1994

U.C. COOPERATIVE EXTENSION

SAMPLE COSTS TO ESTABLISH A FIG ORCHARD AND PRODUCE

~FIGS~

***Conadria Variety* - IN THE SAN JOAQUIN VALLEY**

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

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GENERAL INFORMATION FOR ESTABLISHING A FIG ORCHARD AND PRODUCING FIGS

*Conadria **Variety*** **- San Joaquin Valley - 1994**

The detailed costs for establishment and production of the Conadria 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) 752-1515 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, Calimyrna 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.

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

The following is a description of some general assumptions pertaining to sample costs of conadria variety fig 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. The practices and inputs used in this cost study serve only as a sample or guide. Variations can be significant. 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.

2. TREES:

The specific variety of fig trees planted in this study are Conadria. 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:

Orchard Development: 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 requiring a drip or sprinkler irrigation system for irrigation.

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 the ripping, the ground is first disced and 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 operations that prepare the orchard for planting are done in the first year.

Planting: Planting starts by marking the tree location with a stake, holes are then dug and the trees are 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.

Insect, Disease, and Vertebrate 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, though 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 of ammonium nitrate (34-0-0) at increasing rates during orchard establishment as shown in **Table B**.

Table B. Applied Nitrogen

Year	Pounds Of N/Acre
1	20
2	40
3	60
4	80
5	100

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 third year. The *Total Accumulated Net Cash Cost* in the third year shown

on **Table 1**, represents the establishment cost. For this study, this cost is $1,955 per acre or $811,325 for the 500 acres of mature orchard is estimated: this cost is shown in **Table 5**. The establishment 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. Nitrogen is applied at a rate of 100 pounds of N per acre.

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 row middles that are not controlled by cultivation receive 2 sprays of a contact herbicide during spring and summer.

Insect, Disease, and Vertebrate Management: Arthropods and diseases pests are commonly not serious enough in a well managed fig orchard to warrant treatment. The only pests that requires 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 on production practices contact the farm advisor in the county of interest.

6. HARVEST:

Harvesting begins in the third year after the orchard is planted. As the yields increase the cost to harvest also increases until yield maturity is reached in approximately the tenth year. In this cost study the crop is harvested by the grower. The number of harvest per year also changes as the orchard matures. In the third year, three harvests are performed. The fourth year requires four harvests, 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.

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**. All of the grower performed harvest and packing costs would be subtracted from Harvest costs in **Table 1** and **2**.

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 Conadria variety is measured in pounds for merchantable figs and tons for cull fruit. Typical cull percentages for conadria figs have ranged between 7% and 8%. This study uses a 7% 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	0.20	400	372	28
4	0.80	1,600	1,488	112
5	1.20	2,400	2,232	168
6	1.52	3,040	2,827	213
7	1.80	3,600	3,348	252
8	2.00	4,000	3,720	280
9	2.24	4,480	4,166	314
10+	2.40	4,800	4,464	336

Returns: Conadria figs are used in the paste market. For figs that are sold for paste a price of $0.50 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, leaf analysis, 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 $615 for the entire farm or $1.23 per acre.

Sanitation Services: Sanitation services provide portable toilets for the orchard and cost the farm $970 annually. The cost for this includes delivery and servicing of toilets.

Leaf Analysis: Analysis for nutrients needed for proper tree growth and fruit development is performed on leaf petiole samples. A cost of $4.50 per acre covers this service. Many fertilization program are based in part on leaf analysis. 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 fig growers in the San Joaquin Valley who participated in this study. Their information and expertise, so generously provided, helped make the production of this study possible.

REFERENCES:

1. American Society of Agricultural Engineers. 1992. American Society of Agricultural Engineers Standards Yearbook. St. Joseph, MI.

2. Boelje, Michael D., and Vernon R. Eidman. 1984. Farm Management. John Wiley and Sons. New York, NY

3. Obenauf, Gary, Marvin Gerdts, George Leavitt, and Julian Crane. 1978. Commercial Dried Fig Production In California. Leaflet 21051. UC DANR. Oakland CA.

4. Statewide IPM Project. 1990. UC Pest management guidelines, alfalfa. *In*, UC IPM Pest Management Guidelines. Pub. 3339. UC DANR. Oakland, CA.

