1995/1996

UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION

PRODUCTION PRACTICES AND SAMPLE COSTS TO PRODUCE

Drip Irrigated

*~ Chili Pepper_*

Coachella Valley
Riverside County

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University of California Cooperative Extension

Sample Costs To Produce Chili Pepper
Gueros And Jalapeño Varieties
Riverside County - 1995/1996

INTRODUCTION

Detailed costs to produce chili pepper in Coachella Valley, Riverside County, California are presented in this study. The hypothetical farm used in this report consists of 75 acres of which 20 acres are in chili pepper production.

This study consists of General Assumptions for Producing Fresh Market Chili Pepper along with six tables of cost analysis. The practices described in this study are considered typical for chili pepper production in the Coachella Valley of Riverside County. They do not reflect the exact values or practices of any grower or shipper, but are rather an amalgamation of costs and practices in the region. Sample costs given for labor, materials, equipment and contract services are based on 1995/1996 prices. Some costs and practices detailed in this study may not be applicable to every situation. *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*. This study is intended as a guide, it can be used in making production decisions, determining potential returns, preparing budgets and evaluating production loans.

Costs are presented in six tables:

Table 1. **Costs Per Acre To Produce Chili Pepper**
Table 2. **Costs And Returns Per Acre To Produce Chili Pepper**
Table 3. **Monthly Cash Costs Per Acre To Produce Chili Pepper**
Table 4. **Annual Equipment, Investment And Business Overhead Costs**
Table 5. **Hourly Equipment Costs**
Table 6. **Ranging Analysis**

A blank ***Your Costs*** column is provided to enter your actual costs on **Tables 1 (Costs Per Acre To Produce Chili Pepper)** and **2 (Costs And Returns Per Acre To Produce Chili Pepper)**.

For an explanation of calculations used in the study refer to the attached General Assumptions, call the Area Farm Management Economics Advisor, Riverside County Cooperative Extension, (909) 683-6491 ext. 243 or call the Vegetable Crops Farm Advisor in the Coachella Valley of Riverside County, (619) 863-8293.

ASSUMPTIONS USED IN THIS STUDY

The following is a description of the assumptions used in this study to develop costs for production of spring planted and harvested chili peppers in the Coachella Valley of Riverside County in 1995/96.

1. LAND RENT

This report is based on a 75 acre row crop farm of which 20 acres are producing chili pepper and 36 acres are planted to bell peppers, squash, pickling cucumbers and eggplant that are "double cropped" in spring and fall. Double cropping is practiced on only 75% of the acreage at any one time. This practice results in 113 farmed acres per year. The remaining 25% of the acreage (Approximately 19 acres) is left fallow, typically to facilitate weed control operations. Other rotational crops that might also be planted on this same ground could include green beans, broccoli, cauliflower, eggplant, lettuce, okra, onions, sweet corn, and mixed melons.

Rental contracts and rates for land suitable for chili pepper production can range widely. Land in this study is leased on a cash rent basis at $200 per acre per year for the entire 75 acres. Since 19 acres are left fallow, rent per planted acre is $267. As the remaining 56 of the 75 acres is double cropped, the amount of the annual rent per planted acre allocated to the chili pepper operation is $133.

2. CULTURAL PRACTICES AND PRODUCTION INPUTS

Land Preparation: Primary tillage and planting groundwork operations which include chopping prior crop residues, discing, subsoiling, floating, and listing beds are performed from December through January beginning in the year preceding planting. All operations requiring equipment are performed with either a 45, 65 or 70 hp wheel tractor. Operations that are done on only a percentage of the acreage are noted throughout this section and in the tables; all other operations are done on 100% of the acreage.

Beginning in November any standing plant residue from previous crops (such as squash or eggplant) should be chopped to enhance decomposition. Chopped residues should be disced while there is still some soil moisture in order to avoid forming large, hard clods on heavier soils. Breakdown rate of crop residues depends upon temperature, moisture, soil aeration, ample nitrogen and particle size of residues. Stubble is disced across the previous crop rows to assure good aeration of the soil, adequate burial of organic matter, and control of pests and diseases.

