

1986
SAMPLE PRODUCTION & ESTABLISHMENT COSTS FOR MAYGRAND NECTARINES
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 is 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 | # Applications | 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 | Miticide | .25 lbs | <u>6.25</u> | |
| | TOTALS: | | | \$21.51 | \$12.00 |
| 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 | Miticide | .5 lbs | <u>12.50</u> | |
| | TOTALS: | | | \$43.00 | \$12.00 |
| 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 | Miticide | .8 lbs | <u>20.00</u> | |
| | TOTALS: | | | \$68.80 | \$24.00 |

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:

PRODUCTION COST ASSUMPTIONS FOR MAYGRAND NECTARINES:

1. Prune in January:
Labor - 45 min/tree x 108 trees/acre (/60 min/hr) = 81 hrs/acre
81 hrs/acre @ \$5.50/hr = \$445.50/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

Basic copper
4 lbs/100 gals of water x 5 (for 500 gals/acre) = \$27.00/acre

Total dormant materials (1 application) = \$66.00/acre

Dormant spray to control San Jose scale, peach twig borer, peach leaf curl, zinc deficiency and overwintering mite eggs.

Feb: Fungicide (benomyl) for brown rot 1.5 lbs/ac @ \$14.5/lb = \$21.75/ac
Mar: Insecticide, petal fall for thrips 1.25 lb/ac = \$28.44/ac

May: Fungicide (benomyl) for brown rot 1.5 lbs/ac @ \$14.5/lb = \$21.75/ac
Insecticide, pre-harvest for thrips 1.25 lb/ac = \$28.44/ac

July: Miticide 1 lb/acre @ \$25/lb = \$25.00/ac

Application - speed sprayer, 500 gals pulled by 65 hp diesel tractor, 1 pass in orchard each application. Contract @ \$25/acre.
3. Tie limbs in February:
Labor and materials, 108 tree/acre @ \$.80/tree = \$86.40
4. 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
5. Thin fruit in April:
Labor - 75.6 hrs/acre @ \$5.50/hr = \$415.80/acre
6. Girdle limbs in April:
9.75 hrs/acre @ \$5.50/hr = \$53.63/acre

7. Fertilize in May and September:
 Materials May: .5 lbs N/tree x 108 trees/ac @ \$.40/lb = \$21.60/ac
 Sept: .75 lbs N/tree x 108 trees/ac @ \$.40/lb = 32.40/ac
 Total materials \$54.00/ac

Application - contract \$4.25/ac x 2 applications = \$8.50/ac

8. 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

9. 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> acre inches | <u>District</u> 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

10. 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

11. Misc Labor:

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

12. Pickup: 300 miles/acre/year

13. Harvest in June:

Contract harvest, 600 lugs/acre

| | | |
|------------------|--------------|-------------|
| Pick: | \$1.00/lug = | \$600/acre |
| Haul: | \$.10/lug = | \$60/acre |
| Packing charges: | \$2.45/lug = | \$1470/acre |
| Selling charges: | \$.70/lug = | \$420/acre |
| Misc. Labor: | | \$15/acre |

14. Labor rates include benefits:

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

15. 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 |

16. Land owned:

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

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

18. 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.

19. Establishment costs per acre:

20 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 20 years. Interest on investment is calculated at 13%. The annual costs of investment in the trees are:

| | |
|---------------|----------|
| depreciation: | \$114.07 |
| Interest: | \$106.21 |