1994

U.C. COOPERATIVE EXTENSION

SAMPLE COSTS
TO ESTABLISH A FIG ORCHARD AND PRODUCE

~FIGS~

Calimyrna Variety - IN THE SAN JOAQUIN VALLEY

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University of California and the United States Department of Agriculture cooperating.

U.C. COOPERATIVE EXTENSION

GENERAL INFORMATION FOR ESTABLISHING A FIG ORCHARD AND PRODUCING FIGS *Calimyrna Variety* - San Joaquin Valley - 1994

The detailed costs for establishment and production of the Calimyrna variety of figs in the San Joaquin Valley are presented in this study. The hypothetical farm used in this report consists of 500 acres all of which are in fig production.

Practices described in this study are based on those production procedures considered typical for this crop and area. Additional practices that are not listed may be required. Sample costs given for labor, materials, equipment and contract services are based on current figures. Some costs and practices detailed in this study may not be applicable to your situation. This study is only intended as a guide and can be used in making production decisions, determining potential returns, preparing budgets and evaluating production loans. A blank *Your Cost* column is provided to enter your actual costs on **Table 2**, **Sample Costs To Produce Figs** and **Table 3**, **Costs And Returns Per Acre To Produce Figs**.

This study consists of General Assumptions For Establishing A Fig Orchard And Producing Figs and seven tables. Tables included:

Table 1. Costs Per Acre to Establish A Fig Orchard
Table 2. Costs Per Acre to Produce Figs
Table 3. Costs and Returns Per Acre to Produce Figs
Table 4. Monthly Cash Costs Per Acre to Produce Figs
Table 5. Whole Farm Annual Equipment, Investment and Business Overhead Costs
Table 6. Hourly Equipment Costs
Table 7. Ranging Analysis

For an explanation of calculations used for the study refer to the attached General Assumptions or call the Department of Agricultural Economics, Cooperative Extension, University of California, Davis, California, (530) 752-3563 or call the farm advisor in the county of interest.

Two additional cost of production studies for different varieties of figs grown in this region are also available: "Sample Costs To Establish A Fig Orchard And Produce Figs, Conadria Variety In the San Joaquin Valley - 1994" and "Sample Costs To Establish A Fig Orchard And Produce Figs, Black Mission Variety In the San Joaquin Valley - 1994".

The studies mentioned above can be requested through the Department of Agricultural Economics, U. C. Davis or from selected county Cooperative Extension offices.

U.C. COOPERATIVE EXTENSION

GENERAL ASSUMPTIONS FOR ESTABLISHING A FIG ORCHARD AND PRODUCING FIGS *Calimyrna Variety* - San Joaquin Valley - 1994

The following is a description of some general assumptions pertaining to sample costs of Calimyrna variety fig orchard establishment and production in the San Joaquin Valley. Practices described should not be considered recommendations by the University of California, but rather represent production procedures considered typical for this crop and area. Some of these costs and practices may not be applicable to your situation nor used during every production year. Additional ones not indicated may be needed. Establishment and cultural practices for the production of figs vary by grower and region. Variations can be significant. The practices and inputs used in this cost study serve only as a sample or guide. These costs are represented on an annual, per acre basis. *The use of trade names in this report does not constitute an endorsement or recommendation by the University of California nor is any criticism implied by omission of other similar products.*

1. LAND:

The farm consists of 500 acres of land. There are 80 acres currently being established in the actual fig orchard with another 415 acres on which figs are grown and 5 acres of roads and farmstead. No other crops are grown. Land is valued at $1,200 per acre and is not depreciated.

2. TREES:

The specific variety of fig trees planted in this study are Calimyrna. The trees are planted at 15' X 20' spacing, with 155 trees per acre. Fig trees have a very long production life if they are well maintained. Some fig orchards in the San Joaquin Valley that are still producing a commercial crop are over 75 years old. The life of the orchard at the time of planting is estimated to be 50 years.

3. IRRIGATION:

Pumped water (plus labor) is the irrigation cost. The cost is based on system pumping 24 acre-inches of water 350 feet in a 500 foot well over 500 acres. Water is pumped to the orchard after running through a filtration station into a permanent drip system in the tree rows. The cost of the irrigation system is for the installation of a new pump, well, filtration system, and permanent drip lines. The new irrigation system is installed after the orchard has been laid out and prior to planting. The life of the irrigation system is estimated at 30 years.

Price per acre foot of water will vary by grower in this region depending on power source, cost, various well characteristics, and other irrigation factors. In this study, water is estimated to cost $76.92 per acre foot. No assumption is made about effective rainfall. The amount of water applied to the orchard being established varies each year and is shown in **Table A**.

Table A. Applied Irrigation Water

Year	AcIn/Year
1	4
2	9
3	16
4	18
5+	24

4. ESTABLISHMENT PRACTICES:

This orchard is established on ground that has not been previously planted to trees or vines. The land is assumed to be slightly rolling and not a class I soil. The orchard site is not leveled, thus requiring a drip or sprinkler irrigation system.

Land Preparation: Land preparation begins with a deep ripping, going down 5 to 6 feet in order to break up underlying hardpans which would affect root and water penetration. The ripping is performed by contract operators. Following ripping the ground is disced then floated by the orchard owner. This helps to break up large clods of soil and smooth the ground in advance of planting the trees. All of the land preparation operations are done in the year prior to planting, but in this study, costs are shown in the first year.

Planting: Planting starts by marking the tree location with a stake, then holes are dug, and trees planted. The young trees are pruned back soon after planting. Regular pruning and sucker removal begins in the second year and hours required to perform these tasks as well as costs increase annually. Pruning is performed in the fall months. Removing the suckers is usually performed while weeding crews hand hoe the orchard. In the second year, 10% of the trees or 16 trees per acre will have to be replanted.

