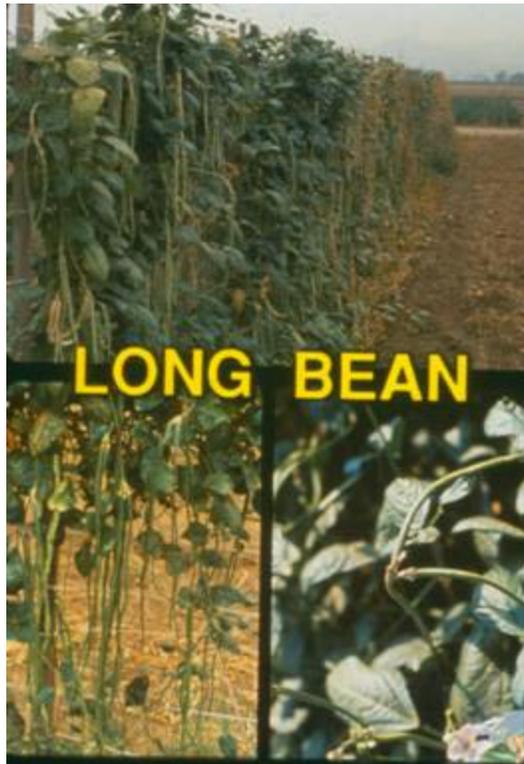


2005

SAMPLE COSTS TO PRODUCE CHINESE LONG BEAN



SAN JOAQUIN VALLEY - SOUTH

Small Farm

Prepared by:

Richard H. Molinar

UC Cooperative Extension Farm Advisor, Fresno County

Michael Yang

UC Agricultural Assistant, Fresno County

Karen M. Klonsky

UC Cooperative Extension Specialist, Department of Agricultural and Resource Economics, UC Davis

Richard L. De Moura

Staff Research Associate, Department of Agricultural and Resource Economics, UC Davis

UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION

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INTRODUCTION

Sample costs to produce Chinese long bean in the San Joaquin Valley are shown in this study. The study is intended as a guide only, and can be used to make production decisions, determine potential returns, prepare budgets and evaluate production loans. The practices described are based on production operations considered typical for this crop and region, but will not apply to every farm. Sample costs for labor, materials, equipment and custom services are based on current figures. “Your Costs” columns in Tables 1 and 2 are provided for entering your farm costs.

The hypothetical farm operations, production practices, overhead, and calculations are described under the assumptions. For additional information or an explanation of the calculations used in the study call the Department of Agricultural and Resource Economics, University of California, Davis, California, (530) 752-3589 or the local UC Cooperative Extension office.

Sample Cost of Production Studies for many commodities can be downloaded at <http://coststudies.ucdavis.edu>, requested through the Department of Agricultural and Resource Economics, UC Davis, (530) 752-4424 or obtained from the local county UC Cooperative Extension offices. Some archived studies are also available on the website.

ASSUMPTIONS

The assumptions refer to Tables 1 to 7 and pertain to sample costs to produce Chinese long bean in the San Joaquin Valley. The cultural practices described represent production operations and materials considered typical for a small farm in the region. Costs, materials, and practices in this study will not apply to all farms. Timing of and types of cultural practices will vary among growers within the region and from season to season due to variables such as weather, soil, and insect and disease pressure. The study is intended as a guide only. **The use of trade names and cultural practices 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 or cultural practices.**

Farm. This report is based on a hypothetical 10 contiguous acre farm. The land is rented and planted to Asian vegetables. Two acres are planted to Chinese long bean and the remaining acres to other Asian vegetables. The grower and family do the majority of the labor for the operations, but a labor cost (opportunity cost) is shown for each operation.

Production Operating Costs

Land Preparation. A custom operator plows the land one time, discs two times and lists the beds in January/February. After listing, the bed peaks are flattened using a nine-foot pipe (3 rows) towed behind the grower's tractor. Black plastic (mulch) is then laid by hand (4 hrs per acre x 2 persons) on alternate beds.

