
1998

UNIVERSITY OF CALIFORNIA - COOPERATIVE EXTENSION

SAMPLE COSTS TO PRODUCE

LARGE LIMA

~ *Beans* _



SAN JOAQUIN VALLEY

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INTRODUCTION

The detailed costs to produce large lima beans in the San Joaquin Valley of California are presented in this study. The hypothetical farm used in this report consists of 1,200 acres of which 200 acres are in bush-type, large lima bean production.

The practices described in this cost study are considered typical for this large lima beans in the San Joaquin Valley. Sample costs given for labor, materials, equipment and contract services are based on 1998 prices. A blank *Your Cost* column is also provided to enter your actual costs on Table 2. Costs Per Acre To Produce Large Lima Beans and Table 3. Costs And Returns Per Acre To Produce Large Lima Beans. 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.

This study consists of General Assumptions for Producing Large Lima Beans and seven tables.

Table 1.	Costs Per Acre To Produce Large Lima Beans
Table 2.	Costs And Returns Per Acre To Produce Large Lima Beans
Table 3.	Monthly Cash Costs Per Acre To Produce Large Lima Beans
Table 4.	Annual Equipment, Investment And Business Overhead
Table 5.	Hourly Equipment Costs
Table 6.	Ranging Analysis
Table 7.	Cost And Returns/Breakeven Analysis

For an explanation of calculations used for the study refer to the attached General Assumptions, call the Department of Agricultural and Resource Economics, Cooperative Extension, University of California, Davis, California, (530) 752-3589 or call the farm advisor in your county.

A companion cost of production study for baby lima beans in the San Joaquin Valley is available and entitled, "1998 Sample Costs To Produce Baby Lima Beans In The San Joaquin Valley". For those interested in this and other studies, they can be requested through the Department of Agricultural Economics, U.C. Davis, (530) 752-3589 or (530) 752-1515, or from selected county Cooperative Extension offices. There is a nominal charge.

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LARGE LIMA BEANS
San Joaquin Valley - 1998**

ASSUMPTIONS

The following is a description of some general assumptions pertaining to sample costs to produce large lima beans in San Joaquin Valley. Practices described are not recommendations by the University of California, but rather represent production procedures considered typical of a well managed farm for the San Joaquin Valley. Costs and practices detailed in this study may not be applicable to all situations. Cultural practices for the production of lima bean vary by grower and region; variations can be significant. The practices and inputs used in this cost study serve only as a sample or guide. These costs are represented on an annual, per acre basis. *The use of trade names in this report does not constitute an endorsement or recommendation by the University of California nor is any criticism implied by omission of other similar products.*

Land and Share Rent. This report is based on a 1,200 acre field and row crop farm of which 200 acres are producing bush-type, large lima beans and 1,000 acres are planted to alfalfa hay, field corn, sugar beets, and wheat. Other rotational crops that might be planted include safflower, sunflowers, and processing tomatoes.

Land in this study is leased on a share-rent basis with the land owner receiving 22% of the gross returns from the large lima beans. The land rented includes developed wells and irrigation system. The grower owns a shop and an equipment yard to fix and store equipment.

Cultural Practices and Material Inputs

Land Preparation. Primary tillage which includes chiseling, disking, land leveling, and listing beds is performed from October through April. All operations are done on 100% of the acres unless otherwise noted.

All of the acreage is chiseled once to open the soil structure and breakup any hardpan. The ground is disced three times, once with a stubble disc and twice with a finishing disc, in preparation for leveling. Land leveling is accomplished in two passes with a triplane. Beds are listed on a contract basis.

Stand Establishment. Stand establishment consists of several practices. In April a pre-irrigation is made. When the field is dry enough to support equipment, rolling cultivators or harrows are used to break the crust, kill germinating weeds, incorporate herbicides followed by planting.

Planting large lima beans begins in early May and is completed by June. Seeds are placed two to four inches deep into moist soil and begin to emerge in ten to fourteen days depending on soil temperature. There are several different varieties planted in California. Plant types of vine or bush limas are available depending on the variety chosen.