Orchard Floor Management: Weed control for the orchard begins in the fall with a residual herbicide sprayed along the tree rows. The same chemicals are used for this control during the life of the orchard, but only half of the full rate is used in the first two years and increases to the full rate in the third. In spring a contact herbicide is used to control vegetation in the middle of the tree rows with two applications. In the first two seasons, a full rate of the spot spray is used only on 25% of the acreage. Beginning in the third year, full rates are again used, but this time on 100% of the acreage. Discing is also used to control vegetation and is performed 4 times during the first two years and once per season from year three on. Not only is discing used to manage orchard floor vegetation, but it also tills the soil in preparation for being packed, leveled, and smoothed. This operation produces a smooth, hard surface free of debris for efficient mechanical harvesting.

Pest Management: During typical years pest control in fig orchards is limited to controlling rodents, but in exceptionally cool weather a rapid build up of insect pests can occur which may require treatment. Baits are applied through the orchard at bait stations. Arthropod pests are typically not a problem in fig orchards, but serious infestations can occur and may require pest control. No insecticide or disease sprays are assumed to be used for the orchard in this study.

Fertilizer: Nitrogen is the major nutrient required for proper tree growth and optimum fruit yields. Nitrogen fertilizer is spread in a granular form at increasing rates during orchard establishment and is shown in **Table B**.

Table B. Applied Nitrogen

Year	Pounds Of N/Acre
1	10
2	20
3	30
4	40
5	50

Pollination: Caprification or pollination of the figs occurs once a year in late May or early June and is supplemented by additional wasps contracted from an outside pollinator service. For further information see Pollination in the Production Cultural Practices section.

Establishment Cost: The cost to establish the orchard is used to determine the non-cash overhead expenses, depreciation and interest on investment, for the production years. The establishment cost is the sum of the costs for land preparation, planting, trees, cash overhead and production expenses for growing the trees through the first year that fruit is harvested. The *Total Accumulated Net Cash Cost* in the third year shown on **Table 1**, represents the establishment cost. For this study, this cost is $1,996 per acre or $828,340 for the 500 acres of mature orchard is estimated: this cost is shown in **Table 5**. This cost is spread over the remaining 47 years of the 50 years that the orchard is assumed to be in production.

5. PRODUCTION CULTURAL PRACTICES:

Pruning: Pruning is done by hand in the winter months. Prunings are pushed out of the orchard by a tractor using a brush rake and burned. Suckers are removed by hand crews as they hoe weeds during April.

Fertilization: Nitrogen fertilizer is applied in summer/fall following harvest. Proper levels of N to be applied to the orchard are determined by leaf analysis. Sampling is usually done in July, prior to the application of fertilizer. In this study, nitrogen is applied at a rate of 100 pounds of N per acre in the form of ammonium nitrate (34-0-0).

Orchard Floor Management: Weeds in the mature orchard are controlled with chemical and cultural practices as used in the later years of orchard establishment. A combination of residual herbicides are sprayed in a strip along the tree rows to control weeds there throughout the season. Tree row middles are disced once in the spring in order to manage resident vegetation on the orchard floor and to prepare the ground to be packed, leveled, and smoothed prior to the first harvest. Vegetation in the row middles that are not controlled by cultivation receive 2 sprays of a contact herbicide during spring and summer.

Pollination: Caprification refers to the pollination of Smyna type figs, such as the Calimyrna variety, by the wasp specie (*Blastophaga psenes* L.) This wasp performs the function that bees and other pollinators normally provide, by crawling across the male flower (also known as a caprifig), covering itself with pollen, then entering the eye of the female fig (called the Calimyrna fig) and dusting the flowers with pollen. Typically the fig wasp is put out in the orchard during June. Fig wasps are usually supplied to the orchard during these periods in order to ensure proper pollination and good fruit set. In this study, services for caprification are provided by another fig grower or company that supplies the wasps at an annual cost of $60 per acre.

Pest Management: Arthropod and disease pests are commonly not serious enough in fig orchards to warrant treatment. The only pests that require control in this study are rodents. Commercially available baits are used in bait stations within the orchard in order to manage them during the growing season.

The pesticides and rates mentioned in this cost study are a few of those that are listed in the UC IPM Fig Pest Management Guidelines. Written recommendations are required for most pesticides and are made by licensed pest control advisors. For information and pesticide use permits, contact the local county Agricultural Commissioner's office. For additional information contact the farm advisor in the county of interest.

6. HARVEST:

Harvesting may start in the third or fourth year after the orchard is planted. As the yields increase the cost to harvest also increases, until yield maturity is reached in the tenth year. The number of harvests per year also changes as the orchard matures. In the third year, three harvests are performed. The fourth year requires four, the fifth year, figs are harvested five times, and from the sixth year on six harvests are completed annually. In this cost study, the crop is harvested and sorted by the grower, although some growers custom hire the harvest operation.

Fig harvesting begins as the fruit naturally falls to the ground. In the late season crop some figs may cling the trees, which require growers to use blowers to force those remaining fruit to fall. The sweeper windrows the figs into the middle of the orchard row so that the harvester can pick up the fruit and dump them into field bins. A hand crew may rake the figs that are lying next to the tree out to where a mechanical orchard sweeper can reach them. The figs are hauled from the field to a dry yard. A grower with 500 acres of figs in production is assumed to own their dry yard and would sort their figs. After sorting, the figs are sold to processors.

