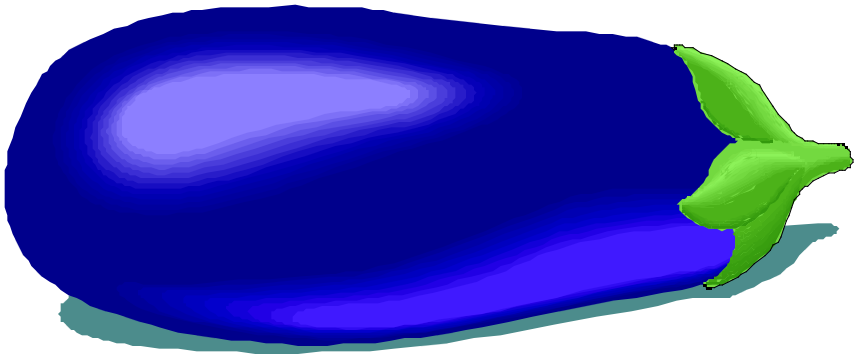
1997

UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION

PRODUCTION PRACTICES AND SAMPLE COSTS TO PRODUCE



~ Eggplant~

Coachella Valley
Riverside County

By

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Sample Costs To Produce Eggplant
Riverside County, 1997

INTRODUCTION

Detailed costs to produce eggplant in Coachella Valley, Riverside County, California are presented in this study. The hypothetical farm used in this report consists of 60 acres of which 9 acres are in eggplant production.

We base this study on assumption of production practices and costs that are considered typical for eggplant production in the Coachella Valley of Riverside County. These production practices and costs 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 1997 prices. 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 Eggplant**
Table 2. **Costs And Returns Per Acre To Produce Eggplant**
Table 3. **Monthly Cash Costs Per Acre To Produce Eggplant**
Table 4. **Whole Farm Equipment List, Prices, And Annual Investment, And Business Overhead Costs**
Table 5. **Hourly Equipment Costs Based On Whole Farm Operation**
Table 6. **Ranging Analysis To Produce Eggplant**

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

For an explanation of calculations used in the study refer to the attached General Assumptions, call Etaferahu Takele, Area Farm Management Economics Advisor, Cooperative Extension, (909) 683-6491 ext. 243 or call Jose Aguiar, Vegetable Crops Farm Advisor in the Coachella Valley of Riverside County, (760) 863-7949.

ASSUMPTIONS

The following is a description of the assumptions used in this study to develop costs for production of winter planted eggplant in the Coachella Valley of Riverside County in 1997/1998. There are three major types of eggplant grown in Riverside County, American, Italian, and Japanese. Of these, the American variety constitutes the majority of production.

1. LAND RENT

This report is based on a 60 acre farm, of which 100% is double cropped. This practice results in 120 farmed acres per year with 9 acres of eggplant production.

Rental contracts and charges for land suitable for eggplant production can range widely. Land in this study is leased on a cash rent basis at $225 per acre per year for the entire 60 acres. As all of the 60 acres is double cropped, the amount of the annual rent per planted acre allocated to the eggplant operation is $112.50.

2. CULTURAL PRACTICES AND PRODUCTION INPUTS

Land Preparation: Primary tillage and planting groundwork operations which include plowing, discing, leveling, and the listing and cultivation of beds are performed from October through December. Most operations requiring equipment are performed with a 80 or 90 hp 2-wheel drive tractor.

Beginning in October the acreage intended for eggplant production is disced. This operation is followed by plowing the soil profile 2 to 3 feet, breaking up any underlying soil compaction for improved root and water penetration. Then leveling is done using a landplane to improve irrigation efficiency of the soil.

Following leveling of the field, chicken manure is spread on the soil. Chicken manure is custom applied a week or more prior to the eggplant bed formation. The manure is broadcast, and then incorporated by discing the soil twice to break up any remaining clods and to smooth and firm the soil. After discing, the soil is ready for bed preparation and it is then listed into eggplant beds.

Stand Establishment: Prior to planting eggplant, drip tape for the irrigation system is installed and black plastic mulch is applied to the beds. Next, the soil is fumigated with methyl bromide via the "hot gas method," applied through the drip irrigation system. Prior to planting the plastic mulch is punctured in preparation for transplanting of the eggplant.

