

1986
SAMPLE PRODUCTION & ESTABLISHMENT COSTS FOR SANTA ROSA PLUMS
Tulare, Fresno & Kings Counties

by

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Costs given in this sample study are for those of a typical well managed orchard and are not intended to reflect an average of all orchards in Tulare, Fresno and Kings Counties.

This study is based upon a 10 acre block out of a 40 acre total fruit orchard. The same machinery, pump and some other costs are shared on the whole orchard.

Practices listed are based on those considered typical production procedures. Sample costs given for labor, materials, equipment and contract services are based on 1986 figures. Interest and depreciation are based upon the cost of new equipment and recent land purchases. Some costs or practices listed in this study may not be applicable to your situation. The study is intended as a guide only.

For explanation of calculations used for the study refer to the attached cost estimate assumptions or call Agriculture Economics Extension, University of California, Davis, California (916) 752-3563.

ESTABLISHMENT COST ASSUMPTIONS:

108 trees/acre

Furrow irrigation: 50% district water, 50% well water

Land owner basis

1. Land Preparation in October:
 - Contract land leveling (laser) \$125.00/acre
 - Contract chiseling \$ 60.00/acre
2. Fumigate soil for nematodes in October:
 - Fumigation often done at the same time as chiseling.
 - Materials: soil fumigant 40 gal/ac @ \$7.50/gal = \$350/acre
 - Application - contract \$17.00/acre
3. Disc in October and November:
 - Year 1: Disc and float- .63 hours of labor and machinery
4 times per year = \$40.00/acre
 - Years 2-4: Disc only- .63 hours of labor and machinery
3 times per year = \$25.00/acre
4. Plant in February:
 - Year 1:
 - Trees, non-patented variety (1/2 inch) 108 trees/acre
@\$3.50/tree = \$378.00/acre
 - (Add approximately \$1.75/tree for royalty if patented variety)
 - Contract labor, 108 trees/acre @ \$.75/tree = \$81.00/acre
hand done (not machine planting)
 - Painting: Materials- \$5.00/acre, Labor- 1 hr/acre @ \$5.50/hr = \$10.50/acre
 - Year 2:
 - Replant in February 2 trees/acre @ \$3.50/acre = \$7.00/acre
 - Contract labor, \$2.00/acre
5. Prune and Train:
 - Calculated for 108 trees/acre with a labor rate of \$5.50/hr

Year	Minutes/Tree	Hrs/Acre	Cost/Acre
2	2	3.6	\$19.80
3	5	9.0	\$49.50
4	15	27.0	\$148.50
6. Brush Disposal:
 - Years 3 and 4: Contract @ \$12.50/acre
7. Furrow in March, May, July:
 - 3 times each year, for .57 hour each time = \$20/acre

8. Fertilize:

Calculated for 108 trees/acre, with N @ \$.40/lb and a contract application cost of \$4.25/acre per application.

Year	Lbs of N Per Tree	Material Cost/Acre	# Appli- cations	Total Material Cost/Acre	Application Cost/acre
1	.125	\$5.40	May(1)	\$5.40	\$4.25
2	.250	\$10.80	May&Dec(2)	\$21.60	\$8.50
3	.375	\$16.20	May&Dec(2)	\$32.40	\$8.50
4	.340	\$14.69	May(1)	\$14.69	\$4.25
4	.660	\$28.51	Oct(1)	\$28.51	\$4.25

9. Irrigation:

Furrow irrigation system includes:

Pipeline \$300/acre x 40 acres	\$12,000
Well - 120 ft, 10" gauge casing	2,300
	\$14,300

Pump: 15 hp, 70 ft lift, 450 gal/min
= 1.0 ac.in./hr, \$7,900

Irrigation labor - 1 hr/application/acre 9 x per year
District water cost: \$15.00/acre 100% rights

Year	Acre Inches
1	10
2	14
3	28
4	36

10. Pest Control:

Materials:

July: Miticide - @ \$25.00/lb

Jan.: dormant spray materials to control San Jose scale, peach twig borer, peach leaf curl, mealy plum aphid, zinc deficiency and over wintering mite eggs.