Irrigation. Large lima beans are furrow irrigated with one pre-irrigation and four during the season. A total of 36 acre-inches of water is applied.

Fertilization. A starter fertilizer of aqua ammonia and 4-10-10 is injected in a banded below the seed line after bed listing. Aqua ammonia is applied at a rate of 120 pounds of actual nitrogen per acre and 4-10-10 at 20 gallons per acre.

Weed Management. Both chemical and cultural practices are used for weed control in this study. Herbicides are applied preplant and mechanically mixed in the soil with two passes of a harrow. Two mechanical cultivations are the usual practice once the beans have germinated and before row closure in June or July.

Insect and Disease Management. The major insect pests are spider mites, lygus bugs, corn ear worms, armyworms, and aphids.

Spider mites are treated in June with Kelthane[®] miticide plus Dimethoate insecticide for aphid and lygus control. A second treatment for aphids and worms is made in August using Orthene[®] insecticide. The miticide treatment is applied by ground and later pest treatments are applied by air

Disease damage occurs from rhizoctona and pythium root rot and are prevented through seed treatment chemicals and good cultural practices. The seed treatment chemicals are included in the price of the seed.

The pesticides and rates, and cultural practices mentioned in this cost study are only a few of those that are listed in the UC IPM Pest Management Guidelines, Dry Beans. Written recommendations are required for many pesticides and are made by licensed pest control advisors. For information and pesticide use permits, contact the local county Agricultural Commissioner's office.

Harvest. Once the beans are mature they are cut below ground level with a set of tractor-mounted knives. Six or eight rows are cut in one pass. One to two days later depending on temperature, and bean moisture, the cut beans are raked into windrows. Each windrow consists of six to eight small rows moved into a single windrow. If windrowed beans are rained on an additional raking maybe needed to turn and dry the lower portion of the windrow.

Lima beans are harvested using specially designed bean threshers equipped with two or three slow-turning cylinders. Beans are ready for harvest when they reach 12% moisture. This study and most of the industry contracts bean harvest on a custom basis.

Cutting and windrowing costs \$20 per acre and threshing/harvesting costs \$1.65 per hundredweight (cwt). Other postharvest bean costs include cleaning at the warehouse and storage for a charge of \$3.10 per cwt. Insurance, while the beans are stored costs \$0.10 per cwt.

Growers may choose to own harvesting equipment, purchased either new or used, or hire a custom harvester to perform the harvest. Many factors are important in deciding which harvesting option a grower uses. These considerations and appropriate method of analysis are discussed in "*Acquiring alfalfa hay harvest equipment: A financial analysis of alternatives*".

Yields. The crop yield used in this study is 23.8 cwt per acre at 12% moisture.

Returns. A selling price of a \$40 per cwt is used to estimate income from the sale of large lima beans.

Risk. Risks associated with lima bean production are not assigned a production cost. While this study makes an 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 lima bean production.

Labor. Basic hourly wages for workers are \$8.34 and \$6.66 per hour for machine operators and non-machine (irrigators) workers respectively. Adding 34% for SDI, FICA, insurance and other benefits raises the total labor costs to \$11.17 per hour for machine operators and \$8.93 per hour for non-machine labor. The labor for operations involving machinery are 20% higher than the operation time to account for the additional time involved in equipment set up, moving, maintenance and repair. Any returns above total costs are considered returns to investment.

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 investment 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 10% 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 \$706 for the entire farm or \$3.53 per acre.

Office Expense: Office and business expenses are estimated at \$10 per acre. These expenses include office supplies, telephones, bookkeeping, accounting, legal fees, road maintenance, etc. Cash overhead costs are found in Tables 1, 2, 3 and 4.

Non-cash Overhead. Non-cash overhead is calculated as the capital recovery cost for equipment and other farm investments. Although farm equipment used for this crop may be purchased new or used, this study shows the current purchase price for new equipment. The new purchase price is adjusted to 60% to indicate a mix of new and used equipment. Annual ownership costs (Equipment and Investments) are shown in Tables 1-4. They represent the capital recovery cost for investments on an annual per acre basis.