Planting for the eggplant crop in the Coachella Valley is done in February. Growers in the Coachella Valley transplant eggplant plants to field beds after the eggplant seedlings have already been established in local nurseries.

Transplants are usually spaced 24" apart within rows and 80" between rows for American eggplant, and 16'' apart within rows and 80" between rows for Italian and Japanese eggplants. The large spacing between rows is used to aid in the picking and packing of the crop. In general, approximately 2,000 eggplants are planted per acre in the Coachella Valley.

Weed Management: Weeds common in this area include the various summer grasses and broad weeds common to the Coachella Valley, such as Bermuda grass, nut grass, and purple and yellow nut sedge. Weeding for eggplant is done by hand using custom labor crew.

Fertilization: In this study, chicken manure, as previously indicated, is applied prior to bed formation during land preparation. The manure is broadcast, then disced and floated for incorporation. The soil is then listed into the eggplant beds.

During the course of the cultural period, fertilizer is applied regularly via the irrigation system. Calcium Nitrate is applied at a rate between 20 to 30 units of nitrogen (N) per acre per year. Initial applications are light, and increase gradually as the plant enters into the harvest period.

A custom blend fertilizer, common to the Coachella Valley, is also used as part of the fertilization practices for eggplant. A small amount of 10-0-5 with 3% sulfur, is applied at the beginning of the cultural period.

Then, as with the Calcium Nitrate, its application rate increases through the harvesting period to maximize the amounts of nutrients supplied to the plant. Additionally, a phosphate fertilizer is applied throughout the cultural and harvesting periods at a constant rate.

Irrigation: In the Coachella Valley, approximately 72 acre inches of water is used in the production of eggplant. One acre foot of water is applied to the eggplant field as part of the stand establishment using sprinklers. In this study, the sprinkler irrigation equipment and pumps to pre-irrigate the field are rented. The remaining five acre feet of water is applied to the eggplant crop via a drip irrigation system using drip tape that was installed during bed shaping.

Water is supplied by the Coachella Valley Water District (CVWD) at about $14 per acre foot. Therefore, the total cost of irrigation water for eggplant throughout the production period is $84 per acre.

The CVWD charges its agricultural customers a $10 *gate charge* for each delivery of water. In our study, a single crop of eggplant with six months of an actual growing period, receives 162 deliveries, i.e. six deliveries before planting and 156 during the growing period. Based on the 9 acres of eggplant farmed, this results in a $180 per acre charge for delivery.

The energy costs for irrigating eggplant vary by type of irrigation. For the first acre-foot of water, the crop is irrigated via the sprinkler system. The cost is approximately $45 per acre. The remaining five acre-feet of water is irrigated by drip irrigation at a cost of about $20 per acre foot. This results in energy costs of approximately $145 per acre. Therefore the total cost of water, deliveries and energy approximates to $409 per acre. The cost of irrigation shown in **Tables 1**, **2**, and **3** are for the cost of the water (including delivery and energy) and labor to apply it.

Pest Management: Major pests of eggplant include spider mites, aphids, lygus, flea beetles, rootknot nematodes and wireworms. In this study, aphids and beetles are treated using Lannate and Ambush twice during the cultural period. Mites are treated with an application of Vendex mid-way through the growing period. Additionally, some pests, such as worms and loopers, are treated at the larval stage with an application of a biological insecticide, *Bacillus thuringiensis* (Bt), such as Dipel 2x® or Agree™ as they become detected during the season.

If you have a specific pest problem, consult a licensed pest control advisor (PCA). Chemicals which may be legally used to control these 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 eggplant during any phase of growth. In the Coachella Valley, common diseases affecting eggplant are Fruit Rot, and wilts caused by various fungi. Additionally, Tobacco Ring Spot Virus can also be a problem in the Coachella Valley. Treatments can vary for each disease. Consult your PCA before commencing a treatment regime.

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 *University of California 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. Pest management information can also be found on the University of California Integrated Pest Management web site: http://www.ipm.ucdavis.edu.

3. HARVESTING AND POSTHARVEST HANDLING.

Eggplant is ready for harvesting approximately 3 months after transplanting to the field. Harvesting of fall planted eggplant begins in May and will continue through to the first week of July, beyond which the temperatures of the Coachella Valley will become too hot for eggplant harvesting.