Plant. The Chinese long bean seed in alternate years is either purchased new or saved from the previous crop. Therefore, one-half of the new seed cost is charged to the crop each year. The seed is planted in the greenhouse during January. The plant trays hold 50 plants per tray and take about 20 minutes per tray to plant. The germinated plants are transplanted in the field in February. The grower transplants 3,630 plants per acre at a two-foot in-row spacing on 36-inch alternate beds. Holes for the plants are burned or punched in the plastic as the planter plants. Rows are usually 250 to 300 feet long. Two people (16 man hours) can plant one-third acre per day. A second planting can be made in June and is direct seeded using the grower's tractor and planter, but is not taken into account in this study.

Irrigation. Irrigation includes the water cost and irrigation labor. Lay flat vinyl pipe is laid at the end of the rows and the water is run down the furrows. Irrigation begins in March two to three days after planting. The field is irrigated every five to seven days during March and April, every two to three days during May, June and July. Water at \$2.50 per irrigation is assumed to be a typical cost. Water costs were provided from the growers pumping charges for the summer months. Data on total water use in acre-inches was not available. Water costs will vary by pumping setup and irrigation district. A typical water cost in the area is \$4.83 per acre-inch. Irrigation labor is calculated as one-half hour per acre per irrigation.

Fertilization. The field is fertilized at planting with soluble 20-20-20 fertilizer dissolved in water at three ounces of liquid fertilizer per plant or one 25-pound bag per two to three acres. (10 pounds per acre in this study). The fertilizer is placed in the planting hole at planting. Labor costs for applying the fertilizer are included in the planting labor.

Crop Protection. The grower builds tunnels over the new transplants for frost protection and warming. Wire hoops (reusable) are spaced down the row every six-feet. Three-foot wide plastic is laid over each side of the hoop and attached to each other at the top with a clothespin. They are opened as needed to allow the plants to grow through and to vent on warm days to prevent burning. It takes one person per day (8 hrs) per acre to set out the hoops and

two persons per day per acre to stretch the plastic over the hoops. The tunnels are removed in late-April and takes two-hours per acre with two persons. If the grower plants later, mid-March and after, these costs can be avoided. For the later plantings, the crop protection costs (about \$1,200) should be subtracted from the cultural practices in this study.

Trellis System. Six-foot stakes (reusable) are pounded in the ground at six-foot spacing; netting is attached to the stakes to form a trellis that the plants will grow up. It takes two persons one day (8 hours) per acre to pound the stakes and an equal amount of time to install the net. The trellis is removed at the end-of-the season. See Field Cleanup below.

Pest Management. The pesticides, rates, and application practices mentioned in this cost study are listed in the *UC IPM Pest Management Guidelines – Beans*. **Pesticides mentioned in this study are not recommendations, but those commonly used in the region.** For information and pesticide use permits, contact the local county Agricultural Commissioner's office. For information on other pesticides available, pest identification, monitoring, and management, visit the UC IPM website at www.ipm.ucdavis.edu. **Pest control costs can vary considerably each year depending upon local conditions and pest populations in any given year.** Adjuvants are recommended for many pesticides for effective control and are an added cost. The adjuvants in this study are not included as a cost in the applications.

Weeds. The furrows are hand sprayed using a backpack sprayer with Roundup in April or May and in July. Black plastic provides weed control on the beds. The field is hand weeded in June and takes three-hours per acre. Additional weeding may be required.

Insects. Lannate is applied in May for lygus and aphid control. The grower applies the spray using a backpack sprayer. Growers with a second planting in June will most likely apply a similar spray to that planting in August. Also, spider mites can be a problem in the June planting and a spray with oil or soap provides some control.

Diseases. Possible diseases are mosaic virus, which is spread by aphids. Virus control is done by controlling aphid populations and using virus free or certified seed.