Basic Zinc: 3 lb/100 gal of water @ \$.70

Spray oil: 1 gal/100 gal of water @ \$2.70

Parathion (25wp): 2 lb/100 gal of water @ \$1.00/lb

Basic copper: 4 lb/100 gal of water @ \$1.35/lb

Year	Season	Materials	Amounts/Acre	Cost/acre	Applic. Cost/Ac
1	July	Miticide	.25 lbs	\$6.25	\$7.00
2	Dormant	Basic Zinc	3 lbs/100 gal water x 1.25 (125 gal/ac)	\$2.63	
		Spray Oil	1 gal/100 gal water x 1.25 (125 gal/ac)	\$3.38	
		Parathion	2 lbs/100 gal water x 1.25 (125 gal/ac)	\$2.50	
		Basic Copper	4 lbs/100 gal water x 1.25 (125 gal/ac)	\$6.75	
	July TOTALS:	Miticide	.25 lbs	<u>6.25</u>	\$12.00
				\$21.51	
3	Dormant	Basic Zinc	3 lbs/100 gal water x 2.50 (250 gal/ac)	\$5.25	
		Spray Oil	1 gal/100 gal water x 2.50 (250 gal/ac)	\$6.75	
		Parathion	2 lbs/100 gal water x 2.50 (250 gal/ac)	\$5.00	
		Basic Copper	4 lbs/100 gal water x 2.50 (250 gal/ac)	\$13.50	
	July TOTALS:	Miticide	.5 lbs	<u>12.50</u>	\$12.00
				\$43.00	
4	Dormant	Basic Zinc	3 lbs/100 gal water x 4.0 (400 gal/ac)	\$8.40	
		Spray Oil	1 gal/100 gal water x 4.0 (400 gal/ac)	\$10.80	
		Parathion	2 lbs/100 gal water x 4.0 (400 gal/ac)	\$8.00	
		Basic Copper	4 lbs/100 gal water x 4.0 (400 gal/ac)	\$21.60	
	July TOTALS:	Miticide	.8 lbs	<u>20.00</u>	\$24.00
				\$68.80	

11. Weed Control

Labor: \$5.50/hr Materials: Roundup or Paraquat

Year	Season	Labor and Appli- Cation Costs/acre	Material Cost/acre	Total Cost/acre
1	May-Sep	3 hrs = \$16.50	\$7.50	\$24.00
2	May-Sep	1 hr = \$5.50	\$7.50	\$13.00
	Dec	contract = \$7.00	\$12.00	\$19.00
3	May-Sep	1 hr = \$5.50	5.00	\$10.50
	Dec	contract = \$7.00	\$12.00	\$19.00
4	May-Sep	1 hr = \$5.50	7.50	\$13.00
	Dec	contract - \$7.00	12.00	\$19.00

12. Labor Rates include benefits

Machinery Operators \$6.50/hr
 Irrigators \$6.50/hr
 Field Labor \$5.50/hr

13. Buildings and Equipment:

	40 Acres	Per Acre
Farm shop 1500 sq ft. @ \$12/sq ft. = \$18,000		\$450.00
Tools and shop equipment	12,285	\$307.13

14. Land owned:

Land value \$5500/acre Land tax \$55/acre
 County taxes: \$71.34 (1% of land and equipment costs)

15. Bookkeeping and misc. office: \$100/acre

16. Machinery costs:

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PRODUCTION COST ASSUMPTIONS FOR SANTA ROSA PLUMS:

1. Prune in January:
Labor - 30 min/tree x 108 trees/acre (/60 min/hr) = 54 hrs/acre
54 hrs/acre @ \$5.50/hr = \$297/acre

Brush shredding - contract \$12.50/acre

2. Pest Control:

Jan: Basic zinc
3 lbs/100 gals of water x 5 (for 500 gals/acre) = \$10.50/acre

Spray oil
1 gal/100 gals of water x 5 (for 500 gals/acre) = \$13.50/acre

Parathion
2 lbs/100 gals of water x 5 (for 500 gals/acre) = 15.00/acre

Total dormant materials (1 application) = \$39.00/acre

Dormant spray to control San Jose scale, peach twig borer, mealy plum aphid, and zinc deficiency.