Eggplant is mature, and ready for harvest when the fruit has achieved a shiny, glossy appearance and its stem has hardened. Harvesting is done by hand, using a sharp knife to remove the fruit from the plant by cutting its stem.

Eggplant is packed in 10 and 20 pound boxes. The American variety is packed in 20 pound boxes with either 18 or 24 eggplant per box, depending on size of fruit. The Japanese and Italian varieties are packed in both 10 and 20 pound boxes, again depending on size of fruit. In our study we used a standardized packing of 20 lb. box for all varieties. After packing, the eggplant is transported to a local storage facility where it is chilled quickly and palletized before being shipped directly to market.

Eggplant is subject to chilling injury at temperatures below 50° F (10°C). It will also deteriorate quickly when exposed to, or placed in, warm temperature.

In general, eggplant has the same storage requirements as green beans, cucumber, chilies, and squash. These products may be stored together without deleterious effect. Costs for harvest operations are shown in **Tables 1** and **3**.

After the eggplant is harvested, the field is cleaned up by removing the drip tapes and plastic mulch from the soil.

4. YIELDS & RETURNS

Yields: In any given year yields vary considerably. Average crop yields in Coachella Valley from 1990 to 1996 are shown to range from 565 to 1314 boxes per acre (**Table A.**). In this study, we used a yield of 1300 boxes per acre, the most common yield level obtained from participant growers as the basis of our analysis.

Returns: The market for eggplant is very volatile and prices per 20 pound box can vary greatly during the season. 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 eggplant is through a local broker. We used a price of $7.75/box as the basis for our analysis. This price approximates the average price for the (1990 - 1996) period in Riverside County. However, to cover a broader scenario of productivity and prices, we analyzed returns at various yield and prices **(Table 6)**.

Table A. Acres Planted, Average Yield, and Average Prices for Eggplant, Riverside County, 1990 - 1996[1]

Year	Acres Planted	Boxes Per Acre [2/]	Price/Box
1990	151	708	$7.34
1991	323	765	$9.39
1992	94	565	$6.76
1993	253	1107	$9.02
1994	115	1314	$6.99
1995	231	1260	$8.19
1996	519	1011	$6.82
Average	241	961	$7.79

[2/] Boxes weigh 20 lbs.

5. RISK

The risks associated with fresh market eggplant 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 eggplant 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

Hourly wage for workers is $5.25 per hour for both machine and non-machine workers. This is based on wages paid by growers that participated in this study. Growers also pay for benefits including, Workers Compensation, Social Security, Medicare, insurance, and other possible benefits. In this study, growers surveyed showed that benefits increased labor wages by 34%. This brings the labor rate to $7.04 per hour for both machine and non-machine workers. 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.

7. CASH OVERHEAD

Cash overhead consists of various cash expenses paid out during the year that are assigned to the whole farm. 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.

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 $469 for the whole farm per year.

Management Fee: This study assumes that the farm is operated and managed by the same person(s). No management fee was included in this study. Any returns above total costs are considered returns to management and risk.

Office Expenses: Office and business expenses are estimated at $30 per acre. These expenses include office supplies, telephone, bookkeeping, accounting, legal fees, road maintenance, etc.

8. NON-CASH OVERHEAD

Non-cash overhead is comprised of depreciation and interest charged on equipment and other investments. Typically, farm equipment in the Coachella Valley is mostly old. In this study, the current purchase price for new equipment is reduced by 40% to indicate a mix of new and used equipment. Annual equipment and investment costs are shown in **Tables 1, 2, 3,** and **5**. 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: The interest cost is a charge for the use of capital in eggplant production. It is calculated by multiplying the value of land and the average investment in equipment, buildings, trees, etc. (described in **Table 5**) by the real cost of capital in current dollars. The real cost of capital used in this study is the long run average of 4%. Average investment equals the new cost plus salvage value divided by 2.

9. 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 $1.10 (off-road, no tax) and gasoline is $1.25 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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Table 1.