Following chopping and discing, the soil is plowed. Discing and rolling for chili pepper production is performed twice to help break up large clods of soil after plowing. Chicken manure (three to four tons per acre) is custom applied a week or more prior to listing. The manure is broadcast, and then incorporated by discing and floating. The ground is smooth and firm prior to bed preparation. A preplant application chemical fertilizers (e.g. 1000 lbs. per acre of 11-52-0) may be substituted for the chicken manure. Another option is to inject 15 gallons per acre of 5-35-0 four inches below and one inch to the side of the seed rows.

Most growers form beds with a two row lister on 60 inch centers. Rows can be spaced from 40 to 72 inches apart depending on the equipment. The final bed preparation entails bed shaping, 2" to 6" deep burial of drip tubing and placement of a 1.25 ml black embossed plastic mulch over the top and sides of the bed. These operations are accomplished in one pass and are completed by February 1.

Periodic land preparation practices may include laser leveling and deep ripping. Laser leveling may be performed every two to four years by a contract leveling company to improve drainage and irrigation efficiency. Typical hourly costs are $70 per hour. Deep ripping the soil profile 2 to 3 feet breaks up any underlying sand layers for improved root and water penetration. Discing and rolling is performed twice to help break up large clods of soil, smooth, and firm the ground in advance of leveling. More commonly, ground is leveled in two passes with a triplane so high and low spots are removed to allow for efficient irrigation and better drainage.

Stand Establishment: Planting should begin after the last killing frost. The best time to plant Chili Pepper in the Coachella Valley is from the first of February to the end of March for the spring crop. Growers in the Coachella Valley transplant chili pepper by February 15. Soil temperature should be at least 60_F (16_C), preferably 70_F (21_C), for adequate root development.

Transplants are usually spaced 12" apart within and 18" between rows (double rows on 60" beds). With 60" beds six feet on-center, about 14,500 transplants per acre are used to establish a stand. These plants have four or more true leaves at transplanting time. Holes are either burned or punched through the plastic mulch. In this study, the transplanting operation is performed by hand.

Some common Guero cultivars used for commercial trade are: Caloro and Santa Fe Types.

Some common Jalepeño cultivars used for commercial trade are: Jalapeño M and Mitla.

Weed Management:. Many growers and consultants advise against planting chili pepper without using a preplant herbicide. Principal targeted weeds include nutsedge and bermudagrass. It is best to avoid fields infested with nutsedge for optimum yields. The selection of a specific herbicide depends on the kinds of weeds that predominate. Consult your pest control advisor for advice as legal recommended herbicides change from year to year.

In this study, the black plastic mulch acts as the primary weed control practice. Nevertheless, it is usually necessary for a crew to clip out weed seedlings that have sprouted next to the transplanted peppers. Clear plastic mulches are not as effective at controlling weed growth. Rolling cultivators are used for weed control in the furrows between beds.

If chili pepper beds are not mulched with plastic, both chemical and cultural practices may be used for weed control. Chemical control begins in January with a soil fumigant, Treflan_ , that is applied with a spray bar followed by a disc which both incorporates and seals the material into the soil. Devrinol, a pre-emergent herbicide, is also used by some growers for weed control. Mechanical cultivation is accomplished with rolling cultivators two to four times during the season in March, April, and May. Early cultivations should be shallow so as not to injure the young chili pepper roots.

Fertilization: Common fertility management in chili pepper production often begins with an initial application of chicken manure (three to four tons per acre) during soil preparation. The manure is broadcasted, then disced and floated for incorporation. A preplant application of chemical fertilizers (e.g. 1000 lbs. per acre of 11-52-0) may be substituted for the chicken manure. The fertilizer is broadcasted flat and listed into the beds. Another option is to inject 15 gallons of 5-35-0 four inches below and one inch to the side of the seed rows.

Nitrogen (N) sources such as neutral 8-8-8 (used in this study), AN 20, liquid UAN 32, or CAN 17 may be used to supply an additional 120 to 200 pounds of N per acre. The fertilizer is applied twice a week before harvest via fertigations through the drip tubing. The resultant large leafy canopy will support high yields and minimize sunburn. This brings the total annually applied N and Phosphorus to about 300 pounds per acre.

Application of about 10 to 15 pounds of N per acre per week is recommended. Contact your crop consultant for information about in-season leaf petiole and blade nutrient assessment.

Irrigation: Chili peppers are drip irrigated throughout the growing season. The plants should not be stressed for moisture if maximum yields are to be obtained. Reducing foliar growth will increase the incidence of sunburn of fruits, even those located deep in the canopy.