Pickup/ATV. Costs for a 1/2-ton pickup are included in the study. The pickup and a trailer are used for hauling the harvested beans to the packing shed and is included in that cost. The pickup and trailer are used to haul the removed tunnels, mulch and netting to the landfill and the costs are included in the respective operations. In addition, the grower drives another 250 miles per acre for farming purposes or to sell his crop at a farmers market.

Field Cleanup. In August or after the last harvest, the plants are chopped by hand, and the stakes, netting, and mulch are removed. One person can chop the plants and remove the mulch at the rate of three 250-foot rows per eight-hour day (approximately 80 hours per acre).

Harvest. The February planting is harvested May through July (12 weeks). The beans are picked by hand every 2 to 3 days, packed in 30-pound boxes and hauled to a packinghouse. The crop is harvested May through November for growers with double plantings. The packing shed quits taking long beans at the end of October, so any produced after that are sold at farmers or the local markets. Based on picking information on other vegetable crops, it is assumed that a person can pick 1.33 thirty-pound boxes per hour. The grower delivers the product to the packinghouse, local or farmers market. It is assumed one load of 19 boxes is delivered at the end of each picking day.

Yields. The crop yields an average of 440 thirty-pound boxes or 13,200 pounds per acre per planting. Yields are based on grower input.

Returns. The weighted average (fresh & wholesale) returns used in this study are approximated at \$0.75 per pound (\$22.50/box) and used to calculate returns over a range of yields. It is assumed that 70% of the beans are sold wholesale and 30% through farmers or local markets. We assumed the growers would receive an average of \$1.00 per pound at the farmers on local markets. The USDA Wholesale Market reports for California July through September product averaged \$0.93 per pound. Assuming that 70% of the wholesale price is the net return to the grower, the grower would receive \$0.65 per pound.

Labor. Labor rates of \$12.42 per hour for machine operators and \$9.32 for general labor includes payroll overhead of 38%. The basic hourly wages are \$9.00 for machine operators and \$6.75 for general labor. The overhead includes the employers' share of federal and California state payroll taxes, workers' compensation insurance for truck crops (code 0172), and a percentage for other possible benefits. Workers' compensation costs will vary among growers, but for this study the cost is based upon the average industry final rate as of January 1, 2005 (California Department of Insurance). Labor for operations involving machinery are 20% higher than the operation time given in Table 1 to account for the extra labor involved in equipment set up, moving, maintenance, work breaks, and field repair.

Equipment Operating Costs. Repair costs are based on purchase price, annual hours of use, total hours of life, and repair coefficients formulated by American Society of Agricultural Engineers (ASAE). Fuel and lubrication costs are also determined by ASAE equations based on maximum Power Take Off (PTO) horsepower, and fuel type. Prices for on-farm delivery of diesel and gasoline are \$1.51 and \$2.05 per gallon, respectively. The cost includes a 2% local sales tax on diesel fuel and 8% sales tax on gasoline. Gasoline also includes federal and state excise tax, which are refundable for on-farm use when filing your income tax. The fuel, lube, and repair cost per acre for each operation in Table 1 is determined by multiplying the total hourly operating cost in Table 6 for each piece of equipment used for the selected operation by the hours per acre. Tractor time is 10% higher than implement time for a given operation to account for setup, travel and down time.

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 7.65% per year. A nominal interest rate is the typical market cost of borrowed funds. The interest cost of post harvest operations is discounted back to the last harvest month using a negative interest charge.

Risk. Production risks should not be minimized. 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.

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 expenses, 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.

Insurance. Insurance for farm investments varies depending on the assets included and the amount of coverage. Property insurance provides coverage for property loss and is charged at 0.69% of the average value of the assets over their useful life. Liability insurance covers accidents on the farm and costs \$429 for the entire farm.

Office Expense. Office and business expenses are estimated at \$10 per acre. These expenses include office supplies, telephones, bookkeeping, accounting, and legal fees. The cost is a general estimate and not based on any actual data.