For growers that do not own harvesting and packing equipment, the needed equipment for harvesting and packing operations should be removed from the equipment and investment inventories on **Table 5**, and custom harvest and packing charges should be placed in Harvest costs in **Tables 1** and **2**, to replace grower performed harvest and packing costs.

7. ASSESSMENTS:

Under a state marketing order, mandatory assessment fees are collected by the California Fig Advisory Board (CFAB). These assessments are charged both to the grower and the processor to pay for fig marketing and advertising. Half of the fee of $48 per ton of merchantable fruit (merchantable fruit is destined for dried or paste markets) is paid by the grower and is shown in this study, while the remaining $24 is paid by the processor. Additionally, a voluntary assessment is also paid by fig growers for research and administration and is managed by the California Fig Institute (CFI). Though the assessment is voluntary it is currently supported by 100% of the growers. CFI charges growers $5 per ton of merchantable fruit. Both of these assessments are shown as a harvest cost.

8. YIELDS & RETURNS:

Yields: As noted above, figs most often begin bearing an economic crop in the third year after planting. Typical annual yields for the Calimyrna variety is measured in pounds merchantable figs and tons for cull fruit. Normal cull percentages for Calimyrna figs has decreased over past ten years from an historical average of 27% to 15% which resulted in increasing the amount of figs sold for higher value paste or dried fruit. This study uses a 16% cull rate. The yields shown in **Table C** are from the third year of orchard establishment to maturity.

Table C **Annual Yield Per Acre**

		Figs - Pounds/Acre		
Year	Tons/Acre	Total	Merchantable	Cull
3	0.10	200	168	32
4	0.20	400	336	64
5	0.40	800	672	128
6	0.55	1,100	924	176
7	0.65	1,300	1,092	208
8	0.80	1,600	1,344	256
9	0.85	1,700	1,445	255
10+	0.90	1,800	1,520	280

Returns: Calimyrna figs command a higher price than either the Black Mission or Conadria varieties. Return prices for Calimyrnas over the past 10 years have ranged from $0.35 to over $1.00 per pound of merchantable fruit. For figs that are sold for dried fruit or paste a price of $0.80 per pound is used. Culled fruit is sold for cattle feed with the grower receiving $0.03 per pound in this study. **Table 7** indicates returns to risk and management at various levels of fig prices and yields. It calculates returns above three levels of cost: operating, cash, and total.

9. RISK:

Risk is caused by various sources of uncertainty which include production, price, and financial. Examples of these are insect damage, a decrease in price, and increase in interest rates. The risks associated with fig production should not be underestimated. While this study makes every effort to model a production system based on typical, real world practices, it cannot fully represent financial, agronomic and market risks which affect the profitability and economic viability of fig production. Due to the risk involved, access to a market is crucial. A market channel should be determined before any fig orchards are planted and brought into production.

10. LABOR:

Basic hourly wages for workers are $6.00 and $4.51 per hour for machine operators and field workers (irrigator), respectively. Adding 34% for Workers Compensation, Social Security, Medicare, insurance, and other possible benefits gives the labor rates shown of $8.04 per hour for machine labor and $6.04 per hour for non-machine labor. The labor hours for operations involving machinery are 20% higher than the machine hours to account for extra labor involved in equipment set-up, moving, maintenance and repair. Wages for managers are not included as a cash cost. Any returns above total costs are considered returns to investment.

11. CASH OVERHEAD:

Cash overhead consists of various cash expenses paid out during the year that are assigned to the whole farm and not to a particular operation. These costs include property taxes, interest on operating capital, office expense, liability and property insurance, sanitation services, and investment repairs.

Property Tax: Counties charge a base property tax rate of 1% on the assessed value of the property. In some counties special assessment districts exist and charge additional taxes on property including equipment, buildings, and improvements. County taxes are calculated as 1% of the average value of the property for this study. Average value equals new cost plus salvage value divided by 2 on a per acre basis.

Interest On Operating Capital: Interest on operating capital is based on cash operating costs and is calculated monthly until harvest at a nominal rate of 7.89% per year. A nominal interest rate is the going market cost of borrowed funds.

Office Expense: Office and business expenses are estimated at $100 per acre. These expenses include office supplies, telephones, bookkeeping, accounting, legal fees, road maintenance, etc.

Insurance: Insurance for farm investments vary depending on the assets covered and the amount of coverage. Property insurance provides coverage for property loss and is charged at 0.713% of the average value of the assets over their useful life. Liability insurance covers accidents on the farm and costs $330 for the entire farm or $0.66 per acre.

Sanitation: Sanitation services provide portable toilets for the orchard and cost the farm $970 annually. Cash overhead costs are found in **Tables 1**, **2**, **3**, **4**, and **5**.

12. NON-CASH OVERHEAD:

Non-cash overhead is comprised of depreciation and interest charged on equipment and other investments. Most of the equipment inventory in typical fig orchards in the San Joaquin Valley is purchased both new and used. This study shows current purchase price for new equipment adjusted to 60% of new value to indicate a mix of new and used equipment. Annual equipment and investments costs are shown in **Tables 1**, **2**, and **5**. They represent depreciation and opportunity cost for each investment on an annual per acre basis.

Depreciation: Depreciation is a reduction in market value of investments due to wear, obsolescence, and age, and is on a straight line basis. Annual depreciation is calculated as purchase price minus salvage value divided by years the investment is held. The purchase price and years of life are shown in **Table 5**.