In this study, water is supplied by private wells at a pumping cost of about $60 per acre foot. Other growers may use the Coachella Valley Water District (CVWD), which may affect price and timing of irrigation. Price per acre foot of water from CVWD is $14 per acre foot plus a gate charge of $10 for each delivery. Commonly, about 30 inches of water are applied to the end of harvest. The cost of irrigation shown in **Tables 1**, **2**, and **3** are for the cost of the water and labor to apply it.

Pest Management: The following insects can affect chili peppers during stand establishment: cutworms (*Agrotis ssp*, *Peridroma saucia*, and *Euxoa auxiliaris*,) crickets and earwigs. During the growing season thrips, flea beetles, darkling ground beetles, aphids, grasshoppers, seed corn maggots, leafminers, cabbage loppers, potato psyllid and beet armyworm (*Spodoptera ssp)*, and stink bugs could be present in damaging numbers. If you have a specific insect problem, consult a licensed pest control advisor. Chemicals which may be legally used to control these insect pests are subject to change frequently. Current information is imperative before treating a field.

Disease Management: Depending on the region, a number of diseases may infect chili peppers during any phase of growth. Bell peppers in the Imperial Valley were infected by powdery mildew during the late spring of 1994. Powdery mildew was then detected in chili peppers in the Coachella Valley in 1995 and 1996.

Chili pepper may also be susceptible to some aphid-transmitted virus diseases as bell peppers: alfalfa mosaic virus (AMV), tobacco mosaic virus (TMV), pepper mottle virus (PeMV), tobacco etch virus (TEV), potato virus "Y" (PVY), and cucumber mosaic virus (CMV). There is no control of most virus diseases. TMV can be transmitted to chili peppers via the consumption of TMV contaminated tobacco products by employees. For this reason, transplant crews and greenhouse workers should refrain from smoking when handling pepper plants.

The pesticides and rates mentioned in this cost study are a few of those that are listed in *Pest of the Garden and Small Farm: A Growers Guide to Using Less Pesticide* and *UC Pest Management Guidelines*. In this study, no disease treatment was included. Written recommendations, made by State of California licensed pest control advisors, are required for pesticides. For information and pesticide use permits, contact the local county Agricultural Commissioner's office. Contact the Riverside County farm advisor for additional production information.

3. HARVESTING AND POSTHARVEST HANDLING.

Chili pepper is hand harvested into baskets, then transported to the packing shed. The crop is ready for harvest when the fruits reach a size of 2 to 3 inches in length. The first fruits may be ready to harvest 65 to 80 days after transplanting. The crop will continue to bear for two to three months. Chili peppers are harvested two or four times during the season.

Chili pepper may be spray washed or simply placed in a large water tank for cleaning. Wash water may be chlorinated to a chlorine concentration of 75 to 100 PPM. Excess water should be removed after packing. Peppers are loose packed in 10 pound boxes.

Chili pepper should be stored at 45º to 55ºF (7º to 13ºC) and at a relative humidity of 90 to 95%. Chili pepper should be marketed soon after harvesting to avoid deterioration and moisture loss. When held at the proper temperature and humidity, storage shelf life is two to three weeks.

Never use top ice on chili pepper boxes or baskets. The ice will cause water spots on the fruit after 3 to 5 days. Chili pepper is subject to chilling injury at temperatures below 45_ F (7_C). Damage will be expressed as surface pitting, discoloration of the fruits, and excessive decay.

In general, chili pepper has the same storage requirements as green beans, cucumber, eggplant, peppers, and squash. These products may be stored together without deleterious effect. Improper storage will cause rapid deterioration of chili pepper pods. Costs for harvest operations are shown in **Tables 1** and **3**.

4. YIELDS & RETURNS

Yields: In any given year yields vary considerably. Average crop yields in Coachella Valley from 1989 to 1995 are shown to range from 300 to 3,000 boxes per acres (Table A). In this study, a yield of 1200 boxes per acre is used. Each box weighs 10 pounds.