U.C. COOPERATIVE EXTENSION
COSTS PER ACRE TO PRODUCE EGGPLANT
RIVERSIDE COUNTY - 1997

Labor Rate: $7.04/hr. machine labor
$7.04/hr. non-machine labor

Interest Rate: 11.61%
Yield per Acre: 1,300 Boxes

Operation	Operation Time (Hrs/A)	Cash and Labor Costs per Acre: Labor Cost	Fuel, Lube & Repairs	Material Cost	Custom/ Rent	Total Cost	Your Cos
Preplant:							
Disc	0	3	4	0	0	7	
Plow	1	9	11	0	0	20	
Landplane	0	2	3	0	0	5	
Pre-Irrigate	3	18	0	68	0	86	
Disc - 2X	1	6	8	0	0	14	
Chicken Manure	0	0	0	0	100	100	
List	0	2	2	0	0	3	
Drip Tape	1	5	5	0	122	132	
Plastic Mulch	1	9	10	0	250	269	
Cultivate	1	4	5	0	0	9	
Soil Fumigation	0	0	0	0	384	384	
Puncture Mulch	0	4	2	0	0	6	
TOTAL PREPLANT COSTS	8	61	50	68	856	1,036	
Cultural:							
Drip Irrigation	13	88	0	341	0	429	
Transplant Eggplant	0	0	0	1,478	0	1,478	
Calcium Nitrate Fertilizer	0	0	0	10	0	10	
Light Fertilizer	0	0	0	10	0	10	
Phosphate Fertilizer	0	0	0	2	0	2	
Insecticide Treatment	1	8	10	64	0	83	
Mite Treatment	1	4	5	30	0	39	
B.T. Treatment	1	4	5	10	0	20	
Weeds	0	0	0	0	50	50	
Pickup Truck	4	38	26	0	0	63	
TOTAL CULTURAL COSTS	19	142	47	1,945	50	2,184	
Harvest:							
Harvest	0	0	0	5,467	0	5,467	
TOTAL HARVEST COSTS	0	0	0	5,467	0	5,467	
Postharvest:							
Cleanup Costs	0	0	0	0	100	100	
TOTAL POSTHARVEST COSTS	0	0	0	0	100	100	
Interest on operating capital @ 11.61%						220	
TOTAL OPERATING COSTS/ACRE		204	97	7,480	1,006	9,006	
TOTAL OPERATING COSTS/BOX						6.93	
CASH OVERHEAD:							
Land Rent						113	
Office Expense						30	
Sprinkler Pump Rent						6	
Sprinkler Pipe						10	
Liability Insurance						4	
Property Taxes						9	
Property Insurance						6	
Investment Repairs						52	
TOTAL CASH OVERHEAD COSTS						228	
TOTAL CASH COSTS/ACRE						9,234	
TOTAL CASH COSTS/BOX						7.10	

NON-CASH OVERHEAD:	Per Producing	Annual Cost		
Investment:	Acre	Depreciation	Interest @ 4.00%	
Shop Building	21	1	0	2
Shop Tools	42	3	1	3
Fuel Tanks & Pumps	8	1	0	1
Drip Irrigation System	942	57	21	77
Equipment	548	47	12	59
TOTAL NON-CASH OVERHEAD	1,560	108	34	142
TOTAL COSTS/ACRE				9,377
TOTAL COSTS/BOX				7.21

Table 2.

