

CARDINAL GRAPE PRODUCTION METHODS
Coachella Valley -- Riverside County

PLANTING AND TRAINING: Sandy soils preferred with good slope for early maturity and large berry size. Spacing 7 x 12'. Rooted cuttings on own roots preferred. Cuttings of 1613 used in poor soils, budded the first autumn. Plants trained up stake the 2nd year.

FERTILIZER: Enough nitrogen supplied to get a vigorous vine, frequently 100# of N/acre yearly from commercial or manure. In drippers, N is applied in clear solutions known not to cause plugging. Urea and ammonium nitrate solutions common.

IRRIGATION: Actual water use by Cardinal around 4 acre ft/year. Water also used for Teaching, cooling, and frost protection. Two irrigation/month common from February through July, 1/month thereafter. Flat grades, short runs required on sandy soils. Newer vineyards being planted with drip systems providing one dripper per vine about 2 gallons/hour capacity.

INSECTS: Bud beetle occasionally requires treatment in spring. Leafhopper may require treatment in early spring and again after harvest. Citrus thrips occasionally damaging where adjacent citrus is untreated.

NEMATODE: Root-knot almost universally present. Growers think yearly applications of Nemagon are of benefit.

DISEASES: Powdery mildew is universally present, must be treated with preventative dustings with sulfur, especially when new growth first appears.

WEED CONTROL: All the common weeds are present, usually controlled by cultivation. In drip irrigated vineyards, contact materials such as Paraquat, Weed Oil, and Dinitro compounds are used. Sterilants such as Devrinol appear promising where they can be incorporated with irrigation water.

THINNING: Cardinals produce an excessive number of fruit-bearing shoots and an excessive number of clusters per shoot. Thinning consists of extensive crown suckering to reduce the number of shoots, then reducing the clusters to one per shoot which may be tipped before bloom to increase density of set on the portion remaining.

GIRDLING: All vines are trunk girdled just after shatter is complete. Late girdling is known to increase color and hasten maturity and is sometimes used by growers who feel this effect may be more important than the size increase obtained by earlier girdling.

MARKETING: A marketing order sets quality standards. All fruit may be packed in approved new boxes, must pass USDA quality standards, and must meet the marketing order size requirements. All fruit is packed in the field and quickly forced-air cooled and held for truck, rail, and air shipment all over the country. Harvest usually begins in May and continues until July.

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Agriculture, University of California, and Riverside County cooperating.

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CARDINAL GRAPES (500 vines/acre)
Coachella Valley, Riverside County--1976

Sample Costs of Production

Based on a large vineyard with several varieties, yield of 400-22# packed boxes, basic union labor rate of \$2.70/hour plus health and welfare, workmen's compensation, social security and unemployment insurance for a total of \$3.25/hour. Cash costs for tractor \$2.60/hour.

| <u>Operation & Materials</u> | <u>Hours Per Acre</u> | <u>Labor Cost</u> | <u>Equipment Cash Cost</u> | <u>Materials</u> | <u>Total Per Acre</u> | <u>Cost Per Box</u> |
|---------------------------------------------------------------------|-------------------------------|-----------------------|--------------------------------|----------------------|-------------------------------|-----------------------------|
| Prune | 62 | \$200 | | | \$200 | |
| Shred Prunings | .5 | 2 | \$1 | | 3 | |
| Fertilizer, 5 ton Steer Spread or Commercial Equivalent | | | | \$38 | 38 | |
| Girdling @ .065/vine | 10 | 33 | | | 33 | |
| Thinning | 148 | 480 | | | 480 | |
| Mildew Control 10 X, Sulfur | 3 | 10 | 8 | 4 | 22 | |
| Pest Control 1 X, Sevin | 1 | 3 | 3 | 7 | 13 | |
| Nematode Control, Nemagon | | | | 30 | 30 | |
| Cultivation, 12 X | 6 | 20 | 16 | | 36 | |
| Weed Control Chemicals, Devrinol, Dalapon | 4 | 13 | 10 | 20 | 43 | |
| Irrigation 18 X, 8' water | 34 | 111 | | 48 | 159 | |
| Miscellaneous Materials | | | | 40 | 40 | |
| Hand Tools | | | | 10 | 10 | |
| Supervision | 15 | 60 | | | 60 | |
| Repairs | | | | | 55 | |
| TOTAL CULTURAL COST | \$284 | \$932 | \$38 | \$197 | \$1222 | \$3.06 |
| Business Expense (Interest on Production Capital, Office Help etc.) | | | | | \$165 | |
| Insurance (Fire, Business Interruption, Liability, etc.) | | | | | 40 | |
| County Taxes | | | | | 83 | |
| TOTAL PRE-HARVEST CASH COSTS | | | | | \$1510 | \$378 |
| Pick | 167 | \$544 | | | 544 | |
| Haul | 8 | 26 | \$21 | | 47 | |
| Spread Boxes | 3 | 10 | 8 | | 18 | |
| Boxes | | | | \$400 | 400 | |
| Inspection, Assessments | | | | | 24 | |
| Packing House, Receive, Handle, Palletize, Sell | | | | | 392 | |
| TOTAL POST-HARVEST CASH COST | \$178 | \$580 | \$29 | \$400 | \$1425 | \$3.56 |
| <u>Item</u> | <u>Investment/Acre*</u> | <u>Life</u> | <u>Depreciation</u> | <u>Interest @ 9%</u> | | |
| Land | \$900 | | | \$81 | | |
| Irrigation Pipe | 280 | 30 yrs. | \$ 9 | 13 | | |
| Trellis | 130 | 20 | 7 | 6 | | |
| Vines | 1125 | 20 | 56 | 51 | | |
| Building & Equipment | 568 | 10 | 57 | 26 | | |
| Total | <u>\$3003</u> | | <u>\$129</u> | <u>\$177</u> | | |
| TOTAL COST OF PRODUCTION | | | | | \$3241 | \$8.10 |

* Based on Riverside County Assessor's Depreciated Value (Not Replacement Value).