Land Rent. The 10 acres are rented for cash at \$300 per acre. The rented land includes the irrigation system that is maintained by the landlord. The landowner also pays the property tax on the rented land. Land rents range from \$250 to \$350 per acre.

Investment Repairs. Annual maintenance except for the greenhouse (20%) is calculated as two percent of the purchase price.

Non-cash Overhead

Non-cash overhead is calculated as the capital recovery cost for equipment and other farm investments.

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). It is equivalent to the annual payment on a loan for the investment with the down payment 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 formula for the calculation of the annual capital recovery costs is $((\text{Purchase Price} - \text{Salvage Value}) \times \text{Capital Recovery Factor}) + (\text{Salvage Value} \times \text{Interest Rate})$.

Salvage Value. Salvage value is an estimate of the remaining value of an investment at the end of its useful life. For farm machinery (tractors and implements) the remaining value is a percentage of the new cost of the investment (Boehlje and Eidman). The percent remaining value is calculated from equations developed by the American Society of Agricultural Engineers (ASAE) based on equipment type and years of life. The life in years is estimated by dividing the wear out life, as given by ASAE by the annual hours of use in this operation. For other investments including irrigation systems, buildings, and miscellaneous equipment, the value at the end of its useful life is zero. The salvage value for land is the purchase price because land does not depreciate. The purchase price and salvage value for equipment and investments are shown in the tables.

Capital Recovery Factor. Capital recovery factor is the amortization factor or annual payment whose present value at compound interest is 1. The amortization factor is a table value that corresponds to the interest rate used and the life of the machine.

Interest Rate. The interest rate of 6.01% used to calculate capital recovery cost is the USDA-ERS's ten-year

average of California's 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 used effectively in the agricultural sector.

Tools. This includes shop tools, hand tools, and miscellaneous field tools. The tools are an estimated value and not taken from any specific data.

Irrigation. The grower owns 1,732 feet of vinyl flat pipe to deliver the water to the furrows. The pipe was purchased for the farm and the cost is allocated among the various crops.

Greenhouse. The grower builds a greenhouse of PVC pipe and plastic to start the plants and for some plant storage. The greenhouse is 20 feet x 20 feet. The plastic cover may need to be replaced in one or two years. The greenhouse is assumed to be used for other crops on the farm and the cost is allocated accordingly.

Equipment. Farm equipment is purchased new or used, but the 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 for equipment and other investments are shown in the Whole Farm Annual Equipment, Investment, and Business Overhead Costs table. 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 and are discussed under operating costs.

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

REFERENCES

- American Society of Agricultural Engineers. 1994. *American Society of Agricultural Engineers Standards Yearbook*. Russell H. Hahn and Evelyn E. Rosentreter (ed.) St. Joseph, Missouri. 41st edition.
- Barker, Doug. 2005. *California Workers' Compensation Rating Data for Selected Agricultural Classifications as of January 1, 2005*. California Department of Insurance, Rate Regulation Branch.
- Boelje, Michael D., and Vernon R. Eidman. 1984. *Farm Management*. John Wiley and Sons. New York, New York
- California State Automobile Association. 2004. *Gas Price Survey 2004*. AAA Public Affairs, San Francisco,
- California State Board of Equalization. *Fuel Tax Division Tax Rates*. Internet accessed January 2005. <http://www.boe.ca.gov/sptaxprog/spfdrates.htm>.
- Energy Information Administration. 2004. *Weekly Retail on Highway Diesel Prices*. Internet accessed January 2005. <http://tonto.eis.doe.gov/oog/info/wohdp>.
- United States Department of Agriculture-Economic Reporting Service. *Farm Financial Ratios Indicating Solvency and Profitability 1960 – 02, California*. 2002. Internet; accessed January 4, 2005. www.ers.usda.gov/data/farbalancesheet/fbsdmu.htm
- Unknown. *Yard Long Beans*. <http://www.webindia123.com/garden/vegie/longbeans.htm>. Internet accessed November 18, 2004.
- Van Horn, Mark, and Claudia Myers. *Chinese Long Bean, Yard-long Bean, Asparagus Bean*. Student Experimental Farm, UC Davis. <http://www.island.wsu.edu/crops/chinesel.htm>. Internet accessed November 18, 2004.