U.C. COOPERATIVE EXTENSION
COSTS PER ACRE TO PRODUCE EGGPLANT
RIVERSIDE COUNTY - 1997

Labor Rate: $7.04/hr. non-machine labor
$7.04/hr. machine labor

Interest Rate: 11.61%

	Quantity/Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
GROSS RETURNS					
Eggplant	1,300.00	Box	7.75	10,075	
TOTAL GROSS RETURNS FOR EGGPLANT				10,075	
OPERATING COSTS					
Water:					
Water	72.00	AcIn	5.68	409	
Custom:					
Chicken Manure	1.00	Acre	100.00	100	
Drip Tape	1.00	Acre	105.00	105	
Plastic Mulch	1.00	Acre	250.00	250	
Methyl Bromide	1.00	Acre	384.00	384	
Hand Weed	1.00	Acre	50.00	50	
Cleanup Costs	1.00	Acre	100.00	100	
Rent:					
Drip Tape Injector	1.00	Acre	17.00	17	
Transplant:					
Transplant Plants	2,000.00	Each	0.65	1,300	
Plant Eggplants	2,000.00	Each	0.08	160	
Seed:					
Seed - American	0.90	Oz	18.00	16	
Seed - Japanese	0.05	Oz	19.00	1	
Seed - Italian	0.05	Oz	8.50	0	
Fertilizer:					
Ca NO3 Fertilizer	75.00	Lb	0.13	10	
10-0-5 Light Fertilizer	100.00	Lb	0.10	10	
Phosphate Fertilizer	11.00	Lb	0.20	2	
Insecticide:					
Lannate	2.00	Lb	20.06	40	
Ambush	25.60	Oz	0.95	24	
Vendex	1.00	Lb	29.60	30	
Dipel 2x	1.00	Lb	10.35	10	
Harvest:					
Harvest	1,300.00	Box	2.55	3,315	
Box	1,300.00	Box	0.88	1,144	
Broker Commission	1,300.00	Box	0.78	1,007	
Labor (machine)	13.92	hrs	7.04	98	
Labor (non-machine)	15.00	hrs	7.04	106	
Fuel - Gas	8.90	gal	1.25	11	
Fuel - Diesel	33.68	gal	1.10	37	
Lube				7	
Machinery repair				41	
Interest on operating capital @ 11.61%				220	
TOTAL OPERATING COSTS/ACRE				9,006	
TOTAL OPERATING COSTS/BOX				7	
NET RETURNS ABOVE OPERATING COSTS				1,069	
CASH OVERHEAD COSTS:					
Land Rent				113	
Office Expense				30	
Sprinkler Pump Rent				6	
Sprinkler Pipe				10	
Liability Insurance				4	
Property Taxes				9	
Property Insurance				6	
Investment Repairs				52	
TOTAL CASH OVERHEAD COSTS/ACRE				228	
TOTAL CASH COSTS/ACRE				9,234	
TOTAL CASH COSTS/BOX				7.10	

Table 2. Continued

NON-CASH OVERHEAD COSTS (DEPRECIATION & INTEREST):	
Shop Building	2
Shop Tools	3
Fuel Tanks & Pumps	1
Drip Irrigation System	77
Equipment	59
TOTAL NON-CASH OVERHEAD COSTS/ACRE	142
TOTAL COSTS/ACRE	9,377
TOTAL COSTS/BOX	7.21
NET RETURNS ABOVE TOTAL COSTS	698

Table 3.

U.C. COOPERATIVE EXTENSION
MONTHLY CASH COSTS TO PRODUCE EGGPLANT
RIVERSIDE COUNTY - 1997

Beginning: OCT 97 Ending: SEP 98	OCT 97	NOV 97	DEC 97	JAN 98	FEB 98	MAR 98	APR 98	MAY 98	JUN 98	JUL 98	AUG 98	SEP 98	TOTAL
Preplant:													
Disc	7												7
Plow	20												20
Landplane	5												5
Pre-Irrigate	86												86
Disc - 2X	14												14
Chicken Manure	100												100
List	3												3
Drip Tape				132									132
Plastic Mulch				269									269
Cultivate				9									9
Soil Fumigation				384									384
Puncture Mulch				6									6
TOTAL PREPLANT COSTS	236			800									1,036
Cultural:													
Drip Irrigation					86	86	86	86	86				429
Transplant Eggplant					1,478								1,478
Calcium Nitrate Fertilizer					5				5				10
Light Fertilizer					2			4	4				10
Phosphate Fertilizer					0	0	0	0	1				2
Insecticide Treatment					42			42					83
Mite Treatment						39							39
B.T. Treatment							20						20
Weeds							50						50
Pickup Truck	6	6	6	6	6	6	6	6	6	6			63
TOTAL CULTURAL COSTS	6	6	6	6	1,619	132	162	138	102	6			2,184
Harvest:													
Harvest								1,367	3,417	683			5,467
TOTAL HARVEST COSTS								1,367	3,417	683			5,467
Postharvest:													
Cleanup Costs										100			100
TOTAL POSTHARVEST COSTS										100			100
Interest on operating capital @ 11.61%	2	2	2	10	26	27	29	43	77				220
TOTAL OPERATING COSTS/ACRE	245	9	9	816	1,645	159	191	1,548	3,596	790			9,006
TOTAL OPERATING COSTS/BOX	0.19	0.01	0.01	0.63	1.27	0.12	0.15	1.19	2.77	0.61			6.93
CASH OVERHEAD:													
Land Rent			113										113
Office Expense			30										30
Sprinkler Pump Rent				6									6
Sprinkler Pipe				10									10
Liability Insurance			4										4
Property Taxes					4					4			9
Property Insurance					3					3			6
Investment Repairs	4	4	4	4	4	4	4	4	4	4	4	4	52
TOTAL CASH OVERHEAD COSTS	4	4	151	20	12	4	4	4	4	12	4	4	228
TOTAL CASH COSTS/ACRE	249	13	160	836	1,656	163	195	1,553	3,600	801	4	4	9,234
TOTAL CASH COSTS/BOX	0.19	0.01	0.12	0.64	1.27	0.13	0.15	1.19	2.77	0.62	0.00	0.00	7.10