Returns: Prices per 10 pound box vary during the season. Early season prices (_April 1), can begin at over $20.00 per box and then often declining to less than $3.00 per box late in the season (_July 15). Growers market their crop through the local or Los Angeles brokers where they pay a percentage fee based on the FOB price per box. Brokers fees are usually 10% of the wholesale prices in the local market and 20% of the wholesale prices in the Los Angeles Market. In this study marketing of Chili Pepper is through the Los Angeles wholesale market. We used a seasonal price of $6.50/box as the basis for our analysis. However, to cover a broader scenario of productivity and prices, we analyzed returns at various yields and prices **(Table 6)**.

Table A. Average Yield for Fresh Market Chili Pepper, Coachella Valley, 1986 - 1995 [1]

Year	Acres Planted	Boxes Per Acre[2]
1986	81	286
1987	43	643
1988	25	531
1989	31	985
1990	38	547
1993	38	3,015
1994	155	2,137
1995	161	1,699

1/ From Riverside County Crop Reports, 1986 - 1995

2/ Box = 10 pounds

5. RISK

The risks associated with fresh market chili pepper production should be noted. 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 fresh market chili pepper production. Risk is caused by various sources of uncertainty which include production, price, and financing. Examples of these risks are insect damage, a decrease in price, and increase in interest rates. Because of the risk involved, access to information on production practices, prices, and markets is crucial.

6. LABOR

Basic hourly wages for workers are $5.00 per hour for machine operators and non-machine workers. Growers also pay 20 to 34 percent for Workers Compensation, Social Security, Medicare insurance and other possible benefits. In this study we used 34% which brings the labor rate to $6.70 per hour. The labor for operations involving machinery are 20% higher than the operation time to account for the extra labor involved in equipment set up, moving, maintenance and repair. Irrigation labor is calculated using 22 weeks of growing period (growing period ranges from 15 to 30 weeks); twice a week irrigation frequency and 15 minutes per irrigation needed to check the system.

7. MANAGEMENT

This study assumes that the farm is operated and managed by the same person. Users of this cost study should include their own management charges.

8. 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, and equipment repairs.

Property Taxes: 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. For this study, county taxes are calculated as 1% of the average value of the property. 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 11.61% per year. A nominal interest rate is the going market cost of borrowed funds during the production year.

Insurance: Insurance for farm investments vary depending on the assets included 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 $25 per cropped acre.

Office Expenses: Office and business expenses are estimated at $30.00 per acre. These expenses include office supplies, telephone, bookkeeping, accounting, legal fees, road maintenance, etc. Cash overhead costs are found in **Tables 1**, **2**, **3,** and **4**.

9. NON-CASH OVERHEAD

Non-cash overhead is comprised of depreciation and interest charged on equipment and other investments. Farm equipment on a typical farm in the Coachella Valley is often purchased used. This study shows the current purchase price for new equipment adjusted to 60% of new value to indicate a mix of new and used equipment. Annual equipment and investment costs are shown in **Tables 1** and **4**. They represent the per acre depreciation and interest costs for each investment on an annual 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 of ownership of the investment. The purchase price and years of life are shown in **Table 4**.

Interest On Investment: 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 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 interest rate used to calculate opportunity cost is estimated as a ten year average of the agricultural sector long-run rate of return to production assets from current income. It is used to reflect the long-term realized rate of return to these specialized resources that can only be used effectively in the agricultural sector.

10. 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, hourly charges are calculated first and shown in **Table 5**. 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 1** is determined by multiplying the total hourly operating cost in **Table 5** for each piece of equipment 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 is $0.86 (off-road, no tax) and gasoline is $1.23 per gallon.

ADDENDUM:

1. Due to rounding, totals may be slightly different from the sum of components.

2. The per acre equipment costs in Table 1 reflect both the value and the level of use (hours and years of use) of the machinery complement. Therefore this cost could be different from the per acre value of the machinery complement in Table 4.

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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. Statewide IPM Project. 1990. *Pests of the Garden and Small Farm: A Grower's Guide to Using Less Pesticide*. Pub. 3332. UC DANR. Oakland, CA.

4. Sims, W.L. and P.G. Smith. 1971 Reprinted 1984. *Growing Peppers in California*. Leaflet 2676, 12 pp. UC DANR. Oakland, CA.

5. Hall, H., S. Wada, and R. Voss. 1975. *Vegetable Gardening: Growing Peppers*. Leaflet 2773, 4 pp. UC DANR. Oakland, CA.