Opportunity Costs: Interest is charged on investments to account for income foregone (opportunity cost) that could be received from an alternative investment. The investments are assumed to be owned outright. Therefore, interest on investments is a non-cash cost. Investments include land, orchard, buildings, and equipment. Interest is calculated as the average value of the investment during its useful life, multiplied by 3.72% per year. Average value for equipment and buildings equals new cost plus salvage value divided by 2 on a per acre basis. The average value for land is equal to the purchase price because land does not depreciate. Real interest rates are used on long term assets to show current costs.

13. EQUIPMENT CASH COSTS:

Equipment costs are composed of three parts; non-cash overhead, cash overhead, and operating costs. Both of the overhead factors have been discussed in previous sections. The operating costs consist of fuel, lubrication, and repairs.

In allocating the equipment costs on a per acre basis, the following hourly charges are calculated first and shown in **Table 6**. Repair costs are based on purchase price, annual hours of use, total hours of life, and repair coefficients formulated by the American Society of Agricultural Engineers (ASAE). Fuel and lubrication costs are also determined by ASAE equations based on maximum PTO hp, and type of fuel used. The fuel and repair cost per acre for each operation in **Table 2** is determined by multiplying the total hourly operating cost in **Table 6** for each piece of equipment used for the cultural practice by the number of hours per acre for that operation. Tractor time is 10% higher than implement time for a given operation to account for setup time. Prices for on-farm delivery of diesel and gasoline are $0.85 and $1.17 per gallon, respectively.

14. ACKNOWLEDGMENT:

Appreciation is expressed to the California Fig Advisory Board, California Fig Institute, and several fig growers in the San Joaquin Valley who participated in this study. Their generously provided information and expertise helped make the production of this study possible.

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Table 1. SAMPLE COSTS PER ACRE TO ESTABLISH A FIG ORCHARD
SAN JOAQUIN VALLEY - 1994
CALIMYRNA VARIETY

Labor Rate: $8.04/hr. machine labor — Trees Per Acre: 155
$6.04/hr. non-machine labor — Long Term Interest Rate: 3.72%

	Cost Per Acre				
Year	1st	2nd	3rd	4th	5th
Yield: Field Run - Pounds Per Acre			200	400	800
Planting Costs:					
Deep Rip - Custom	$300				
Disc	$4				
Float	$4				
Trees: 155 Per Acre @ $2.50	$388	$40			
Mark, Stake, Dig Holes & Plant - Contract	$78				
Replants: 10% in 2nd Year		$8			
TOTAL PLANTING COSTS	$773	$48			
Cultural Costs:					
Prune & Train	$46	$38	$57	$76	$85
Remove Brush	$7	7	7	7	7
Apply Fertilizer - Nitrogen	$6	10	14	18	21
Irrigate	$35	71	141	159	212
Caprification			$30	35	60
Pest Control - Rodents	$6	6	6	6	6
Weed Control - Disc Row Middles	$13	13	3	50	50
Smooth & Level Orchard Floor			$6	6	6
Weed Control - Hand Hoe and Remove Suckers	$12	12	12	12	12
Weed Control - Spray Middles 2X	$9	9	29	29	29
Weed Control - Strip Spray Residual	$51	51	64	64	64
Pickup Truck Use	$7	7	7	7	7
TOTAL CULTURAL COSTS	$194	$224	$378	$470	$560
Harvest Costs:					
Hand Knock Fruit			$3	$4	$5
Windrow Fruit			20	27	34
Pick Up Fruit			42	59	94
Haul To Shed			2	6	8
Sort Figs			12	24	48
Marketing Order Assessment Fee			2	5	10
Research & Administration Assessment Fee			1	1	2
TOTAL HARVEST COSTS			$82	$126	$201

U.C. COOPERATIVE EXTENSION
CALIMYRNA VARIETY
Table 1. continued

	Cost Per Acre				
Year	1st	2nd	3rd	4th	5th
Yield: Field Run - Pounds Per Acre			200	400	800
Interest On Operating Capital@ 7.89%	$25	$2	$4	$4	$5
Cash Overhead Costs:					
Office Expense	$101	$101	$101	$101	$101
Sanitation Fees	$2	2	2	2	2
Leaf Analysis	$5	5	5	5	5
Liability Insurance	$1	1	1	1	1
Property Taxes	$17	17	18	19	19
Property Insurance	$12	12	13	13	14
Investment Repairs	$3	3	3	3	3
TOTAL CASH OVERHEAD COSTS	$142	$142	$144	$144	$145
TOTAL CASH COSTS	$1,134	$416	$607	$744	$911
INCOME FROM PRODUCTION			$160	$320	$640
NET CASH COSTS FOR THE YEAR	$1,134	$416	$447	$424	$271
ACCUMULATED NET CASH COSTS	$1,134	$1,549	**$1,996**	$2,420	$2,690
Depreciation:					
Shop Building	$3	$3	$3	$3	$3
Packing Shed	$23	23	23	23	23
Drip Irrigation System	$9	9	9	9	9
Shop Tools	$1	1	1	1	1
Fuel Tanks & Pumps	$1	1	1	1	1
Equipment	$13	11	32	37	47
TOTAL DEPRECIATION	$49	$47	$68	$73	$83
Interest On Investment @ 4.00%					
Shop Building	$2	$2	$2	$2	$2
Packing Shed	$10	10	10	10	10
Shop Tools	$4	4	4	4	4
Drip Irrigation System	$1	1	1	1	1
Fuel Tanks & Pumps	$1	1	1	1	1
Land @ $1500/Acre	$45	45	45	45	45
Equipment	$3	3	8	9	12
TOTAL INTEREST ON INVESTMENT	$65	$64	$70	$71	$74
TOTAL COST FOR THE YEAR	$1,248	$528	$744	$888	$1,067
INCOME FROM PRODUCTION			$160	$320	$640
TOTAL NET COST FOR THE YEAR	$1,248	$528	$584	$568	$427
TOTAL ACCUMULATED NET COST	$1,248	$1,775	$2,359	$2,928	$3,355

Table 2.