U.C. COOPERATIVE EXTENSION

Table 4. ANNUAL EQUIPMENT, INVESTMENT AND BUSINESS OVERHEAD COSTS

RIVERSIDE COUNTY - 1997

ANNUAL EQUIPMENT COSTS

Yr		Price	Years Life	- Non-Cash Overhead - Depre-ciation	Interest	- Cash Overhead - Insur-ance	Taxes	Total
97	90 HP 2WD Tractor	35,000	12	2,625	770	137	192	3,725
97	Cultivator - 2 Row 40"	4,250	15	255	94	17	23	389
97	Disc - 18' Offset	14,520	15	871	319	57	80	1,327
97	Lister - 3 Row 40"	1,600	15	96	35	6	9	146
97	Pickup - 1/2 Ton	16,483	7	2,119	363	65	91	2,637
97	Plastic Mulch Layer	4,500	15	270	99	18	25	411
97	Plow - 3 bottom	5,600	15	336	123	22	31	512
97	Puncture Wheel	200	12	15	4	1	1	21
97	Sprayer - 200 gal	3,900	10	351	86	15	21	474
97	Triplane - 12	13,600	15	816	299	53	75	1,243
TOTAL		99,653		7,754	2,192	391	548	10,886
60% of New Cost *		59,792		4,653	1,315	234	329	6,531

ANNUAL INVESTMENT COSTS

Description	Price	Years Life	- Non-Cash Overhead - Depre-ciation	Interest	--------- Cash Overhead --------- Insur-ance	Taxes	Repairs	Total
INVESTMENT								
Drip Irrigation System	113,000	15	6,780	2,486	443	622	5,650	15,981
Fuel Tanks & Pumps	1,000	15	60	22	4	6	50	141
Shop Building	2,500	15	150	55	10	14	250	479
Shop Tools	5,000	15	300	110	20	28	250	707
TOTAL INVESTMENT	121,500		7,290	2,673	476	668	6,200	17,308

ANNUAL BUSINESS OVERHEAD COSTS

Description	Units/ Farm	Unit	Price/ Unit	
Land Rent	120.00	Acre	112.50	13,500
Liability Insurance	120.00	Acre	3.91	469
Office Expense	120.00	Acre	30.00	3,600
Sprinkler Pipe	9.00	Acre	130.00	1,170
Sprinkler Pump Rent	9.00	Acre	75.00	675

Table 5.

U.C. COOPERATIVE EXTENSION
HOURLY EQUIPMENT COSTS
RIVERSIDE COUNTY - 1997

			COSTS PER HOUR							
		Actual	- Non-Cash Overhead -		- Cash Overhead -			Operating		
Yr	Description	Hours Used	Depre-ciation	Interest	Insur-ance	Taxes	Repairs	Fuel & Lube	Total Oper.	Total Costs/Hr.
97	90 HP 2WD Tractor	914.6	1.72	0.51	0.09	0.13	2.10	5.59	7.69	10.13
97	Cultivator - 2 Row 40"	60.5	2.53	0.93	0.17	0.23	1.22	0.00	1.22	5.07
97	Disc - 18' Offset	157.0	3.33	1.22	0.22	0.31	4.17	0.00	4.17	9.24
97	Lister - 3 Row 40"	23.8	2.42	0.89	0.16	0.22	0.46	0.00	0.46	4.15
97	Pickup - 1/2 Ton	267.0	4.76	0.81	0.15	0.20	2.92	2.88	5.80	11.72
97	Plastic Mulch Layer	126.5	1.28	0.47	0.08	0.12	1.29	0.00	1.29	3.24
97	Plow - 3 bottom	131.9	1.53	0.56	0.10	0.14	1.61	0.00	1.61	3.94
97	Puncture Wheel	27.0	0.33	0.10	0.02	0.02	0.05	0.00	0.05	0.52
97	Sprayer - 200 gal	240.0	0.88	0.21	0.04	0.05	1.96	0.00	1.96	3.14
97	Triplane - 12'	34.6	14.16	5.19	0.93	1.30	1.97	0.00	1.97	23.55

Table 6.