6. Myers, C. 1991. *Specialty and Minor Crops Handbook.* 1991. Pub. 3346. The Small Farm Center, UC DANR. Oakland, CA

7. Lorenz, O.A. and D. N. Maynard. 1988. *Knott's Handbook for Vegetable Growers.* New York, NY. Wiley.

8. USDA-ERS. 1991. *Economic Indicators of the Farm Sector: National Financial Summary* Agriculture and Rural Economics Division. ERS. USDA, Washington, DC.

U.C. COOPERATIVE EXTENSION

Table 1. COSTS PER ACRE TO PRODUCE CHILI PEPPER

Coachella Valley - 1995/96

Labor Rate: $ 6.70/hr. machine labor Interest Rate: 11.61%

$ 6.70/hr. non-machine labor Yield per Acre: 1200.00 Box

Operation	Operation Time (Hrs/A)	Cash and Labor Costs per Acre: Labor Cost	Fuel,Lube & Repairs	Material Cost	Custom/ Rent	Total Cost	Your Cost
Preplant:							
Chop Prior Crop Residue	0.33	3	2	0	0	4	
Disc	0.44	4	4	0	0	7	
Plow	0.80	6	5	0	0	12	
Disc 2X	1.40	11	12	0	0	23	
Leveling - Land plane	0.90	7	6	0	0	14	
Custom Manure Application	0.00	0	0	0	75	75	
List	0.50	4	4	0	0	8	
Pre-irrigation	1.38	20	0	35	0	55	
Roll cultivate beds	0.30	2	2	0	0	5	
Shape Beds - mulch & t-tape	1.20	26	10	290	0	326	
Plumb layflat & irrigate	1.38	20	0	35	0	55	
Punch holes in mulch	1.00	8	4	0	0	12	
TOTAL PREPLANT COSTS	9.62	112	48	360	75	596	
Cultural:							
Transplant peppers	13.20	88	0	436	0	524	
Fertigation - Drip	5.52	37	0	82	0	119	
Clip weed seedlings	4.40	29	0	0	0	29	
Cultivate Beds	0.50	4	3	0	0	7	
Irrigation - Drip	5.52	37	0	40	0	77	
TOTAL CULTURAL COSTS	29.14	196	3	558	0	757	
Harvest:							
Hand Pick & Pack Peppers	0.50	4	3	3720	0	3727	
Ship to LA Market	0.20	2	1	0	600	602	
LA Broker Commission	0.00	0	0	0	1560	1560	
TOTAL HARVEST COSTS	0.70	6	3	3720	2160	5889	
Interest on operating capital @ 11.61%						85	
TOTAL OPERATING COSTS/ACRE		313	55	4638	2235	7326	
TOTAL OPERATING COSTS/BOX						6.11	

Table 1. Continued

	Operation Time (Hrs/A)	Cash and Labor Costs per Acre: Labor Cost	Fuel, Lube & Repairs	Material Cost	Custom/ Rent	Total Cost	Your Cost
CASH OVERHEAD:							
Land Rent						133	
Office Expense						30	
Liability Insurance						25	
Sanitation						0	
Property Taxes						11	
Property Insurance						8	
Investment Repairs						54	
TOTAL CASH OVERHEAD COSTS						261	
TOTAL CASH COSTS/ACRE						7588	
TOTAL CASH COSTS/BOX						6.32	
NON-CASH OVERHEAD:							

Investment	Per producing Acre	Annual Cost: Depreciation	Interest @ 3.72%		
Shop Building	133	6	3	9	
Shop Tools	44	2	1	3	
Fuel Tanks & Pumps	18	1	0	1	
Irrigation System	1000	60	20	80	
Equipment	811	64	17	80	
TOTAL NON-CASH OVERHEAD COSTS	2006	133	41	174	
TOTAL COSTS/ACRE				7761	
TOTAL COSTS/BOX				6.47	

U.C. COOPERATIVE EXTENSION

Table 2. COSTS AND RETURNS PER ACRE TO PRODUCE CHILI PEPPER

Coachella Valley - 1995/96

Labor Rate: $ 6.70/hr. machine labor Interest Rate: 11.61%
$ 6.70/hr. non-machine labor