July: Miticide 1 lb/acre @ \$25/lb = \$25/acre

Application - speed sprayer, 500 gals pulled by 65 hp diesel tractor, 1 pass in orchard each application. Contract @ \$25/acre.

3. Furrow in March, May, July:
Furrower, 2 shovel pulled by 65 hp diesel tractor - 1 pass in orchard each month.
March prior to frost
May after thinning
July after discing

4. Thin fruit in May:
Labor - 59.4 hrs/acre @ \$5.50/hr = \$326.70/acre

5. Fertilize in September:
Materials: 1 lb N/tree x 108 trees/ac @ \$.40/lb = \$43.20/ac

Application - contract \$4.25/acre

6. Disc in May, July, October:
Offset disc pulled by 65 hp diesel tractor - 1 pass in orchard each month
May before furrowing
July before furrowing
October before pruning

7. Tree topping in September:
Contract @ \$23/acre

8. Irrigation:

Furrow Irrigation system for 40 acres includes:

Pipeline \$275/acre x 40 acres plus
 Well, 120 ft, 10-12" casing \$14,300
 Pump: 15 hp, 70 ft lift, 450 gal.min= 1 ac.in/hr 7,900
 \$22,200

District water cost: \$15/acre Well water cost: \$17/acre

Irrigation labor - 1 hr/application/acre

First irrigation or two is well water, district water used until unavailable, then well water for balance of season.

9 irrigations - 44 ac.in. total: 22 ac.in. district water
 22 ac.in. well water

		<u>Well</u>		<u>District</u>
		acre	Inches	acre
				Inches
April	1x		4	
May	1x		4	
June	2x			11
July	2x			11
August	2x		10	
September	1x		<u>4</u>	
Total ac.in.			22	<u>22</u>

An irrigation in March is possible for frost protection

9. Herbicide and Weed control in May-September and December:

May-Sept: Labor (hoeing and touch up spraying) and materials (additional spray) = \$10/acre

December: Materials, pre-emergence herbicide, \$15.00/acre
 Application - contract \$ 7.00/acre

10. Misc Labor:

1 hr labor/acre @ \$5.50/hr + \$7.00 fuel and repair = \$12.50/acre

11. Pickup: 300 miles/acre/year

12. Harvest in June:

Contract harvest, 400 cartons/acre

Pick:	\$1.00/carton=	\$400/acre
Haul:	\$.10/carton=	\$40/acre
Packing charges:	\$2.45/carton=	\$980/acre
Selling charges:	\$.90/carton=	\$360/acre
Misc. Labor:		\$15/acre

13. Labor rates include benefits:

Machinery operators:	\$6.50/hr
Irrigators:	6.50/hr
Misc. Labor:	5.50/hr

14. Buildings and equipment

	<u>40 acres</u>	<u>Per acre</u>
Farm shop = 1,500 sq.ft. @ \$12/sq.ft.	\$18,000	\$450.00
Tools and shop equipment	12,285	\$307.13

15. Land owned:

Land value \$5,500/acre Land Tax = \$55
 County tax = \$71.34 (1% of land plus equipment costs)

16. Bookkeeping and misc office: \$100/acre

17. Equipment costs:

In allocating the equipment costs per acre, the following calculations were made: (a) "Original Cost" of equipment is the new cost including sales tax. (b) "Depreciation" is the new cost per acre divided by the years of life. (c) "Interest" on investment is figured as one-half of the new cost per acre multiplied by the interest rate. One-half of the new cost is the average value of the equipment during its useful life. (d) The investment per acre used in the cost study is calculated at 60% of the depreciation and interest costs for all new equipment to reflect a mix of new and used equipment.

18. Establishment costs per acre:

25 year life of trees assumed.

Establishment	Year 1	\$2451	
	Year 2	1602	
	Year 3	1741	
	Year 4	<u>1347</u>	adjusted for credit from pro-
		\$7141	duction

The establishment costs are divided by 25 years. Interest on investment is calculated at 13%. The annual costs of investment in the trees are:

depreciation: \$114.07
 interest: \$106.21

Stone Fruit Orchard Establishment Costs
Southern San Joaquin Valley - 1986
Cost Analysis Work Sheet

Costs are for an orchard planted with 108 trees per acre. A furrow irrigation system is used.