U.C. COOPERATIVE EXTENSION
COSTS PER ACRE TO PRODUCE FIGS
SAN JOAQUIN VALLEY - 1994
CALIMYRNA VARIETY

Labor Rate: $8.04/hr. machine labor
$6.04/hr. non-machine labor

Interest Rate: 7.89 %
Yield per Acre: 1,800 Lb

Operation	Operation Time (Hrs/A)	Cash and Labor Costs per Acre: Labor Cost	Fuel/Lube & Repairs	Material Cost	Custom/ Rent	Total Cost	Your Cost
Cultural:							
Irrigate	9.60	57.98	0.00	141.02	0.00	199.00	
Prune And Train	14.00	84.56	0.00	0.00	0.00	84.56	
Clear Brush	0.14	2.76	1.67	0.00	0.00	4.43	
Fertilize - Nitrogen	0.16	1.54	0.88	18.45	0.00	20.87	
Weed Control - Disc Middles	0.20	1.93	1.41	0.00	0.00	3.34	
Smooth & Level Orchard Floor	0.33	3.22	2.33	0.00	0.00	5.54	
Hand Hoe And Remove Suckers	2.00	12.08	0.00	0.00	0.00	12.08	
Weed Control - Spray Middles 2X	0.15	1.48	0.38	27.32	0.00	29.18	
Pest Control - Rodents	0.50	0.48	0.12	5.80	0.00	6.41	
Caprification	0.00	0.00	0.00	0.00	60.00	60.00	
Weed Control - Strip Spray	0.25	2.37	1.66	60.12	0.00	64.16	
Pickup Truck Use	0.57	5.50	3.69	0.00	0.00	9.19	
TOTAL CULTURAL COSTS	27.46	173.91	12.13	252.72	60.00	498.76	
Harvest:							
Hand Knock Trees	1.00	6.04	0.00	0.00	0.00	6.04	
Windrow Fruit	0.38	14.48	16.72	0.00	0.00	31.20	
Pick Up Fruit	1.40	26.05	55.01	0.00	24.00	105.06	
Haul To Shed	0.00	0.00	0.00	0.00	18.00	18.00	
Sort Figs	0.00	0.00	0.00	162.00	0.00	162.00	
TOTAL HARVEST COSTS	2.78	46.57	71.73	162.00	42.00	322.30	
Assessments:							
Marketing Order	0.00	0.00	0.00	21.60	0.00	21.60	
Research & Administration	0.00	0.00	0.00	4.50	0.00	4.50	
TOTAL ASSESSMENT COSTS	0.00	0.00	0.00	26.10	0.00	26.10	

U.C. COOPERATIVE
EXTENSION
CALIMYRNA VARIETY
Table 2. continued

TOTAL OPERATING COSTS/ACRE	220.48	83.87	440.82	102.00	867.83
TOTAL OPERATING COSTS/LB					0.57
CASH OVERHEAD:					
Office Expense					101.01
Leaf Analysis					4.55
Sanitation Fees					1.96
Liability Insurance					0.67
Property Taxes					30.30
Property Insurance					21.60
Investment Repairs					3.11
TOTAL CASH OVERHEAD COSTS					163.20
TOTAL CASH COSTS/ACRE					1,031.03
TOTAL CASH COSTS/LB					0.68

NON-CASH OVERHEAD:

Investment	Per producing Acre	Annual Cost Depreciation	Interest@3.72%	
Land	1,212.12		45.09	45.09
Packing Shed	505.05	22.73	10.33	33.06
Drip Irrigation System	202.83	9.13	4.15	13.28
Buildings	76.99	2.77	1.58	4.35
Shop Tools	22.89	1.37	0.47	1.84
Fuel Tanks & Pumps	12.84	0.58	0.26	0.84
Orchard Establishment	1,996.00	35.93	40.84	76.77
Equipment	488.55	42.34	10.00	52.33
TOTAL NON-CASH OVERHEAD COSTS	4,517.26	114.84	112.71	227.56
TOTAL COSTS/ACRE				1,258.58
TOTAL COSTS/LB				0.83

Table 3. U.C. COOPERATIVE EXTENSION
COSTS AND RETURNS PER ACRE TO PRODUCE FIGS
SAN JOAQUIN VALLEY - 1994
CALIMYRNA VARIETY

	Quantity/Ac	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
GROSS RETURNS					
Paste Figs	1,520.00	Lb	0.80	1,216.00	
Cull Figs	280.00	Lb	0.03	8.40	
TOTAL GROSS RETURNS FOR FIGS				1,224.40	
OPERATING COSTS					
Irrigation:					
Water - Pumped	22.00	AcIn	6.41	141.02	
Fertilizer:					
Ammonium Nitrate	50.00	Lb of N	0.37	18.45	
Herbicide:					
Roundup	2.00	Qt	13.66	27.32	
Surflan 4 AS	1.25	Qt	22.76	28.45	
Goal 1.6E	1.25	Qt	25.34	31.67	
Rodenticide:					
Rodent Bait	2.00	Lb	2.90	5.80	
Contract:					
Caprification	1.00	Acre	60.00	60.00	
Haul Figs	1,800.00	Lb	0.01	18.00	
Rent:					
Bin Rental	24.00	Bin	1.00	24.00	
Harvest Labor:					
Sort Figs	1,800.00	Lb	0.09	162.00	
Assessments:					
Marketing	0.90	Ton	24.00	21.60	
Research & Administration	0.90	Ton	5.00	4.50	
Labor (machine)	6.99	Hrs	8.04	56.19	
Labor (non-machine)	27.20	Hrs	6.04	164.29	
Fuel - Gas	6.27	Gal	1.17	7.33	
Fuel - Diesel	25.51	Gal	0.85	21.68	
Lube				4.35	
Machinery repair				50.49	
Interest on Operating Capital @ 7.89%				20.67	
TOTAL OPERATING COSTS/ACRE				867.83	
TOTAL OPERATING COSTS/LB				0.57	