	Quantity/Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
GROSS RETURNS					
Jalapeno	1200.00	Box	6.50	7800	
TOTAL GROSS RETURNS FOR PEPPER				7800	
OPERATING COSTS					
Custom:					
Chicken Manure	1.00	Acre	75.00	75	
Water:					
Water - Pumped	30.00	AcIn	5.00	150	
T-tape 4 ml 12"	7260.00	Each	0.010	73	
Plastic 1.25 60"BE	7260.00	Each	0.03	218	
Transplant:					
Pepper transplant	14520.00	Each	0.03	436	
Fertilizer:					
8-8-8	40.00	Gal	1.05	42	
Harvest:					
Pick & Pack	1200.00	Box	2.60	3120	
Container:					
Packing Carton	1200.00	Box	0.50	600	
Contract:					
Ship to LA Market	1200.00	Box	0.50	600	
LA Broker Commission	1200.00	Box	1.30	1560	
Labor (machine)	12.98	hrs	6.70	87	
Labor (non-machine)	33.80	hrs	6.70	226	
Fuel - Gas	1.00	gal	1.15	1	
Fuel - Diesel	24.99	gal	1.00	25	
Lube				4	
Machinery repair				25	
Interest on operating capital @ 11.61%				85	
TOTAL OPERATING COSTS/ACRE				7326	
TOTAL OPERATING COSTS/BOX				6.11	
NET RETURNS ABOVE OPERATING COSTS				474	

Table 2. Continued

	Quantity/Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
CASH OVERHEAD COSTS:					
Land Rent				133	
Office Expense				30	
Liability Insurance				25	
Sanitation				0	
Property Taxes				11	
Property Insurance				8	
Investment Repairs				54	
TOTAL CASH OVERHEAD COSTS/ACRE				261	
TOTAL CASH COSTS/ACRE				7588	
TOTAL CASH COSTS/BOX				6.32	
NON-CASH OVERHEAD COSTS (DEPRECIATION & INTEREST):					
Shop Building				9	
Shop Tools				3	
Fuel Tanks & Pumps				1	
Irrigation System				80	
Equipment				80	
TOTAL NON-CASH OVERHEAD COSTS/ACRE				174	
TOTAL COSTS/ACRE				7761	
TOTAL COSTS/BOX				6.47	
NET RETURNS ABOVE TOTAL COSTS				39	

U.C. COOPERATIVE EXTENSION
MONTHLY CASH COSTS PER ACRE TO PRODUCE CHILI PEPPER
Coachella Valley - 1995/96

Beginning NOV 94 Ending OCT 95	NOV 94	DEC 94	JAN 95	FEB 95	MAR 95	APR 95	MAY 95	JUN 95	JUL 95	AUG 95	SEP 95	OCT 95	TOTAL
Preplant:													
Chop Prior Crop Residue	4												4
Disc	7												7
Plow	12												12
Disc 2X	23												23
Leveling - Land plane	14												14
Custom Manure Application	75												75
List		8											8
Pre-irrigation		55											55
Roll cultivate beds		5											5
Shape Beds - mulch & t-tape			326										326
Plumb layflat & irrigate			55										55
Punch holes in mulch				12									12
TOTAL PREPLANT COSTS	135	67	381	12									596
Cultural:													
Transplant peppers				524									524
Fertigation - Drip					59	59							119
Clip weed seedlings					29								29
Cultivate Beds					7								7
Irrigation - Drip							38	38					77
TOTAL CULTURAL COSTS				524	96	59	38	38					757
Harvest:													
Hand Pick & Pack Peppers							1863	1863					3727
Ship to LA Market							301	301					602
LA Broker Commission							780	780					1560
TOTAL HARVEST COSTS							2944	2944					5889
Interest on oper. capital	1	2	6	11	12	12	41						85
TOTAL OPERATING COSTS/ACRE	136	69	387	547	108	72	3024	2983					7326
TOTAL OPERATING COSTS/BOX	0.11	0.06	0.32	0.46	0.09	0.06	2.52	2.49					6.11
OVERHEAD:													
Land Rent	17	17	17	17	17	17	17	17					133
Office Expense	4	4	4	4	4	4	4	4					30
Liability Insurance	3	3	3	3	3	3	3	3					25
Sanitation	0	0	0	0	0	0	0	0					0
Property Taxes			6						6				11
Property Insurance			4						4				8
Investment Repairs	4	4	4	4	4	4	4	4	4	4	4	4	54
TOTAL CASH OVERHEAD COSTS	28	28	37	28	28	28	28	28	14	4	4	4	261
TOTAL CASH COSTS/ACRE	164	97	424	575	136	100	3052	3011	14	4	4	4	7588
TOTAL CASH COSTS/BOX	0.14	0.08	0.35	0.48	0.11	0.08	2.54	2.51	0.01	0.00	0.00	0.00	6.32