Capital Recovery Costs. Capital recovery cost is the annual depreciation and interest costs for a capital investment. It is the amount of money required each year to recover the difference between the purchase price and salvage value (unrecovered capital). Put another way, it is equivalent to the annual payment on a loan for the investment with the downpayment equal to the discounted salvage value. This is a more complex method of calculating ownership costs than straight-line depreciation and opportunity costs, but more accurately represents the annual costs of ownership because it takes the time value of money into account (Boehlje and Eidman). The calculation for the annual capital recovery costs is as follows. The calculation for annual capital recovery costs is as follows.

$$\frac{\text{Purchase Price} - \text{Salvage Value}}{\text{Capital Recovery Factor}} + \frac{\text{Salvage Value} \times \text{Interest Rate}}$$

Salvage Value. Salvage value is an estimate of the remaining market value of an investment at the end of its useful life. It is calculated differently for different investments. For farm machinery (e.g., tractors and implements) the remaining value is a percentage of the new cost of the investment. Salvage value is calculated as

$$\text{New Price} \times \% \text{Remaining Value}$$

Salvage value for other investments including irrigation systems, buildings, and miscellaneous equipment is zero. The salvage value for land is equal to the purchase price because land does not depreciate. Salvage value for investments can vary. The purchase price and salvage value for certain equipment and investments are shown in Table 4.

Capital Recovery Factor. Capital recovery factor is the amortization factor or annual payment whose present value at compound interest is 1. It is the function of the interest rate and years of life of the equipment.

Interest Rate. The interest rate of 7.81% used to calculate capital recovery cost is the United States Department of Agriculture-Economic Reporting Service's (USDA-ERS) ten year average of California's agricultural sector long-run real 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, not including inflation. In other words, the next best alternative use for these resources is in another agricultural enterprise.

Equipment 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 repairs, fuel, and lubrication.

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 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, travel and down time. Prices for on-farm delivery of diesel and gasoline are \$0.78 and \$1.22 per gallon, respectively.

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For information concerning the above mentioned University of California publications contact UC DANR Communications Services (1-800-994-8849) or your local county Cooperative Extension office.

Table 1.

U.C. COOPERATIVE EXTENSION
 COSTS PER ACRE TO PRODUCE LARGE LIMA BEANS
 SAN JOAQUIN VALLEY - 1998

Labor Rate: \$11.17/hr. machine labor Interest Rate: 10.46%
 \$8.93/hr. non-machine labor Yield per Acre: 23.8 Cwt

Operation	Operation Time (Hrs/A)	Labor Cost	Fuel, Lube & Repairs	Cash and Labor Costs per Acre Material Cost	Custom/ Rent	Total Cost	Your Cost
Cultural:							
Deep Chisel	0.25	3	4	0	0	8	
Disc Stubble	0.22	3	4	0	0	7	
Finish Disc 2X	0.40	5	8	0	0	13	
Landplane Fields 2X	0.25	3	5	0	0	8	
List Beds	0.00	0	0	0	13	13	
Fertilize - Preplant	0.17	2	3	40	3	47	
Pre-irrigation	0.50	4	0	18	0	22	
Weed Control - Preplant Herbicides	0.33	4	3	41	0	48	
Incorporate Herbicide 2X	0.40	5	3	0	0	8	
Plant Beans	0.25	8	3	90	0	101	
Make Drain	0.10	1	2	0	0	3	
Irrigate 4X	2.00	18	0	72	0	90	
Close Drains	0.10	1	1	0	0	2	
Cultivate 2X	0.40	5	4	0	0	9	
Insect Control - Mites, Lygus & Aphids	0.33	4	3	12	0	19	
Insect Control - Lygus & Worms	0.00	0	0	12	9	21	
Pickup Truck Use	0.24	6	2	0	0	8	
TOTAL CULTURAL COSTS	5.94	76	43	285	25	429	
Harvest:							
Cut & Rake Beans - Custom	0.00	0	0	0	20	20	
Thresh Beans - Custom	0.00	0	0	0	55	55	
Clean, Bag, Store & Insure	0.00	0	0	0	86	86	
TOTAL HARVEST COSTS	0.00	0	0	0	160	160	
Interest on operating capital @ 10.46%						21	
TOTAL OPERATING COSTS/ACRE		76	43	285	185	610	