U.C. COOPERATIVE EXTENSION
CALIMYRNA VARIETY
Table 3. continued

NET RETURNS ABOVE OPERATING COSTS	356.57
CASH OVERHEAD COSTS:	
Office Expense	101.01
Leaf Analysis	4.55
Sanitation Fees	1.96
Liability Insurance	0.67
Property Taxes	30.30
Property Insurance	21.60
Investment Repairs	3.11
TOTAL CASH OVERHEAD COSTS/ACRE	163.20
TOTAL CASH COSTS/ACRE	1,031.03
TOTAL CASH COSTS/LB	0.68

Table 4.

U.C. COOPERATIVE EXTENSION
MONTHLY CASH COSTS PER ACRE TO PRODUCE FIGS
SAN JOAQUIN VALLEY - 1994
CALIMYRNA VARIETY

Beginning JAN 94 Ending DEC 94	JAN 94	FEB 94	MAR 94	APR 94	MAY 94	JUN 94	JUL 94	AUG 94	SEP 94	OCT 94	NOV 94	DEC 94	TOTAL
Cultural:													
Irrigate	35.30	35.30	35.30		35.30	22.48	35.30						199.00
Prune And Train	42.28	42.28											84.56
Clear Brush		4.43											4.43
Fertilize - Nitrogen			20.87										20.87
Weed Control - Disc Middle			3.34										3.34
Smooth & Level Orchard Floor			5.54										5.54
Hand Hoe And Remove Suckers				6.04	6.04								12.08
Weed Control - Spray Middles				14.59		14.59							29.18
Pest Control - Rodents					6.41								6.41
Caprification					60.00								60.00
Weed Control - Strip Spray										64.16			64.16
Pickup Truck Use										0.77			9.19
TOTAL CULTURAL COSTS	78.35	82.78	65.82	21.40	108.52	37.84	36.07	0.77	0.77	64.92	0.77	0.77	498.76
Harvest:													
Hand Knock Trees								1.99	3.02	1.03			6.04
Windrow Fruit								10.40	10.40	10.40			31.20
Pick Up Fruit								35.02	35.02	35.02			105.06
Haul To Shed								5.94	9.00	3.06			18.00
Sort Figs										27.54			162.00
TOTAL HARVEST COSTS								106.81	138.44	77.05			322.30
Assessments:													
Marketing Order								7.20	10.80	3.60			21.60
Research & Administration										0.75			4.50
TOTAL ASSESSMENT COSTS								8.70	13.05	4.35			26.10
Interest on Operating Capital	0.52	1.06	1.49	1.63	2.35	2.60	2.83	3.60	4.60				20.67
TOTAL OPERATING COSTS/ACRE	78.86	83.84	67.32	23.03	110.86	40.44	38.90	119.88	156.85	146.32	0.77	0.77	867.83
TOTAL OPERATING COSTS/LB	0.05	0.06	0.04	0.02	0.07	0.03	0.03	0.08	0.10	0.10	0.00	0.00	0.57
OVERHEAD:													
Office Expense	8.42	8.42	8.42	8.42	8.42	8.42	8.42	8.42	8.42	8.42	8.42	8.42	101.01
Leaf Analysis			4.55										4.55
Sanitation Fees	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20			1.96
Liability Insurance	0.67												0.67
Property Taxes		15.15					15.15						30.30
Property Insurance	21.60												21.60
Investment Repairs										0.26			
TOTAL CASH OVERHEAD COSTS	31.14	24.02	13.42	8.87	8.87	8.87	24.02	8.87	8.87	8.87	8.68	8.68	163.20
TOTAL CASH COSTS/ACRE	110.01	107.86	80.73	31.90	119.73	49.31	62.92	128.75	165.73	155.19	9.44	9.44	1,031.03
TOTAL CASH COSTS/LB	0.07	0.07	0.05	0.02	0.08	0.03	0.04	0.08	0.11	0.10	0.01	0.01	0.68