For information concerning University of California publications contact UC DANR Communications Services (1-800-994-8849), online at <http://anrcatalog.ucdavis.edu> or your local county Cooperative Extension office.

UC COOPERATIVE EXTENSION

**Table 1. COST PER ACRE TO PRODUCE CHINESE LONG BEAN
SAN JOAQUIN VALLEY 2005**

Operation	Operatio n Time (Hrs/A)	Field Labor	Cash and Labor Costs per Acre				Total Cost	Your Cost
			Labor Cost	Fuel, Lube & Repairs	Material Cost	Custom/ Rent		
Cultural:								
Plant: Greenhouse (seed)	0.00	24.00	224	0	80	0	304	
Land Prep: Plow, Disc, List	0.00	0.00	0	0	0	100	100	
Land Prep: Flatten Bed Tops	0.33	0.00	5	1	0	0	6	
Land Prep: Lay Black Plastic on Beds. Alternate Rows	0.00	8.00	75	0	116	0	191	
Plant: Transplants from greenhouse. Fertilize: (20-20-20)	0.00	48.00	447	0	6	0	453	
Crop Protection: Install Tunnels	0.00	24.00	224	0	457	0	681	
Irrigate: (water & labor)	0.00	19.00	177	0	95	0	272	
Trellis: Install	0.00	32.00	298	0	1,326	0	1,624	
Crop Protection: Remove Tunnels	0.50	4.00	45	6	0	5	56	
Weed: Hand Spray Furrow (Roundup)	0.00	3.00	28	0	16	0	44	
Weed: Hand Hoe	0.00	3.00	28	0	0	0	28	
Field Cleanup: Chop Plants, Trellis, Mulch	0.50	80.00	753	6	0	7	766	
Miscellaneous Pickup Use	5.00	0.00	75	59	0	0	134	
TOTAL CULTURAL COSTS	6.33	245.00	2,378	73	2,096	111	4,658	
Harvest:								
Hand Pick	0.00	330.82	3,083	0	440	0	3,523	
Haul	23.15	0.00	345	291	0	0	636	
TOTAL HARVEST COSTS	23.15	330.82	3,428	291	440	0	4,159	
Interest on operating capital							179	
TOTAL OPERATING COSTS/ACRE			5,806	364	2,536	111	8,996	
CASH OVERHEAD:								
Liability Insurance							43	
Office Expense							10	
Land Rent							300	
Property Taxes							11	
Property Insurance							8	
Investment Repairs							10	
TOTAL CASH OVERHEAD COSTS							381	
TOTAL CASH COSTS/ACRE							9,377	
Non-Cash Overhead (Capital Recovery)			Per Producing		Annual Cost			
			Acre		Capital Recovery			
Plastic Greenhouse 20x20'			35		8		8	
Flat Irrigation Pipe			46		25		25	
Miscellaneous Field Tools			100		24		24	
Equipment			1,554		222		222	
TOTAL NON-CASH OVERHEAD COSTS			1,735		279		279	
TOTAL COSTS/ACRE							9,656	