U.C. COOPERATIVE EXTENSION

Table 1. Continued

Operation	Operation	Cash and Labor Costs per Acre					Total Cost	Your Cost
	Time (Hrs/A)	Labor Cost	Fuel,Lube & Repairs	Material Cost	Custom/ Rent			
CASH OVERHEAD:								
Liability Insurance						1		
Office Expense						10		
Land Rent						209		
Property Taxes						2		
Property Insurance						1		
Investment Repairs						2		
TOTAL CASH OVERHEAD COSTS						226		
TOTAL CASH COSTS/ACRE						836		
NON-CASH OVERHEAD:								
Investment	Per producing Acre	-- Annual Cost --		Capital Recovery				
Fuel Tanks	14	1	1					
Fuel Wagon	2	0	0					
Shop Building	55	5	5					
Shop Tools	11	1	1					
Siphon Tubes	3	0	0					
Tool Carrier	13	1	1					
Equipment	245	32	32					
TOTAL NON-CASH OVERHEAD COSTS		342	41			41		
TOTAL COSTS/ACRE						877		

Table 2.

U.C. COOPERATIVE EXTENSION
 COSTS AND RETURNS PER ACRE TO PRODUCE LARGE LIMA BEANS
 SAN JOAQUIN VALLEY - 1998

Labor Rate: \$11.17/hr. machine labor Interest Rate: 10.46%
 \$8.93/hr. non-machine labor

	Quantity/Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
GROSS RETURNS					
Large Lima Beans	23.80	Cwt	40.00	<u>952</u>	
TOTAL GROSS RETURNS FOR LARGE LIMA BEANS				<u>952</u>	
OPERATING COSTS					
Custom:					
List Beds	1.00	Acre	13.00	13	
Air Application	1.00	Acre	9.00	9	
Cut & Rake	1.00	Acre	20.00	20	
Thresh Beans	28.00	Cwt	1.95	55	
Clean, Store & Insure	23.80	Cwt	3.60	86	
Fertilizer:					
Aqua Ammonia	100.00	Lb N	0.25	25	
4-10-10	20.00	Gal	0.738	15	
Rent:					
Fertilizer Injector	1.00	Acre	2.50	3	
Water:					
Irrigation	36.00	AcIn	2.50	90	
Herbicide:					
Dual 8E	2.50	Pint	11.96	30	
Sonalan HFP	2.00	Pint	5.66	11	
Seed:					
Lima Bean Seed	120.00	Lb	0.75	90	
Miticide:					
Kelthane MF	1.00	Pint	8.06	8	
Insecticide:					
Dimethoate 267	1.00	Pint	4.10	4	
Orthene	0.75	Lb	15.44	12	
Labor (machine)	4.42	hrs	11.17	49	
Labor (non-machine)	3.00	hrs	8.93	27	
Fuel - Gas	1.07	gal	1.22	1	
Fuel - Diesel	26.74	gal	0.78	21	
Lube				3	
Machinery repair				18	
Interest on operating capital @	10.46%			<u>21</u>	
TOTAL OPERATING COSTS/ACRE				<u>610</u>	
NET RETURNS ABOVE OPERATING COSTS				<u>342</u>	

U.C. COOPERATIVE EXTENSION

Table 2. Continued

CASH OVERHEAD COSTS:	
Liability Insurance	1
Office Expense	10
Land Rent	209
Property Taxes	2
Property Insurance	1
Investment Repairs	<u>2</u>
TOTAL CASH OVERHEAD COSTS/ACRE	<u>226</u>
TOTAL CASH COSTS/ACRE	836
NON-CASH OVERHEAD COSTS (CAPITAL RECOVERY):	
Fuel Tanks	1
Fuel Wagon	0
Shop Building	5
Shop Tools	1
Siphon Tubes	0
Tool Carrier	1
Equipment	<u>32</u>
TOTAL NON-CASH OVERHEAD COSTS/ACRE	<u>41</u>
TOTAL COSTS/ACRE	<u>877</u>
NET RETURNS ABOVE TOTAL COSTS	<u>75</u>

U.C. COOPERATIVE EXTENSION

Table 3.

