on ½ cost (\$20)	1.20	1.20	1.20	1.20	1.20
Land at \$1,000	60.00	60.00	60.00	60.00	60.00
Interest on accumulated cost		18.29	32.43	47.64	64.63
<b>TOTAL INTEREST ON INVESTMENT</b>	<b>66.90</b>	<b>94.49</b>	<b>108.63</b>	<b>123.84</b>	<b>140.83</b>
<b>TOTAL COST FOR YEAR</b>	<b>304.86</b>	<b>235.64</b>	<b>253.54</b>	<b>283.05</b>	<b>422.18</b>
<b>CREDIT FOR FRUIT @ \$230/ton</b>					<b>230.00</b>
<b>NET COST FOR YEAR</b>	<b>304.86</b>	<b>235.64</b>	<b>253.54</b>	<b>283.05</b>	<b>192.18</b>
<b>TOTAL ACCUMULATED COST</b>	<b>304.86</b>	<b>540.50</b>	<b>794.04</b>	<b>1077.09</b>	<b>1269.27</b>

- 1/ Fumigation of soil would be an additional cost of approximately \$300 per acre. This should be done when old prune orchards are replanted.
- 2/ Includes heeling in nursery trees the first year and deer repellent when needed.
- 3/ Investment in irrigation system and sprayer added after first year. Housing for help, truck, fork lift and harvester added after 5th year.

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INVESTMENT COSTS

Actual investment costs have not been included in the tables showing development procedures and costs during the first five years. The tables do show depreciation and interest costs on equipment and facilities purchased during the first five years.

The following table gives a summary of total estimated sample investment costs, including harvesting equipment and other facilities which need to be added after the fifth year:

	<u>Investment/Acre</u>	<u>Total for 80 A.</u>
Total original investment in bldgs, irrigation facilities & equip. for first five years	540.00	43,200.00
Facilities and equip. added after the 5th year:		
Housing for help	75.00	6000.00
Used truck & forklift	30.00	2400.00
Harvesting unit	60.00	4800.00
Other equipment	<u>10.00</u>	<u>800.00</u>
Total added after 5th year	175.00	14,000.00
Total investment except trees and land	<u>715.00</u>	<u>57,200.00</u>
Total accumulated cost of trees, end of 5th yr. (see table for details)	1269.27	101,541.60
Total investment except land	1984.27	158,741.60
Land at \$1000 per acre	1000.00	80,000.00
<b>TOTAL original investment in orchard</b>	<u>2984.27</u>	<u>238,741.60</u>

## POTENTIAL ADDITIONAL COSTS

### Fumigation

Under certain conditions, it may be desirable or even necessary to fumigate land prior to the establishment of a new orchard. This is especially true if the land to be planted has just had an old orchard removed. In such a situation, the cost of removing the old trees, possible re-grading the land, and the costs of fumigation would be an additional charge against the development of a new orchard.

Under Napa County conditions, it has often been found difficult to establish a new orchard immediately after removal of an old orchard, unless soil fumigation is done. The costs of these operations are only estimated at \$300 per acre, since they will vary greatly between situations and often only a part of the land may be involved. The fumigation situation, however, should be checked carefully prior to laying out and planting a new orchard.

### Drainage

In several areas of Napa County, consideration may have to be given to improving the drainage situation on land, prior to planting. This may involve simple establishment or re-establishment of surface drains or consideration may have to be given to the installation of an underground tile drainage system. The added investment required for improving drainage would again be highly variable. Each situation will need to be studied as a separate problem.

### Frost Protection

In the sample cost of development sheets, no investment cost is shown for frost protection equipment or its cost of operation. This is another possible investment item which will need to be considered in the establishment of a prune orchard. There is some frost hazard in most of the commercial prune growing areas of Napa County and there are other areas where some form of frost protection may be essential for satisfactory prune production.

Several methods of frost protection are available, some of which have high initial investment costs and lower operating costs, while others have low investment costs but high operating costs. The possible need for frost protection investment and operating costs should be studied, prior to orchard development.

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