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

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

Trees Per Acre: 155
Long Term Interest Rate: 3.72%

	Cost Per Acre				
Year	1st	2nd	3rd	4th	5th
Yield: Field Run - Pounds Per Acre	0	0	400	1,600	2,400
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	$0	$0	$0
Cultural Costs:					
Prune & Train	$46	$38	$57	$76	$85
Remove Brush	$7	7	7	7	7
Apply Fertilizer - Nitrogen	$10	18	25	32	40
Irrigate	$35	71	141	159	212
Pest Control - Rodents	$6	6	6	6	6
Weed Control - Disc Row Middles	$13	13	3	3	3
Smooth & Level Orchard Floor			$6	6	6
Weed Control - Hand Hoe and Remove Suckers	$12	12	12	12	12
Weed Control - Spray Middles 2X	$7	7	29	29	29
Weed Control - Strip Spray Residual	$51	51	62	62	62
Pickup Truck Use	$7	7	7	7	7
TOTAL CULTURAL COSTS	$196	$231	$357	$401	$469
Harvest Costs:					
Hand Knock Fruit			$3	$4	$5
Windrow Fruit			$20	27	34
Pickup Fruit			$42	67	94
Haul To Shed			$4	16	24
Sort Figs			$24	96	144
Marketing Order Assessment Fee			$5	19	29
Research & Administration Assessment Fee			$1	4	6
TOTAL HARVEST COSTS	$0	$0	$99	$234	$336
Interest On Operating Capital @ 7.89%	$25	$2	$4	$4	$6
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	$9	12	13	13	14
Investment Repairs	$3	3	3	3	3
TOTAL CASH OVERHEAD COSTS	$137	$141	$143	$143	$144
TOTAL CASH COSTS	$1,132	$421	$602	$782	$955
INCOME FROM PRODUCTION	$0	$0	$200	$800	$1,200
NET CASH COSTS FOR THE YEAR	$1,132	$421	$402	$0	$0
PROFIT ABOVE CASH COSTS	$0	$0	$0	$18	$245
ACCUMULATED NET CASH COSTS	$1,132	$1,553	**$1,955**	$1,937	$1,692

Table 1. continued

	Cost Per Acre				
Year	1st	2nd	3rd	4th	5th
Yield: Field Run - Pounds Per Acre	0	0	400	1,600	2,400
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	23	31	37
TOTAL DEPRECIATION	$49	$48	$59	$68	$74
Interest On Investment @ 3.72%					
Shop Building	$2	$2	$2	$2	$2
Packing Shed	$10	10	10	10	10
Shop Tools	$1	1	1	1	1
Drip Irrigation System	$4	4	4	4	4
Fuel Tanks & Pumps	$1	1	1	1	1
Land @ $1500/Acre	$45	45	45	45	45
Equipment	$3	3	6	8	9
TOTAL INTEREST ON INVESTMENT	$66	$65	$68	$70	$71
TOTAL COST FOR THE YEAR	$1,247	$534	$729	$920	$1,100
INCOME FROM PRODUCTION	$0	$0	$200	$800	$1,200
TOTAL NET COST FOR THE YEAR	$1,247	$534	$0	$0	$0
NET PROFIT ABOVE TOTAL COST	$0	$0	$0	$0	$100
TOTAL ACCUMULATED NET COST	$1,247	$1,780	$2,309	$2,429	$2,329

Table 2.

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COSTS PER ACRE TO PRODUCE FIGS
SAN JOAQUIN VALLEY - 1994
CONADRIA VARIETY

Labor Rate: $8.04/hr. machine labor
$6.04/hr. non-machine labor
Interest Rate: 7.89%
Yield per Acre: 4,800 Lb