U.C. COOPERATIVE EXTENSION

Table 4. WHOLE FARM ANNUAL EQUIPMENT, INVESTMENT, AND BUSINESS OVERHEAD COSTS TO PRODUCE CHILI PEPPER

Coachella Valley - 1995/96

ANNUAL EQUIPMENT COSTS

Yr	Description	Price	Yrs Life	- Non-Cash Over. - Depre-ciation	Interest	- Cash Overhead - Insur-ance	Taxes	Total
95	45 HP 2WD Tractor	20200	12	1515	413	79	111	2119
95	65 HP 2WD Tractor	23300	12	1747	477	91	128	2444
95	70 HP 4WD Tractor	34600	12	2595	708	136	190	3629
95	Bed Shaper w/mulch	5100	15	306	104	20	28	458
95	Cult - 2 Row 40"	4250	15	255	87	17	23	382
95	Cult - Rolling 16'	6960	15	418	142	27	38	626
95	Disc - 8' Offset	6100	15	366	125	24	34	548
95	Forklift	19000	10	1710	389	75	105	2278
95	Lister - 3 Row 40"	1600	15	96	33	6	9	144
95	Mower - Rotary 8'	2600	10	234	53	10	14	312
95	Pickup - 1/2 Ton	16483	7	2119	337	65	91	2612
95	Plow - 3 bot	5600	15	336	115	22	31	503
95	Triplane - 12	13600	15	816	278	53	75	1222
TOTAL		159393		12513	3261	625	877	17276
60% of New Cost *		95636		7508	1957	375	526	10366

* Used to reflect a mix of new and used equipment.

ANNUAL INVESTMENT COSTS

Description	Price	Yrs Life	- Non-Cash Over. - Depre-ciation	Interest	------ Cash Overhead ------ Insur-ance	Taxes	Repairs	Total
INVESTMENT								
Fuel Tanks & Pumps	2000	15	120	41	8	11	40	220
Irrigation System	113000	15	6780	2312	443	622	5650	15807
Shop Building	15000	20	675	307	59	83	300	1423
Shop Tools	5000	20	225	102	20	28	100	474
TOTAL INVESTMENT	135000		7800	2762	529	743	6090	17924

U.C. COOPERATIVE EXTENSION

Table 4. Continued

ANNUAL BUSINESS OVERHEAD COSTS

Description	Units/ Farm	Unit	Price/ Unit	Total Cost
Land Rent	113.00	Acre	133.00	15029
Liability Insurance	113.00	Acre	25.00	2825
Office Expense	113.00	Acre	30.00	3390
Sanitation	1.00	Mon	40.00	40

U.C. COOPERATIVE EXTENSION

Table 5. HOURLY EQUIPMENT COSTS TO PRODUCE CHILI PEPPER

Coachella Valley - 1995/96

			COSTS PER HOUR							
		Actual	-Non-Cash Over.-		- Cash Overhead -			-------- Operating --------		
Yr	Description	Hours Used	Depre-ciation	Interest	Insur-ance	Taxes	Repairs	Fuel & Lube	Total Oper.	Total Costs/Hr.
95	45 HP 2WD Tractor	165.3	5.50	1.50	0.29	0.40	1.21	2.54	3.75	11.44
95	65 HP 2WD Tractor	311.0	3.37	0.92	0.18	0.25	1.16	3.50	4.66	9.38
95	70 HP 4WD Tractor	440.9	3.53	0.96	0.18	0.26	2.08	3.95	6.03	10.96
95	Bed Shaper w/mulch	136.0	1.35	0.46	0.09	0.12	1.46	0.00	1.46	3.49
95	Cult - 2 Row 40"	57.0	2.68	0.92	0.18	0.25	1.22	0.00	1.22	5.24
95	Cult - Rolling 16'	34.0	7.37	2.51	0.48	0.68	2.00	0.00	2.00	13.04
95	Disc - 8' Offset	207.8	1.06	0.36	0.07	0.10	1.75	0.00	1.75	3.34
95	Forklift	23.0	44.61	10.14	1.94	2.73	2.76	0.00	2.76	62.18
95	Lister - 3 Row 40"	57.0	1.01	0.34	0.07	0.09	0.46	0.00	0.46	1.98
95	Mower - Rotary 8'	37.6	3.73	0.85	0.16	0.23	0.94	0.00	0.94	5.91
95	Pickup - 1/2 Ton	57.0	22.31	3.55	0.68	0.95	2.92	2.64	5.56	33.05
95	Plow - 3 bot	90.0	2.24	0.76	0.15	0.21	1.61	0.00	1.61	4.96
95	Triplane - 12	102.0	4.80	1.64	0.31	0.44	1.97	0.00	1.97	9.16