MONTHLY CASH COSTS PER ACRE TO PRODUCE LARGE LIMA BEANS

SAN JOAQUIN VALLEY - 1998

Beginning OCT 97 Ending NOV 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	OCT 98	NOV 98	TOTAL
Cultural:															
Deep Chisel	8														8
Disc Stubble							7								7
Finish Disc 2X							13								13
Landplane Fields 2X							8								8
List Beds							13								13
Fertilize - Preplant							47								47
Pre-irrigation								22							22
Weed Control - Preplant Herbicides								48							48
Incorporate Herbicide 2X								8							8
Plant Beans								101							101
Make Drain								2		2					3
Irrigate 4X									22	45	22				90
Close Drains									1			1			2
Cultivate 2X									5	5					9
Insect Control - Mites, Lygus & Aphids									19						19
Insect Control - Lygus &											21				21
Pickup Truck Use	1	1	1	1	1	1	1	1	1	1	1	1	1	1	8
TOTAL CULTURAL COSTS	8	1	1	1	1	1	89	182	48	52	44	2	1	1	429
Harvest:															
Cut & Rake Beans - Custom														20	20
Thresh Beans - Custom														55	55
Clean, Bag, Store & Insure														86	86
TOTAL HARVEST COSTS														75	160
Interest on oper. capital	0	0	0	0	0	0	1	2	3	3	4	4	4	-1	21
TOTAL OPERATING COSTS/ACRE	8	1	1	1	1	1	90	185	51	55	47	5	80	86	610
OVERHEAD:															
Liability Insurance				1											1
Office Expense	1	1	1	1	1	1	1	1	1	1	1	1	1	1	10
Land Rent														209	209
Property Taxes				1						1					2
Property Insurance				1						1					1
Investment Repairs	0	0	0	0	0	0	0	0	0	0	0	0			2
TOTAL CASH OVERHEAD COSTS	1	1	1	4	1	1	1	1	1	3	1	1	1	210	226
TOTAL CASH COSTS/ACRE	9	2	2	4	2	2	91	185	52	58	48	6	80	296	836

Table 4.

U.C. COOPERATIVE EXTENSION
 WHOLE FARM ANNUAL EQUIPMENT, INVESTMENT, AND BUSINESS OVERHEAD COSTS
 SAN JOAQUIN VALLEY - 1998

ANNUAL EQUIPMENT COSTS

Yr	Description	Price	Yrs Life	Salvage Value	Capital Recovery	- Cash Overhead -		Total
						Insur- ance	Taxes	
98	200 HP Crawler	174818	10	51638	22233	807	1132	24173
98	90 HP 2WD Tractor	61134	10	18058	7775	282	396	8453
98	Chisel - Heavy 16'	6286	12	871	780	26	36	841
98	Cult - 6 Row	9059	10	1602	1227	38	53	1318
98	Disc - Finish 18'	16410	12	2273	2035	67	93	2195
98	Disc - Stubble 16'	13203	12	1829	1637	54	75	1766
98	Ditcher V	4474	15	430	501	17	25	543
98	Harrow - Spiketooth 14'	907	12	126	112	4	5	121
98	Pickup Truck - 1/2 Ton	14719	5	6597	2539	76	107	2722
98	Pickup Truck - 3/4 Ton	17628	7	6687	2610	87	122	2818
98	Planter - 6 Row	15015	10	2655	2034	63	88	2185
98	Rear Blade - 8'	2541	18	169	263	10	14	286
98	Saddle Tank - 300 Gal	3218	10	569	436	14	19	468
98	Spray Boom - 20'	482	10	85	65	2	3	70
98	Triplane - 16'	18769	12	2600	2328	76	107	2511
TOTAL		358663		96189	46575	1622	2274	50470
60% of New Cost *		215198		57713	27945	973	1365	30282