Operation	Operation Time Hrs/A	Labor Cost	Cash and Labor Costs per Acre Fuel,Lube & Repairs	Material Cost	Custom/ Rent	Total Cost	Your Cost
Cultural:							
Weed Control - Strip Spray	0.25	2.37	1.66	60.12	0.00	64.16	
Irrigate	9.60	57.98	0.00	153.84	0.00	211.82	
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	36.90	0.00	39.32	
Weed Control - Spray Middles	0.15	1.48	0.38	27.30	0.00	29.18	
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	
Pest Control - Rodents	0.05	0.48	0.12	5.80	0.00	6.41	
Pickup Truck Use	0.57	5.51	3.27	0.00	0.00	8.78	
TOTAL CULTURAL COSTS	27.45	173.91	11.72	283.96	0.00	469.62	
Harvest:							
Hand Knock Trees	1.02	6.16	0.00	0.00	0.00	6.16	
Windrow Fruit	0.50	19.30	22.29	0.00	0.00	41.60	
Pick Up Fruit	1.37	24.44	48.26	0.00	36.00	108.70	
Haul To Shed	0.00	0.00	0.00	0.00	48.00	48.00	
Sort Figs	0.00	0.00	0.00	288.00	0.00	288.00	
TOTAL HARVEST COSTS	2.89	49.91	70.55	288.00	84.00	492.46	
Assessment:							
Marketing Order	0.00	0.00	0.00	57.60	0.00	57.60	
Research & Administration	0.00	0.00	0.00	12.00	0.00	12.00	
TOTAL ASSESSMENT COSTS	0.00	0.00	0.00	69.60	0.00	69.60	
Interest on Operating Capital @ 7.89%						6.21	
TOTAL OPERATING COSTS/ACRE		223.82	82.27	641.56	84.00	1,037.89	
TOTAL OPERATING COSTS/LB						0.23	
CASH OVERHEAD:							
Office Expense						101.01	
Leaf Analysis						4.55	
Sanitation Fees						1.96	
Liability Insurance						1.24	
Property Taxes						30.11	
Property Insurance						21.47	
Investment Repairs						3.11	
TOTAL CASH OVERHEAD COSTS						163.44	
TOTAL CASH COSTS/ACRE						1,201.33	
TOTAL CASH COSTS/LB						0.27	

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CONADRIA VARIETY
Table 2. continued

NON-CASH OVERHEAD:

Investment	Per Producing Acre	Annual Cost Depreciation	Annual Cost 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	1,955.00	35.19	40.00	75.19
Equipment	494.46	42.87	10.12	52.98
TOTAL NON-CASH OVERHEAD COSTS	4,482.18	114.63	112.00	226.63
TOTAL COSTS/ACRE				1,427.96
TOTAL COSTS/LB				0.32

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Table 3. COSTS AND RETURNS PER ACRE TO PRODUCE FIGS
SAN JOAQUIN VALLEY - 1994
CONADRIA VARIETY

Labor Rate: $8.04/hr. machine labor
$6.04/hr. non-machine labor
Interest Rate: 7.89%

	Quantity/Ac	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
GROSS RETURNS					
Paste Figs	4,480.00	Lb	0.50	2,240.00	
Cull Figs	320.00	Lb	0.03		
				9.60	
TOTAL GROSS RETURNS FOR FIGS				2,249.60	
OPERATING COSTS					
Herbicide:					
Surflan 4 AS	1.25	Qt	22.76	28.45	
Goal 1.6E	1.25	Qt	25.34	31.67	
Roundup	2.00	Qt	13.66	27.32	
Irrigation:					
Water - Pumped	24.00	AcIn	6.41	153.84	
Fertilizer:					
Ammonium Nitrate	100.00	Lb of N	0.37	36.90	
Rent:					
Bin Rental	36.00	Bin	1.00	36.00	
Contract:					
Haul Figs	4,800.00	Lb	0.01	48.00	
Harvest Labor:					
Sort Figs	4,800.00	Lb	0.06	288.00	
Assessment:					
Marketing	2.40	Ton	24.00	57.60	
Research & Administration	2.40	Ton	5.00	12.00	
Rodenticide:					
Rodent Bait	2.00	Lb	2.90	5.80	
Labor (machine)	7.24	Hrs	8.04	58.21	
Labor (non-machine)	27.42	Hrs	6.04	165.62	
Fuel - Gas	7.01	Gal	1.17	8.21	
Fuel - Diesel	24.93	Gal	0.85	21.19	
Lube				4.41	
Machinery Repair				48.45	
Interest on Operating Capital @ 7.89%				6.21	
TOTAL OPERATING COSTS/ACRE				1,037.89	
TOTAL OPERATING COSTS/LB				0.23	
NET RETURNS ABOVE OPERATING COSTS				1,211.71	
CASH OVERHEAD COSTS:					
Office Expense				101.01	
Leaf Analysis				4.55	
Sanitation Fees				1.96	
Liability Insurance				1.24	
Property Taxes				30.11	
Property Insurance				21.47	
Investment Repairs					
				3.11	
TOTAL CASH OVERHEAD COSTS/ACRE				163.44	
TOTAL CASH COSTS/ACRE				1,201.33	
TOTAL CASH COSTS/LB				0.27	