U.C. COOPERATIVE EXTENSION
RANGING ANALYSIS
RIVERSIDE COUNTY - 1997

COSTS PER ACRE AT VARYING YIELDS TO PRODUCE EGGPLANT

	YIELD (BOX/ACRE)						
	1,000	1,100	1,200	1,300	1,400	1,500	1,600
OPERATING COSTS/ACRE:							
Preplant Cost	1,036	1,036	1,036	1,036	1,036	1,036	1,036
Cultural Cost	2,184	2,184	2,184	2,184	2,184	2,184	2,184
Harvest Cost	4,205	4,626	5,046	5,467	5,887	6,308	6,728
Postharvest Cost	100	100	100	100	100	100	100
Interest on operating capital	206	211	215	220	225	229	234
TOTAL OPERATING COSTS/ACRE	7,731	8,156	8,581	9,006	9,431	9,856	10,281
TOTAL OPERATING COSTS/BOX	7.73	7.41	7.15	6.93	6.74	6.57	6.43
CASH OVERHEAD COSTS/ACRE	228	228	228	228	228	228	228
TOTAL CASH COSTS/ACRE	7,959	8,384	8,809	9,234	9,659	10,085	10,510
TOTAL CASH COSTS/BOX	7.96	7.62	7.34	7.10	6.90	6.72	6.57
NON-CASH OVERHEAD	142	142	142	142	142	142	142
TOTAL COSTS/ACRE	8,101	8,527	8,952	9,377	9,802	10,227	10,652
TOTAL COSTS/BOX	8.10	7.75	7.46	7.21	7.00	6.82	6.66

NET RETURNS PER ACRE ABOVE OPERATING COSTS FOR EGGPLANT

PRICE	YIELD (BOX/ACRE)						
($ PER BOX)	1,000	1,100	1,200	1,300	1,400	1,500	1,600
6.25	-1,481	-1,281	-1,081	-881	-681	-481	-281
6.75	-981	-731	-481	-231	19	269	519
7.25	-481	-181	119	419	719	1,019	1,319
7.75	19	369	719	1,069	1,419	1,769	2,119
8.25	519	919	1,319	1,719	2,119	2,519	2,919
8.75	1,019	1,469	1,919	2,369	2,819	3,269	3,719
9.75	2,019	2,569	3,119	3,669	4,219	4,769	5,319

NET RETURNS PER ACRE ABOVE CASH COSTS FOR EGGPLANT

PRICE	YIELD (BOX/ACRE)						
($ PER BOX)	1,000	1,100	1,200	1,300	1,400	1,500	1,600
6.25	-1,709	-1,509	-1,309	-1,109	-909	-710	-510
6.75	-1,209	-959	-709	-459	-209	40	290
7.25	-709	-409	-109	191	491	790	1,090
7.75	-209	141	491	841	1,191	1,540	1,890
8.25	291	691	1,091	1,491	1,891	2,290	2,690
8.75	791	1,241	1,691	2,141	2,591	3,040	3,490
9.75	1,791	2,341	2,891	3,441	3,991	4,540	5,090

NET RETURNS PER ACRE ABOVE TOTAL COSTS FOR EGGPLANT

PRICE	YIELD (BOX/ACRE)						
($ PER BOX)	1,000	1,100	1,200	1,300	1,400	1,500	1,600
6.25	-1,851	-1,652	-1,452	-1,252	-1,052	-852	-652
6.75	-1,351	-1,102	-852	-602	-352	-102	148
7.25	-851	-552	-252	48	348	648	948
7.75	-351	-2	348	698	1,048	1,398	1,748
8.25	149	548	948	1,348	1,748	2,148	2,548
8.75	649	1,098	1,548	1,998	2,448	2,898	3,348
9.75	1,649	2,198	2,748	3,298	3,848	4,398	4,948