UC COOPERATIVE EXTENSION
Table 2. COST PER ACRE TO PRODUCE CHINESE LONG BEAN
 SAN JOAQUIN VALLEY - 2005

	Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
GROSS RETURNS					
Long Bean	13,200.00	lb	0.75	9,900	
OPERATING COSTS					
Carton:					
Trays - Planting 50 Cell	73.00	each	1.00	73	
Boxes 30 lb	440.00	each	1.00	440	
Seed:					
Seed - Chinese Long Bean (1/2 cost)	0.50	lb	14.50	7	
Custom:					
Land Preparation	1.00	acre	100.00	100	
Landfill Fee	555.00	lb	0.02	11	
Crop Protect:					
Plastic Black 3 ft x 2000 ft/roll. 1mil	7,250.00	foot	0.02	116	
Plastic Clear 3 ft x 2000 ft/roll	14,500.00	foot	0.02	217	
Wire Hoops (reusable)	1,200.00	each	0.20	240	
Stakes - 5 ft (reusable)	1,200.00	each	0.99	1,188	
Netting for Trellis 320 ft/roll	7,250.00	foot	0.02	138	
Fertilizer:					
20-20-20	10.00	lb	0.57	6	
Irrigation:					
Water	38.00	each	2.50	95	
Herbicide:					
Roundup Ultra Max	32.00	floz	0.49	16	
Labor (machine)	35.38	hrs	12.42	439	
Labor (non-machine)	575.82	hrs	9.32	5,367	
Fuel - Gas	121.43	gal	2.05	249	
Fuel - Diesel	0.63	gal	1.51	1	
Lube				37	
Machinery repair				77	
Interest on operating capital @ 7.65%				179	
TOTAL OPERATING COSTS/ACRE				8,996	
NET RETURNS ABOVE OPERATING COSTS					904
CASH OVERHEAD COSTS:					
Liability Insurance				43	
Office Expense				10	
Land Rent				300	
Property Taxes				11	
Property Insurance				8	
Investment Repairs				10	
TOTAL CASH OVERHEAD COSTS/ACRE				381	
TOTAL CASH COSTS/ACRE				9,377	
NON-CASH OVERHEAD COSTS (Capital Recovery)					
Plastic Greenhouse 20x20'				8	
Flat Irrigation Pipe				25	
Miscellaneous Field Tools				24	
Equipment				222	
TOTAL NON-CASH OVERHEAD COSTS/ACRE				279	
TOTAL COSTS/ACRE				9,656	
NET RETURNS ABOVE TOTAL COSTS					244

UC COOPERATIVE EXTENSION

Table 3. COST PER ACRE TO PRODUCE CHINESE LONG BEAN
SAN JOAQUIN VALLEY - 2005

Beginning JAN 05	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Ending DEC 05	05	05	05	05	05	05	05	05	05	05	05	05	04
Cultural:													
Plant: Greenhouse	304												304
Land Prep: Plow, Disc, List	100												100
Land Prep: Flatten Bed Tops		6											6
Land Prep: Lay Black Plastic on Beds. Alternate Rows		191											191
Plant: Transplants. Fertilize: (20-20-20)		453											453
Crop Protection: Install Tunnels		681											681
Irrigate: (water & labor)			29	29	72	72	72						272
Trellis: Install			1,624										1,624
Crop Protection: Remove Tunnels				56									56
Weed: Hand Spray Furrow (Roundup)				22		22							44
Weed: Hand Hoe					28								28
Field Cleanup: Chop Plants, Trellis, Mulch								766					766
Miscellaneous Pickup Use	17	17	17	17	17	17	17	17					134
TOTAL CULTURAL COSTS	421	1,348	1,669	123	116	110	88	783	0	0	0	0	4,658
Harvest:													
Harvest: Hand Pick					1,162	1,198	1,162						3,523
Haul					210	216	210						636
TOTAL HARVEST COSTS	0	0	0	0	1,372	1,414	1,372	0	0	0	0	0	4,159
Interest on operating capital @ 7.65%	3	11	22	23	32	42	51	-5					179
TOTAL OPERATING COSTS/ACRE	423	1,359	1,691	145	1,521	1,566	1,512	778	0	0	0	0	8,996
OVERHEAD:													
Liability Insurance			43										43
Office Expense	1	1	1	1	1	1	1	1					10
Land Rent								300					300
Property Taxes	11												11
Property Insurance	8												8
Investment Repairs	1	1	1	1	1	1	1	1	1	1	1	1	10
TOTAL CASH OVERHEAD COSTS	21	2	45	2	2	2	2	302	1	1	1	1	381
TOTAL CASH COSTS/ACRE	444	1,361	1,736	148	1,523	1,569	1,514	1,080	1	1	1	1	9,377

