

DEVELOPING A PRUNE ORCHARD IN SANTA CLARA COUNTY

by  
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PLANTING DISTANCES

In planting an orchard, one of the most important considerations is tree spacing. This is largely determined by the soil depth and texture. Prune trees in deep, permeable soils will as a rule eventually require spacings of 24 feet. However, trees in shallow or very heavy soil will tend to be smaller and should be planted closer together for maximum production.

There are three basic orchard layouts: square, quincunx and hexagonal.

1. Square - Most orchards have been planted by the square system in which the trees and the rows are the same distance apart. This system is still the most widely used.
2. Quincunx - Essentially a square with a tree in the center of the square. This system is commonly used to provide temporary interplants which are pulled when they begin to crowd the permanent trees.
3. Hexagonal or equilateral triangle - All trees are the same distance apart. This provides the most efficient use of space, but it can be confusing and orchard operations may be more difficult. Approximately 15 per cent more trees per acre can be planted with this system than with the square system at the same planting distance.

Some new orchards are being planted in a hedgerow in which the trees are planted closer together in the row. The rows should run north and south for the best light distribution.

The number of trees per acre with various planting systems is shown in the following table:

Feet Between			Number of Trees Per Acre			Feet Between			Number of Trees Per Acre		
Permanent Trees	Square	Quincunx	Hexagonal	Permanent Trees	Square	Quincunx	Hexagonal	Permanent Trees	Square	Quincunx	Hexagonal
14	222	---	256	20	109	218	126	21	99	198	114
15	194	---	224	22	90	180	104	23	82	164	95
16	170	---	196	24	76	151	87	25	70	140	80
17	151	---	174								
18	134	268	155								
19	121	242	139								

For other planting layouts, the number of trees per acre can be calculated by using the following formula:

$$\text{Trees per acre} = \frac{43,560}{\text{Feet between trees} \times \text{Feet between rows}}$$

EQUIPMENT INVESTMENT FOR A 50 ACRE PRUNE ORCHARD

The equipment listed below were used as the basis for the equipment investment shown in the cost analysis on the other side of this sheet.

	Cost new
Truck, 2 ton	\$ 3700
Tractor W30	3750
Pickup	2300
Disc, 6'	1000
Sprayer, 300 gal.	4200
Fertilizer spreader, 8'	300
Trailer	1400
Misc.	3050
<b>Total</b>	<b>\$19700</b>
<b>Per Acre (50 acres)</b>	<b>\$ 395</b>

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ESTIMATED COSTS TO DEVELOP PRUNE ORCHARDS IN SANTA CLARA COUNTY - 1964

Based on a 50-acre orchard, trees 20' x 20' - 109 trees per acre.

	Year									
	1	2	3	4	5	6	7	8	9	10
Yield - dry tons per acre						.8	1.4	1.8	2.2	2.4
Land preparation	10.00									
Stake, dig, & plant--109 @ \$ .25	27.25									
Trees --109 @ \$1.00	109.00									
Total planting costs	146.25									
Prune		5.00	15.00	25.00	25.00	40.00	40.00	40.00	40.00	40.00
Spray				8.25	8.25	24.75	24.75	24.75	24.75	24.75
Fertilize	3.25	3.25	3.25	6.50	6.50	16.25	16.25	16.25	16.25	16.25
Cultivate	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00
Irrigate - sprinkler	7.50	7.50	7.50	7.50	6.00	6.00	6.00	6.00	6.00	6.00
Power & repairs (175' head)	7.00	7.00	8.50	8.50	10.60	10.60	10.60	12.85	12.85	12.85
Hoe	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	
Replant		3.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	
Miscellaneous	2.00	2.00	2.00	2.00	3.00	3.00	3.00	3.00	4.00	4.00
Total cultural costs	38.25	46.25	56.75	77.25	78.85	120.10	120.10	122.35	123.35	119.85
Harvest costs @ \$65 dry ton						52.00	91.00	117.00	143.00	156.00
Miscellaneous cash overhead	8.65	3.40	3.20	4.05	4.75	5.80	11.80	11.85	15.25	15.20
Taxes	40.00	40.00	40.00	45.00	45.00	45.00	45.00	45.00	50.00	50.00
Total cash overhead costs	48.65	43.40	43.20	49.05	49.75	50.80	56.80	56.85	65.25	65.20
Management	10.00	10.00	10.00	10.00	10.00	11.20	19.60	32.20	39.25	42.80
Depreciation	50.25	50.25	50.25	50.25	50.25	50.25	50.25	50.25	50.25	50.25
Interest	198.60	228.10	250.80	275.45	303.15	332.65	356.25	374.35	380.90	381.90
Investment costs	248.85	278.35	301.05	325.70	353.40	382.90	406.50	424.60	431.15	432.15
Total cost per acre	492.00	378.00	411.00	462.00	492.00	617.00	694.00	753.00	802.00	816.00
Income @ \$280						224.00	392.00	644.00	785.00	856.00
Net cost per acre	492.00	378.00	411.00	462.00	492.00	393.00	302.00	109.00	17.00	-40.00
Accumulated cost		870.00	1281.00	1743.00	2235.00	2628.00	2930.00	3039.00	3056.00	
Investment - Land	3000.00	3000.00	3000.00	3000.00	3000.00	3000.00	3000.00	3000.00	3000.00	3000.00
Trees		492.00	870.00	1281.00	1743.00	2235.00	2628.00	2930.00	3039.00	3056.00
Irrigation system	175.00	175.00	175.00	175.00	175.00	175.00	175.00	175.00	175.00	175.00
Buildings	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00
Equipment	395.00	395.00	395.00	395.00	395.00	395.00	395.00	395.00	395.00	395.00
Total investment	3620.00	4112.00	4490.00	4901.00	5363.00	5855.00	6248.00	6550.00	6659.00	6676.00