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

ANNUAL INVESTMENT COSTS

Yr	Description	Price	Yrs Life	Salvage Value	Capital Recovery	----- Cash Overhead -----			Total
						Insur- ance	Taxes	Repairs	
INVESTMENT									
	Fuel Tanks	16377	20	1638	1608	64	90	50	1812
	Fuel Wagon	1969	10	197	277	8	11	52	347
	Shop Building	66423	25	6642	6028	260	365	1328	7982
	Shop Tools	12916	20	1292	1268	51	71	258	1648
	Siphon Tubes	3690	20	369	362	14	20	92	489
	Tool Carrier	15010	15	1501	1677	59	83	300	2119
TOTAL INVESTMENT		116385		11639	11221	456	640	2079	14397

U.C. COOPERATIVE EXTENSION

Table 4. Continued

ANNUAL BUSINESS OVERHEAD COSTS

Description	Units/ Farm	Unit	Price/ Unit	Total Cost
Land Rent (22% Of Gross Returns)	200.00	Acre	209.44	41888
Liability Insurance	1200.00	Acre	0.89	1068
Office Expense	1200.00	Acre	10.00	12000

U.C. COOPERATIVE EXTENSION
HOURLY EQUIPMENT COSTS
SAN JOAQUIN VALLEY - 1998

Table 5.

Yr Description	Actual Hours Used	----- COSTS PER HOUR -----						Total Oper.	Total Costs/Hr.
		Capital Recovery	- Cash Overhead - Insur- ance	Taxes	Repairs	Operating Fuel & Lube			
98 200 HP Crawler	1599.5	8.34	0.30	0.42	4.42	10.41	14.83	23.89	
98 90 HP 2WD Tractor	1272.7	3.67	0.13	0.19	2.70	4.05	6.75	10.74	
98 Chisel - Heavy 16'	166.0	2.82	0.09	0.13	1.28	0.00	1.28	4.32	
98 Cult - 6 Row	200.0	3.68	0.11	0.16	1.83	0.00	1.83	5.78	
98 Disc - Finish 18'	166.0	7.36	0.24	0.34	2.54	0.00	2.54	10.47	
98 Disc - Stubble 16'	165.4	5.94	0.19	0.27	2.04	0.00	2.04	8.45	
98 Ditcher V	166.0	1.81	0.06	0.09	1.36	0.00	1.36	3.32	
98 Harrow - Spiketooth 14'	166.0	0.41	0.01	0.02	0.10	0.00	0.10	0.54	
98 Pickup Truck - 1/2 Ton	285.5	5.34	0.16	0.22	0.95	3.51	4.46	10.18	
98 Pickup Truck - 3/4 Ton	285.5	5.49	0.18	0.26	1.28	2.81	4.09	10.01	
98 Planter - 6 Row	250.0	4.88	0.15	0.21	3.92	0.00	3.92	9.16	
98 Rear Blade - 8'	166.0	0.95	0.03	0.05	0.37	0.00	0.37	1.40	
98 Saddle Tank - 300 Gal	216.3	1.21	0.04	0.05	0.85	0.00	0.85	2.15	
98 Spray Boom - 20'	216.3	0.18	0.01	0.01	0.13	0.00	0.13	0.32	
98 Triplane - 16'	250.0	5.59	0.18	0.26	2.80	0.00	2.80	8.82	

Table 6.