Table 4. U.C. COOPERATIVE EXTENSION
MONTHLY CASH COSTS PER ACRE TO PRODUCE FIGS
SAN JOAQUIN VALLEY - 1994 CONADRIA 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:													
Weed Control - Strip Spray										64.16			64.16
Irrigate	35.30	35.30	35.30		35.30	35.30	35.30						211.82
Prune And Train	42.28	42.28											84.56
Clear Brush		4.43											4.43
Fertilize - Nitrogen			39.32										39.32
Weed Control - Disc Middles			3.34										3.34
Smooth & Level Orchard Floor			5.54										5.54
Weed Control - Spray Middles				14.59		14.59							29.18
Hand Hoe And Remove Suckers				6.04	6.04								12.08
Pest Control - Rodents					6.41								6.41
Pickup Truck Use													8.78
TOTAL CULTURAL COSTS	78.46	82.89	84.39	21.51	48.63	50.77	36.18	0.88	0.88	65.03			469.62
Harvest:													
Hand Knock Trees				2.05		2.05		2.05					6.16
Windrow Fruit				10.40		20.80		10.40					41.60
Pick Up Fruit				46.03		19.81		42.86					108.70
Haul To Shed				15.84		24.00		8.16					48.00
Sort Figs													288.00
TOTAL HARVEST COSTS				169.3		210.6		112.4					492.46
Assessment:													
Marketing Order				18.96		28.80		9.84					57.60
Research & Administration													12.00
TOTAL ASSESSMENT COSTS				22.91		34.80		11.89					69.60
Interest on Operating Capital @	0.52	1.06	1.62	3.02									6.21
TOTAL OPERATING COSTS/ACRE	78.98	83.95	86.00	216.8	48.63	296.2	36.18	125.2	0.88	65.03			1,037.89
TOTAL OPERATING COSTS/LB	0.02	0.02	0.02	0.05	0.01	0.07	0.01	0.03	0.00	0.01			0.23
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	1.24												1.24
Property Taxes		15.05					15.05						30.11
Property Insurance	21.47												21.47
Investment Repairs													3.11
TOTAL CASH OVERHEAD COSTS	31.58	23.93	13.42	8.87	8.87	8.87	23.93	8.87	8.87	8.87	8.68	8.68	163.44
TOTAL CASH COSTS/ACRE	110.5	107.8	99.42	225.6	57.50	305.1	60.11	134.0	9.75	73.91	8.68	8.68	1,201.33
TOTAL CASH COSTS/LB	0.02	0.02	0.02	0.05	0.01	0.07	0.01	0.03	0.00	0.02	0.00	0.00	0.27