UC COOPERATIVE EXTENSION

Table 4. RANGING ANALYSIS

SAN JOAQUIN VALLEY - 2005

COSTS PER ACRE AT VARYING YIELD TO PRODUCE CHINESE LONG BEAN

	Boxes/Acre:	250	290	340	390	440	490	540
	YIELD (lbs/acre)							
	7,500	8,700	10,200	11,700	13,200	14,700	16,200	
OPERATING COSTS/ACRE:								
Cultural Cost	4,658	4,658	4,658	4,658	4,658	4,658	4,658	4,658
Harvest Cost (Pick & Haul)	2,363	2,741	3,214	3,686	4,159	4,632	5,104	
Interest on operating capital	156	161	167	173	179	185	191	
<i>TOTAL OPERATING COSTS/ACRE</i>	7,177	7,560	8,039	8,517	8,996	9,475	9,953	
<i>TOTAL OPERATING COSTS/lb</i>	0.96	0.87	0.79	0.73	0.68	0.64	0.61	
CASH OVERHEAD COSTS/ACRE								
<i>TOTAL CASH COSTS/ACRE</i>	7,553	7,937	8,417	8,897	9,377	9,858	10,337	
<i>TOTAL CASH COSTS/lb</i>	1.01	0.91	0.83	0.76	0.71	0.67	0.64	
NON-CASH OVERHEAD COSTS/ACRE								
<i>TOTAL COSTS/ACRE</i>	7,762	8,161	8,660	9,158	9,656	10,154	10,649	
<i>TOTAL COSTS/lb</i>	1.03	0.94	0.85	0.78	0.73	0.69	0.66	

NET RETURNS PER ACRE ABOVE OPERATING COSTS

PRICE \$/lb	YIELD (lbs/acre)						
	7,500	8,700	10,200	11,700	13,200	14,700	16,200
0.55	-3,052	-2,775	-2,429	-2,082	-1,736	-1,390	-1,043
0.65	-2,302	-1,905	-1,409	-912	-416	80	577
0.75	-1,552	-1,035	-389	258	904	1,550	2,197
0.85	-802	-165	631	1,428	2,224	3,020	3,817
0.95	-52	705	1,651	2,598	3,544	4,490	5,437
1.05	698	1,575	2,671	3,768	4,864	5,960	7,057
1.15	1,448	2,445	3,691	4,938	6,184	7,430	8,677

NET RETURNS PER ACRE ABOVE CASH COSTS

PRICE \$/lb	YIELD (lbs/acre)						
	7,500	8,700	10,200	11,700	13,200	14,700	16,200
0.55	-3,428	-3,152	-2,807	-2,462	-2,117	-1,773	-1,427
0.65	-2,678	-2,282	-1,787	-1,292	-797	-303	193
0.75	-1,928	-1,412	-767	-122	523	1,167	1,813
0.85	-1,178	-542	253	1,048	1,843	2,637	3,433
0.95	-428	328	1,273	2,218	3,163	4,107	5,053
1.05	322	1,198	2,293	3,388	4,483	5,577	6,673
1.15	1,072	2,068	3,313	4,558	5,803	7,047	8,293

NET RETURNS PER ACRE ABOVE TOTAL COSTS

PRICE \$/lb	YIELD (lbs/acre)						
	7,500	8,700	10,200	11,700	13,200	14,700	16,200
0.55	-3,637	-3,376	-3,050	-2,723	-2,396	-2,069	-1,739
0.65	-2,887	-2,506	-2,030	-1,553	-1,076	-599	-119
0.75	-2,137	-1,636	-1,010	-383	244	871	1,501
0.85	-1,387	-766	10	787	1,564	2,341	3,121
0.95	-637	104	1,030	1,957	2,884	3,811	4,741
1.05	113	974	2,050	3,127	4,204	5,281	6,361
1.15	863	1,844	3,070	4,297	5,524	6,751	7,981