U.C. COOPERATIVE EXTENSION

Table 5. WHOLE FARM ANNUAL EQUIPMENT, INVESTMENT, AND BUSINESS OVERHEAD COSTS

SAN JOAQUIN VALLEY - 1994

CALIMYRNA VARIETY

ANNUAL EQUIPMENT COSTS

				Non-Cash Overhead		Cash Overhead		
Yr	Description	Price	Yrs Life	Depre-ciation	Interest	Insur-ance	Taxes	Total
94	62 HP 2WD Tractor	25,492	15	1,529.53	521.56	99.97	140.21	2,291.27
94	62 HP 2WD Tractor	25,492	15	1,529.53	521.56	99.97	140.21	2,291.27
94	ATV 4WD & Sprayer	7,430	10	668.70	152.02	29.14	40.86	890.72
94	Bin Trailer	979	15	58.73	20.03	3.84	5.38	87.98
94	Bin Trailer	979	15	58.73	20.03	3.84	5.38	87.98
94	Bin Trailer	979	15	58.73	20.03	3.84	5.38	87.98
94	Bin Trailer	979	15	58.73	20.03	3.84	5.38	87.98
94	Bin Trailer	979	15	58.73	20.03	3.84	5.38	87.98
94	Bin Trailer	979	15	58.73	20.03	3.84	5.38	87.98
94	Brush Rake & Loader	6,000	25	216.00	122.76	23.53	33.00	395.29
94	Brush Rake & Loader	6,000	25	216.00	122.76	23.53	33.00	395.29
94	Disc - Tandem 14'	7,274	10	654.70	148.82	28.52	40.01	872.05
94	Forklift - 4 Ton	11,261	10	1,013.50	230.40	44.16	61.94	1,350.00
94	Forklift - 4 Ton	11,261	10	1,013.50	230.40	44.16	61.94	1,350.00
94	Orchard Leveler	13,889	15	833.33	284.17	54.47	76.39	1,248.36
94	Harvester - SP [1]	61,133	10	5,502.00	1,250.78	239.73	336.23	7,328.74
94	Harvester - SP [1]	61,133	10	5,502.00	1,250.78	239.73	336.23	7,328.74
94	Harvester - SP [1]	61,133	10	5,502.00	1,250.78	239.73	336.23	7,328.74
94	Pick Up Truck 1/2 Ton	17,160	7	2,206.29	351.09	67.29	94.38	2,719.05
94	Spinner Spreader - 3 Pt	878	20	39.50	17.97	3.44	4.83	65.74
94	Sweeper - SP [1]	28,743	10	2,586.90	588.08	112.71	158.09	3,445.78
94	Sweeper - SP [1]	28,743	10	2,586.90	588.08	112.71	158.09	3,445.78
94	Sweeper - SP [1]	28,743	10	2,586.90	588.08	112.71	158.09	3,445.78
94	Weed Sprayer 100 Gal	3,550	10	319.50	72.63	13.92	19.52	425.57
TOTAL		411,189		34,859.16	8,412.90	1,612.46	2,261.53	47,146.05
60% of New Cost [2]		246,713		20,915.50	5,047.74	967.48	1,356.92	28,287.63

[1] SP = self propelled
[2] Used to reflect a mix of new and used equipment.

U.C. COOPERATIVE EXTENSION
SAN JOAQUIN VALLEY - 1994
CALIMYRNA VARIETY
Table 5. continued

ANNUAL INVESTMENT COSTS

		Non-Cash Overhead			Cash Overhead			
Description	Price	Yrs Life	Depre-ciation	Interest	Insur-ance	Taxes	Repairs	Total
INVESTMENT								
Buildings	38,110	25	1,371.96	779.73	149.45	209.61	152.40	2,663.15
Orchard Establishment	828,340	50	14,910.10	16,947.80	3,248.34	4,555.87	0.00	39,662.11
Drip Irrigation System	100,400	20	4,518.00	2,054.18	393.72	552.20	150.00	7,668.10
Fuel Tanks & Pumps	6,355	20	285.95	130.03	24.92	34.96	125.00	600.86
Land	600,000	50		22,320.00	4,278.00	6,000.00	0.00	32,598.00
Packing Shed	250,000	20	11,250.00	5,115.00	980.37	1,375.00	1,000.00	19,720.37
Shop Tools	11,330	15	679.80	231.81	44.43	62.32	113.00	1,131.36
TOTAL INVESTMENT	1,834,535		33,015.81	47,578.55	9,119.23	12,789.96	1,540.40	104,043.95

ANNUAL BUSINESS OVERHEAD COSTS

Description	Units/ Farm	Unit	Price/ Unit	Total Cost
Leaf Analysis	500	Acre	4.50	2,250
Liability Insurance	500	Acre	0.66	330
Office Expense	500	Acre	100.00	50,000
Sanitation Fees	500	Acre	1.94	970