U.C. COOPERATIVE EXTENSION

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

SAN JOAQUIN VALLEY - 1994

CONADRIA VARIETY

ANNUAL EQUIPMENT COSTS

				Non-Cash Over. -		Cash Overhead		
Yr	Description	Price	Yrs Life	Depre-ciation	Interest	Insur-ance	Taxes	Total
94	62 HP 2WD Tractor	25492	15	1,529.53	521.56	99.97	140.21	2,291.27
94	62 HP 2WD Tractor	25492	15	1,529.53	521.56	99.97	140.21	2,291.27
94	ATV 4WD & Sprayer	7430	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	6000	25	216.00	122.76	23.53	33.00	395.29
94	Brush Rake & Loader	6000	25	216.00	122.76	23.53	33.00	395.29
94	Disc - Tandem 14'	7274	10	654.70	148.82	28.52	40.01	872.05
94	Forklift - 4 Ton	11261	10	1,013.50	230.40	44.16	61.94	1,350.00
94	Forklift - 4 Ton	11261	10	1,013.50	230.40	44.16	61.94	1,350.00
94	Orchard Leveler	13889	15	833.33	284.17	54.47	76.39	1,248.36
94	Harvester - SP [1]	61133	10	5,502.00	1,250.78	239.73	336.23	7,328.74
94	Harvester - SP [1]	61133	10	5,502.00	1,250.78	239.73	336.23	7,328.74
94	Harvester - SP [1]	61133	10	5,502.00	1,250.78	239.73	336.23	7,328.74
94	Pickup Truck 1/2 Ton	17160	7	2,206.29	351.09	67.29	94.38	2,719.05
94	Spinner Spreader-3Pt	878	20	39.50	17.97	3.44	4.83	65.74
94	Sweeper - SP [1]	28743	10	2,586.90	588.08	112.71	158.09	3,445.78
94	Sweeper - SP [1]	28743	10	2,586.90	588.08	112.71	158.09	3,445.78
94	Sweeper - SP [1]	28743	10	2,586.90	588.08	112.71	158.09	3,445.78
94	Weed Sprayer 100 Gal	3550	10	319.50	72.63	13.92	19.52	425.57
TOTAL		411189		34,859.16	8,412.90	1,612.46	2,261.53	47,146.05
60% of New Cost [2]		246713		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.

ANNUAL INVESTMENT COSTS

			Non-Cash Overhead		Cash Overhead			
Description	Price	Yrs Life	Depreciation	Interest	Insurance	Taxes	Repairs	Total
INVESTMENT								
Buildings	38,110	25	1,371.96	779.73	149.45	209.61	152.40	2,663.15
Orchard Establishment	811,325	50	14,603.80	16,599.70	3,181.61	4,462.29	0.00	38,847.40
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	1,817,520		32,709.51	47,230.45	9,052.50	12,696.38	1,540.40	103,229.24

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

Table 5. continued

ANNUAL BUSINESS OVERHEAD COSTS

Description	Units/ Farm	Unit	Price/ Unit	Total Cost
Leaf Analysis	500.00	Acre	4.50	2,250.00
Liability Insurance	500.00	Acre	1.23	615.00
Office Expense	500.00	Acre	100.00	50,000.00
Sanitation Fees	500.00	Acre	1.94	970.00

Table 6. HOURLY EQUIPMENT COSTS
SAN JOAQUIN VALLEY - 1994
CONADRIA VARIETY

			COSTS PER HOUR							
		Actual	Non-Cash Over.	Cash Overhead			Operating			
Yr	Description	Hours Used	Depre- ciation	Inte rest	Insur ance	Taxes	Repairs	Fuel& Lube	Total Oper.	Total Costs/ Hr.
94	62 HP 2WD Tractor	800.8	1.15	0.39	0.07	0.11	1.53	2.98	4.51	6.23
94	62 HP 2WD Tractor	799.4	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'	255.0	1.54	0.35	0.07	0.09	2.09	0.00	2.09	4.15
94	Forklift - 4 Ton	199.4	3.05	0.69	0.13	0.19	3.38	9.42	12.80	16.86
94	Forklift - 4 Ton	199.4	3.05	0.69	0.13	0.19	3.38	9.42	12.80	16.86
94	Orchard Leveler	166.3	3.01	1.03	0.20	0.28	2.02	0.00	2.02	6.52
94	Harvester - SP [1]	199.6	16.54	3.76	0.72	1.01	18.34	7.82	26.16	48.19
94	Harvester - SP [1]	199.6	16.54	3.76	0.72	1.01	18.34	7.82	26.16	48.19
94	Harvester - SP [1]	199.6	16.54	3.76	0.72	1.01	18.34	7.82	26.16	48.19
94	Pickup Truck-3/4Ton	285.0	4.52	0.72	0.14	0.19	3.03	2.69	5.72	11.29
94	SpinnerSpreader-3Pt	66.4	0.36	0.16	0.03	0.04	0.53	0.00	0.53	1.12
94	Sweeper - SP [1]	228.3	6.80	1.55	0.30	0.42	8.62	4.89	13.51	22.57
94	Sweeper - SP [1]	228.3	6.80	1.55	0.30	0.42	8.62	4.89	13.51	22.57
94	Sweeper - SP [1]	228.3	6.80	1.55	0.30	0.42	8.62	4.89	13.51	22.57
94	Weed Sprayer-100Gal	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 CONADRIA FIGS