U.C. COOPERATIVE EXTENSION
 RANGING ANALYSIS
 SAN JOAQUIN VALLEY - 1998

COSTS PER ACRE AT VARYING YIELDS TO PRODUCE LARGE LIMA BEANS

	YIELD (CWT/ACRE)						
	10	15	20	24	30	35	40
OPERATING COSTS/ACRE:							
Cultural Cost	429	429	429	429	429	429	429
Harvest Cost	79	108	138	161	197	226	256
Interest on operating capital	21	21	21	21	21	21	21
TOTAL OPERATING COSTS/ACRE	529	558	588	611	646	676	705
TOTAL OPERATING COSTS/CWT	53	37	29	25	22	19.31	17.63
CASH OVERHEAD COSTS/ACRE	226	226	226	226	226	226	226
TOTAL CASH COSTS/ACRE	754	784	813	837	872	901	931
TOTAL CASH COSTS/CWT	75	52	41	35	29	26	23
NON-CASH OVERHEAD COSTS/ACRE	41	41	41	41	41	41	41
TOTAL COSTS/ACRE	795	825	854	878	913	942	972
TOTAL COSTS/CWT	80	55	43	37	30	27	24

NET RETURNS PER ACRE ABOVE OPERATING COSTS FOR LARGE LIMA BEANS

PRICE (DOLLARS/CWT)	YIELD (CWT/ACRE)						
	10	15	20	24	30	35	40
Large Lima							
25.00	-279	-183	-88	-11	104	199	295
30.00	-229	-108	12	109	254	374	495
35.00	-179	-33	112	229	404	549	695
40.00	-129	42	212	349	554	724	895
45.00	-79	117	312	469	704	899	1095
50.00	-29	192	412	589	854	1074	1295
55.00	21	267	512	709	1004	1249	1495

U.C. COOPERATIVE EXTENSION

Table 6. Continued

NET RETURNS PER ACRE ABOVE CASH COSTS FOR LARGE LIMA BEANS

PRICE (DOLLARS/CWT)	YIELD (CWT/ACRE)						
	10	15	20	24	30	35	40
Large Lima							
25.00	-504	-409	-313	-237	-122	-26	69
30.00	-454	-334	-213	-117	28	149	269
35.00	-404	-259	-113	3	178	324	469
40.00	-354	-184	-13	123	328	499	669
45.00	-304	-109	87	243	478	674	869
50.00	-254	-34	187	363	628	849	1069
55.00	-204	41	287	483	778	1024	1269

NET RETURNS PER ACRE ABOVE TOTAL COSTS FOR LARGE LIMA BEANS

PRICE (DOLLARS/CWT)	YIELD (CWT/ACRE)						
	10	15	20	24	30	35	40
Large Lima							
25.00	-545	-450	-354	-278	-163	-67	28
30.00	-495	-375	-254	-158	-13	108	228
35.00	-445	-300	-154	-38	137	283	428
40.00	-395	-225	-54	82	287	458	628
45.00	-345	-150	46	202	437	633	828
50.00	-295	-75	146	322	587	808	1028
55.00	-245	0	246	442	737	983	1228

Table 7.

U.C. COOPERATIVE EXTENSION
 COSTS AND RETURNS / BREAKEVEN ANALYSIS
 SAN JOAQUIN VALLEY - 1998

COSTS AND RETURNS - PER ACRE BASIS

Crop	1. Gross Returns	2. Operating Costs	3. Net Returns Above Oper. Costs (1-2)	4. Cash Costs	5. Net Returns Above Cash Costs (1-4)	6. Total Costs	7. Net Returns Above Total Costs (1-6)
Large Lima Beans	952	610	342	836	116	877	75

COSTS AND RETURNS - TOTAL ACREAGE

Crop	1. Gross Returns	2. Operating Costs	3. Net Returns Above Oper. Costs (1-2)	4. Cash Costs	5. Net Returns Above Cash Costs (1-4)	6. Total Costs	7. Net Returns Above Total Costs (1-6)
Large Lima Beans	190400	121997	68403	167117	23283	175314	15086

BREAKEVEN PRICES PER YIELD UNIT

CROP	Base Yield (Units/Acre)	Yield Units	Breakeven Price To Cover		
			Operating Costs	Cash Costs	Total Costs
Large Lima Beans	23.8	Cwt	25.63	35.11	36.83

BREAKEVEN YIELDS PER ACRE

CROP	Yield Units	Base Price (\$/Unit)	Breakeven Yield To Cover		
			Operating Costs	Cash Costs	Total Costs
Large Lima Beans	Cwt	40.00	15.2	20.9	21.9