Table 6.

U.C. COOPERATIVE EXTENSION
RANGING ANALYSIS TO PRODUCE CHILI PEPPER
Coachella Valley - 1995/96

COSTS PER ACRE AT VARYING YIELDS TO PRODUCE PEPPER

	YIELD (BOX/ACRE)						
	900	1000	1100	1200	1300	1400	1500
OPERATING COSTS/ACRE:							
Preplant Cost	596	596	596	596	596	596	596
Cultural Cost	757	757	757	757	757	757	757
Harvest Cost	4417	4907	5398	5889	6380	6870	7361
Interest on operating capital	78	80	83	85	87	90	92
TOTAL OPERATING COSTS/ACRE	5847	6340	6833	7326	7820	8313	8806
TOTAL OPERATING COSTS/BOX	6.50	6.34	6.21	6.11	6.02	5.94	5.87
CASH OVERHEAD COSTS/ACRE	261	261	261	261	261	261	261
TOTAL CASH COSTS/ACRE	6108	6601	7094	7588	8081	8574	9067
TOTAL CASH COSTS/BOX	6.79	6.60	6.45	6.32	6.22	6.12	6.04
NON-CASH OVERHEAD COSTS/ACRE	169	170	172	174	175	177	179
TOTAL COSTS/ACRE	6276	6771	7266	7761	8256	8751	9246
TOTAL COSTS/BOX	6.97	6.77	6.61	6.47	6.35	6.25	6.16

NET RETURNS PER ACRE ABOVE OPERATING COSTS FOR CHILI PEPPER

PRICE	YIELD (BOX/ACRE)						
(DOLLARS PER BOX)	900	1000	1100	1200	1300	1400	1500
5.00	-1347	-1340	-1333	-1326	-1320	-1313	-1306
5.50	-897	-840	-783	-726	-670	-613	-556
6.00	-447	-340	-233	-126	-20	87	194
6.50	3	160	317	474	630	787	944
7.00	453	660	867	1074	1280	1487	1694
7.50	903	1160	1417	1674	1930	2187	2444
8.00	1353	1660	1967	2274	2580	2887	3194

Table 6. Continued

NET RETURNS PER ACRE ABOVE CASH COSTS FOR CHILI PEPPER

PRICE (DOLLARS PER BOX)	YIELD (BOX/ACRE) 900	1000	1100	1200	1300	1400	1500
5.00	-1608	-1601	-1594	-1588	-1581	-1574	-1567
5.50	-1158	-1101	-1044	-988	-931	-874	-817
6.00	-708	-601	-494	-388	-281	-174	-67
6.50	-258	-101	56	212	369	526	683
7.00	192	399	606	812	1019	1226	1433
7.50	642	899	1156	1412	1669	1926	2183
8.00	1092	1399	1706	2012	2319	2626	2933

NET RETURNS PER ACRE ABOVE TOTAL COSTS FOR CHILI PEPPER

PRICE (DOLLARS PER BOX)	YIELD (BOX/ACRE) 900	1000	1100	1200	1300	1400	1500
5.00	-1776	-1771	-1766	-1761	-1756	-1751	-1746
5.50	-1326	-1271	-1216	-1161	-1106	-1051	-996
6.00	-876	-771	-666	-561	-456	-351	-246
6.50	-426	-271	-116	39	194	349	504
7.00	24	229	434	639	844	1049	1254
7.50	474	729	984	1239	1494	1749	2004
8.00	924	1229	1534	1839	2144	2449	2754