	YIELD (LB/ACRE)						
	4000	4500	5000	5500	6000	6500	7000
OPERATING COSTS/ACRE:							
Cultural Cost	29	29	29	29	29	29	29
Cultural Cost	440	440	440	440	440	440	440
Harvest Cost	441	495	548	601	654	708	761
Assessment Cost	70	70	70	70	70	70	70
Interest on operating capital	6	6	6	6	7	7	7
TOTAL OPERATING COSTS/ACRE	987	1040	1093	1147	1200	1254	1307
TOTAL OPERATING COSTS/LB	0.25	0.23	0.22	0.21	0.20	0.19	0.19
CASH OVERHEAD COSTS/ACRE	163	163	163	163	163	164	164
TOTAL CASH COSTS/ACRE	1150	1203	1257	1310	1364	1417	1471
TOTAL CASH COSTS/LB	0.29	0.27	0.25	0.24	0.23	0.22	0.21
NON-CASH OVERHEAD COSTS/ACRE	226	227	227	227	227	227	227
TOTAL COSTS/ACRE	1376	1430	1484	1537	1591	1644	1698
TOTAL COSTS/LB	0.34	0.32	0.30	0.28	0.27	0.25	0.24

NET RETURNS PER ACRE ABOVE OPERATING COSTS FOR CONADRIA FIGS

PRICE DOLLARS/POUND		YIELD [1] POUND/ACRE						
Merchantable		3,720	4,185	4,650	5,115	5,580	6,045	6,510
	Culls	35	70	105	140	175	210	245
0.15	0.03	-428	-410	-392	-376	-358	-341	-323
0.25	0.03	-56	8	73	136	200	264	328
0.35	0.03	316	427	538	647	758	868	979
0.45	0.03	688	845	1,003	1,159	1,316	1,473	1,630
0.55	0.03	1,060	1,264	1,468	1,670	1,874	2,077	2,281
0.65	0.03	1,432	1,682	1,933	2,182	2,432	2,682	2,932
0.75	0.03	1,804	2,101	2,398	2,693	2,990	3,286	3,583

NET RETURNS PER ACRE ABOVE CASH COSTS FOR CONADRIA FIGS

PRICE DOLLARS/POUND		YIELD [1] POUND/ACRE						
Merchantable		3,720	4,185	4,650	5,115	5,580	6,045	6,510
	Culls	35	70	105	140	175	210	245
0.15	0.03	-591	-573	-556	-539	-522	-504	-487
0.25	0.03	-219	-155	-91	-27	36	101	164
0.35	0.03	153	264	374	484	594	705	815
0.45	0.03	525	682	839	996	1,152	1,310	1,466
0.55	0.03	897	1,101	1,304	1,507	1,710	1,914	2,117
0.65	0.03	1,269	1,519	1,769	2,019	2,268	2,519	2,768
0.75	0.03	1,641	1,938	2,234	2,530	2,826	3,123	3,419

NET RETURNS PER ACRE ABOVE TOTAL COSTS FOR CONADRIA FIGS

PRICE DOLLARS/POUND		YIELD [1] POUND/ACRE						
Merchantable		3,720	4,185	4,650	5,115	5,580	6,045	6,510
	Culls	35	70	105	140	175	210	245
0.15	0.03	-817	-800	-783	-766	-749	-731	-714
0.25	0.03	-445	-382	-318	-254	-191	-126	-63
0.35	0.03	-73	37	147	257	367	478	588
0.45	0.03	299	455	612	769	925	1,083	1,239
0.55	0.03	671	874	1,077	1,280	1,483	1,687	1,890
0.65	0.03	1,043	1,292	1,542	1,792	2,041	2,292	2,541
0.75	0.03	1,415	1,711	2,007	2,303	2,599	2,896	3,192

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