Skilled Labor \$ 6.50
Field Labor \$ 5.50

YEAR	-----Costs Per Acre-----			
	1st	2nd	3rd	4th
YIELD: cartons of fruit per acre	---	---	---	267*

CULTURAL COSTS:

Land Preparation: Land Level contract	125			
Chisel: contract	60			
Soil Fumigant	317			
Disk and Float: 4 hours	40			
Disk : 3 hrs		25	25	25
Trees: 108 @ \$3.50 (+2 2nd yr)	378	7		
Survey and Plant: 108 @ \$0.75	81	2		
Painting	11			
Prune and Train (skilled hand labor)		20	50	149
Brush Disposal			13	13
Furrowing	20	20	20	20
Spray: weed control	24	32	30	32
Irrigation: 9 hrs. labor	59	59	59	59
Water: District water @ \$15/acre	15	15	15	15
Well water @ \$17/ac ft	7	10	20	26
Fertilizer: Nitrogen \$.40/Lb.	5	22	32	43
Contract application	4	9	9	9
Spray: pest control materials	6	22	43	69
Custom application	7	12	12	24
Misc. labor and power, 1hr. labor and tractor	11	11	11	11
TOTAL CULTURAL COSTS	1170	264	338	493

HARVESTING COSTS:

Pick, Haul, Pack, and Sell*				1150
TOTAL HARVESTING COSTS				1150

* The yield and harvesting cost represents fourth year figures for Laroda plums. Other stone fruit's figures may vary substantially.

YEAR	1st	2nd	3rd	4th
OVERHEAD COSTS:				
County taxes	71	71	71	71
Office and Business Costs	100	100	100	100
TOTAL OVERHEAD COSTS	171	171	171	171
TOTAL CASH COSTS				
	1341	435	509	1815
ACCUMULATED CASH COSTS	1341	1777	2286	4100
DEPRECIATION:				
Building, equipment, and Irrigation system	114	114	114	114
INTEREST ON INVESTMENT @ 13%:				
Building, equipment, and Irrigation system	106	106	106	106
Land \$5500	715	715	715	715
Interest in accum. cash cost	174	231	297	533
TOTAL INTEREST ON INVESTMENT	996	1052	1118	1354
TOTAL COST FOR THE YEAR	2451	1602	1741	3283
CREDIT FOR PRODUCTION				1936
NET COST FOR THE YEAR	2451	1602	1741	1347
ACCUMULATED NET COST	2451	4053	5794	7141

SAMPLE COSTS TO PRODUCE SANTA ROSA PLUMS

Early Season

Southern San Joaquin Valley - 1986

Labor rate \$6.50 /hr. skilled labor

 \$5.50 /hr. field labor

Yield: 400 cartons of fruit per acre

Operation	Labor Hours per Acre	Cash and Labor Costs per Acre			Total Cost	Your Cost
		Labor	Fuel & Repairs	Materials Kind and Quantity		
Cultural costs:						
Pruning	54	297.00				297.00
Brush Disposal					12.50	12.50
Fertilizer				108 lbs. N @ .40/lb. Custom application	43.20 4.25	43.20 4.25
Furrowing	1.7	11.12	8.84			19.96
Discing	1.89	12.29	13.08			25.36
Thinning	59.4	326.70				326.70
Spray: Pest Control				Materials Custom application	39.00 25.00	39.00 25.00
Irrigation, 44 ac in	9	58.50	23.76	District water @ \$15/acre Well water @ \$17/ac ft	15.00 31.17	97.26 31.17
Herbicide				Materials and Applic.	22.00	22.00
Spray: weed control				Materials and Applic.	10.00	10.00
Miticide				Materials and Applic.	25.00	25.00
Tree Topping				Contract @ \$23/acre	23.00	23.00
Misc.	1	5.50	7.00			12.50
Interest on operating capital @ 13%, for 6 months						65.90
TOTAL CULTURAL COSTS	\$127.00	\$711.10	\$52.68		\$250.12	\$1,079.80
Harvest costs:						
Contract Pick				\$1.00/carton		400.00
Contract Haul				\$.10/carton		40.00
Packing Charges				\$2.45/carton		980.00
Selling Charges				\$.90 carton		360.00
Misc. Harvest Labor						15.00
TOTAL HARVEST COSTS						\$1,795.00
Cash overhead:						
Office and business costs						100.00
County Taxes						71.34
TOTAL CASH OVERHEAD COSTS						\$171.34
TOTAL CASH COSTS						\$3,046.14
TOTAL CASH COST PER CARTON						\$7.62
Investment						
	Per Acre		Annual Cost			
			Depreciation	Interest @ 13%		
Equipment & buildings	1634.03		114.07	106.21		220.28
Trees 25 yr. depreciation	7141.00		285.64	464.17		749.81
Land	5500.00			715.00		715.00
TOTAL INVESTMENT COSTS	\$14,275.03		\$399.71	\$1,285.38		\$1,685.09
TOTAL COSTS PER ACRE						\$4,731.22
Cost per carton @	400 carton yield					\$11.83