U.C. COOPERATIVE EXTENSION
SAN JOAQUIN VALLEY - 1994
CALIMYRNA VARIETY

Table 6. HOURLY EQUIPMENT COSTS

		COSTS PER HOUR							
	Actual	Non-Cash Overhead		Cash Overhead		Operating			
	Hours Used	Depre-ciation	Interest	Insur-ance	Taxes	Repairs	Fuel & Lube	Total Oper.	Total Costs
94 62 HP 2WD Tractor	799.2	1.15	0.39	0.08	0.11	1.53	2.98	4.51	6.23
94 62 HP 2WD Tractor	799.0	1.15	0.39	0.08	0.11	1.53	2.98	4.51	6.23
94 ATV 4WD & Sprayer	299.0	1.34	0.31	0.06	0.08	0.89	1.35	2.24	4.03
94 Bin Trailer	165.5	0.21	0.07	0.01	0.02	0.23	0.00	0.23	0.55
94 Bin Trailer	165.5	0.21	0.07	0.01	0.02	0.23	0.00	0.23	0.55
94 Bin Trailer	165.5	0.21	0.07	0.01	0.02	0.23	0.00	0.23	0.55
94 Bin Trailer	165.5	0.21	0.07	0.01	0.02	0.23	0.00	0.23	0.55
94 Bin Trailer	165.5	0.21	0.07	0.01	0.02	0.23	0.00	0.23	0.55
94 Bin Trailer	165.5	0.21	0.07	0.01	0.02	0.23	0.00	0.23	0.55
94 Brush Rake&Loader	99.3	1.30	0.74	0.14	0.20	0.87	0.00	0.87	3.26
94 Brush Rake & Loader	99.3	1.30	0.74	0.14	0.20	0.87	0.00	0.87	3.26
94 Disc - Tandem 14'	250.0	1.57	0.36	0.07	0.10	2.09	0.00	2.09	4.19
94 Forklift - 4 Ton	300.0	2.03	0.46	0.09	0.12	3.38	9.42	12.80	15.50
94 Forklift - 4 Ton	300.0	2.03	0.46	0.09	0.12	3.38	9.42	12.80	15.50
94 Orchard Leveler	165.3	3.02	1.03	0.20	0.28	2.02	0.00	2.02	6.55
94 Harvester - SP [1]	228.3	14.46	3.29	0.63	0.88	18.34	7.82	26.16	45.43
94 Harvester - SP [1]	228.3	14.46	3.29	0.63	0.88	18.34	7.82	26.16	45.43
94 Harvester - SP [1]	228.3	14.46	3.29	0.63	0.88	18.34	7.82	26.16	45.43
94 Pickup Truck 1/2 Ton	284.6	4.65	0.74	0.14	0.20	3.11	3.36	6.47	12.21
94 Spinner Spreader - 3 Pt	66.4	0.36	0.16	0.03	0.04	0.53	0.00	0.53	1.12
94 Sweeper - SP [1]	199.2	7.79	1.77	0.34	0.48	8.62	4.89	13.51	23.89
94 Sweeper - SP [1]	199.2	7.79	1.77	0.34	0.48	8.62	4.89	13.51	23.89
94 Sweeper - SP [1]	199.2	7.79	1.77	0.34	0.48	8.62	4.89	13.51	23.89
94 Weed Sprayer 100 Gal	119.1	1.61	0.37	0.07	0.10	1.78	0.00	1.78	3.93

[1] SP = self propelled

Table 7.

U.C. COOPERATIVE EXTENSION
RANGING ANALYSIS
SAN JOAQUIN VALLEY - 1994

COSTS PER ACRE AT VARYING YIELDS TO PRODUCE CALIMYRNA FIGS

	YIELD [1] (LB/ACRE)						
	500	1000	1500	2000	2500	3000	3500
OPERATING COSTS/ACRE:							
Cultural Cost	499	499	499	499	499	499	499
Harvest Cost	76	197	317	438	559	679	800
Assessment Cost	26	26	26	26	26	26	26
Interest on operating capital	19	20	21	21	22	23	24
TOTAL OPERATING COSTS/ACRE	620	742	863	984	1106	1227	1348
TOTAL OPERATING COSTS/LB	1.24	0.74	0.58	0.49	0.44	0.41	0.39
CASH OVERHEAD COSTS/ACRE	164	163	163	163	163	163	163
TOTAL CASH COSTS/ACRE	785	904	1026	1148	1269	1390	1512
TOTAL CASH COSTS/LB	1.57	0.90	0.68	0.57	0.51	0.46	0.43
NON-CASH OVERHEAD COSTS/ACRE	241	224	227	229	230	230	230
TOTAL COSTS/ACRE	1025	1128	1254	1376	1499	1621	1742
TOTAL COSTS/LB	2.05	1.13	0.84	0.69	0.60	0.54	0.50

[1] Yields are a combination of both paste and cull fig production.

NET RETURNS PER ACRE ABOVE OPERATING COSTS FOR CALIMYRNA FIGS

PRICE DOLLARS/POUND		YIELD [1] POUND/ACRE						
Merchantable		422	844	1,267	1,689	2,956	2,533	2,956
	Culls	78	156	233	311	389	467	544
0.50	0.03	-407	-315	-223	-130	383	54	146
0.60	0.03	-364	-231	-96	39	679	307	442
0.70	0.03	-322	-146	31	208	975	560	737
0.80	0.03	-280	-62	157	376	1,270	814	1,033
0.90	0.03	-238	23	284	545	1,566	1,067	1,328
1.00	0.03	-195	107	411	714	1,861	1,320	1,624
1.10	0.03	-153	192	537	883	2,157	1,574	1,919

NET RETURNS PER ACRE ABOVE CASH COSTS FOR CALIMYRNA FIGS

PRICE DOLLARS/POUND		YIELD [1] POUND/ACRE						
Merchantable		422	844	1,267	1,689	2,956	2,533	2,956
	Culls	78	156	233	311	389	467	544
0.50	0.03	-572	-477	-386	-294	220	-109	-18
0.60	0.03	-529	-393	-259	-125	516	144	278
0.70	0.03	-487	-308	-132	44	812	397	573
0.80	0.03	-445	-224	-6	212	1,107	651	869
0.90	0.03	-403	-139	121	381	1,403	904	1,164
1.00	0.03	-360	-55	248	550	1,698	1,157	1,460
1.10	0.03	-318	30	374	719	1,994	1,411	1,755

NET RETURNS PER ACRE ABOVE TOTAL COSTS FOR CALIMYRNA FIGS

PRICE DOLLARS/POUND		YIELD [1] POUND/ACRE						
Merchantable		422	844	1,267	1,689	2,956	2,533	2,956
	Culls	78	156	233	311	389	467	544
0.50	0.03	-812	-701	-614	-522	-10	-340	-248
0.60	0.03	-769	-617	-487	-353	286	-87	48
0.70	0.03	-727	-532	-360	-184	582	166	343
0.80	0.03	-685	-448	-234	-16	877	420	639
0.90	0.03	-643	-363	-107	153	1,173	673	934
1.00	0.03	-600	-279	20	322	1,468	926	1,230
1.10	0.03	-558	-194	146	491	1,764	1,180	1,525

[1] Yields are a combination of both paste and cull fig production.