MONTHLY SUMMARY OF
SAMPLE COSTS TO PRODUCE SANTA ROSA PLUMS

Southern San Joaquin Valley - 1986

Operation	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL
Cultural Costs:													
Pruning	297												\$297
Brush Disposal	13												\$13
Fertilizer									47				\$47
Furrowing			7		7		7						\$20
Discing					8		8			8			\$25
Thinning					327								\$327
Spray: Pest Control	64												\$64
Irrigation, 44 ac in				14	14	29	29	29	14				\$128
Herbicide												22	\$22
Spray: weed control					2	2	2	2	2				\$10
Niticide							25						\$25
Tree Topping									23				\$23
Misc.	1	1	1	1	1	1	1	1	1	1	1	1	\$13
Int. on Operating Capital	24		1	1	23	2	5	2	6	1		1	\$66
TOTAL CULTURAL COSTS	\$399	\$1	\$8	\$16	\$382	\$34	\$76	\$34	\$93	\$10	\$1	\$25	\$1,080
Harvest Costs:													
Contract Pick						400							\$400
Contract Haul						40							\$40
Packing Charges						980							\$980
Selling Charges						360							\$360
Misc. Harvest Labor						15							\$15
TOTAL HARVEST COSTS						\$1,795							\$1,795
Cash overhead:													
Office/business costs	8	8	8	8	8	8	8	8	8	8	8	8	\$100
County Taxes				36								36	\$71
TOTAL CASH OVERHEAD	\$8	\$8	\$8	\$44	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$44	\$171
TOTAL CASH COSTS	\$407	\$9	\$17	\$60	\$391	\$1,837	\$85	\$42	\$102	\$18	\$9	\$69	\$3,046

STONE FRUIT ORCHARD
Southern San Joaquin Valley - 1986

EQUIPMENT AND BUILDING LIST

ITEM	ORIGINAL COST	ANNUAL USE (ACRES)	COST PER ACRE	LIFE (YEARS)	OVERHEAD DEPREC- IATION	INTEREST AT 13%	FUEL AND REPAIRS*
Tractors:							
65 HP wheel diesel	20000	40	500.00	15	33.33	32.50	4.91
Disk, offset	4000	40	100.00	15	6.67	6.50	2.01
Float	9500	40	237.50	15	15.83	15.44	2.28
Pickup, 1/2 Ton	10000	40	250.00	7	35.71	16.25	6.33
Sprayer	12500	40	312.50	15	20.83	20.31	4.96
Furrower	450	40	11.25	15	.75	.73	.26
Irrigation Pump	7900	40	197.50	25	7.90	12.84	2.49
Furrow Irrigation System	14300	40	357.50	10	35.75	23.24	.15
Tools, Shop Equip.	12285	40	307.13	15	20.48	19.96	
Buildings	18000	40	450.00	35	12.86	29.25	
TOTAL COST	108935		2723.38		190.11	177.02	
60% OF NEW COSTS	65361		1634.03		114.07	106.21	

* includes fuel, lube and repairs