UC COOPERATIVE EXTENSION

Table 5. WHOLE FARM ANNUAL EQUIPMENT, INVESTMENT, AND BUSINESS OVERHEAD COSTS
SAN JOAQUIN VALLEY - 2005

ANNUAL EQUIPMENT COSTS

Yr	Description	Price	Yrs Life	Salvage Value	Capital Recovery	Cash Overhead		Total
						Insur- ance	Taxes	
05	35HP 2WD Tractor	15,265	20	1,959	1,279	59	86	1,424
05	Bed Shaper Pipe 9'	150	10	27	18	1	1	20
05	Pickup 1/2 Ton	28,000	5	12,549	4,423	140	203	4,766
05	Trailer 12x16	4,500	20	235	386	16	24	426
TOTAL		47,915		14,770	6,107	216	313	6,636
60% of New Cost *		28,749		8,862	3,664	130	188	3,982

*Used to reflect a mix of new and used equipment

ANNUAL INVESTMENT COSTS

Description	Price	Yrs Life	Salvage Value	Capital Recovery	Cash Overhead			Total
					Insur- ance	Taxes	Repairs	
Irrigation Flat Pipe	455	2		248	0	0	9	257
Miscellaneous Field Tools	1,000	5		237	3	0	20	261
Plastic Greenhouse 20' x 20'	350	5		83	1	2	70	156
TOTAL INVESTMENT	1,805		0	569	5	2	99	674

ANNUAL BUSINESS OVERHEAD COSTS

Description	Units/ Farm	Unit	Price/ Unit	Total Cost
Land Rent	10	acre	300.00	3,000
Liability Insurance	10	acre	42.90	429
Office Expense	10	acre	10.00	100

UC COOPERATIVE EXTENSION

Table 6. HOURLY EQUIPMENT COSTS
SAN JOAQUIN VALLEY - 2005

Yr	Description	Actual Hours Used	Capital Recovery	Cash Overhead			Operating		Total Costs/Hr.
				Insur- ance	Taxes	Repairs	Fuel & Lube	Total Oper.	
05	35HP 2WD Tractor	600	1.28	0.06	0.09	0.62	2.98	3.60	5.03
05	Bed Shaper Pipe 9'	100	0.11	0.00	0.01	0.01	0.00	0.01	0.13
05	Pickup 1/2 Ton	400	6.63	0.21	0.30	2.08	9.82	11.90	19.04
05	Trailer 12x16	200	1.16	0.05	0.07	0.66	0.00	0.66	1.94

UC COOPERATIVE EXTENSION
Table 7. OPERATIONS WITH EQUIPMENT
 SAN JOAQUIN VALLEY - 2005

Operation	Operation Month	Equipment Tractor	Implement	Non-Machine Labor (hr/ac)	Material	Broadcast Rate/acre	Unit	Material Cost \$/acre
Cultural:								
Plant: Greenhouse	Jan			24.00	Trays	73.00	ea	73
					Seed	0.50	lb	100
Land Prep: Plow, Disc, List	Jan	Custom					ac	100
Land Prep: Flatten Bed Tops	Jan	35HP 2WD	Pipe					
Land Prep: Lay Black Plastic on Beds. Alternate Rows	Feb			8.00	Plastic	7,250.00	ft	116.00
Plant: Transplants. Fertilize: (20-20-20)	Feb			48.00	20-20-20	10.00	lb	5.70
Crop Protection: Install Tunnels	Feb			24.00	Hoops	1,200.00	ea	240.00
					Plastic	14,500.00	ft	217.50
Irrigate: (water & labor)	Mar			2.00	Water	4	irri	10.00
	Apr			2.00	Water	4.00	irri	10.00
	May			5.00	Water	10.00	irri	25.00
	June			5.00	Water	10.00	irri	25.00
	July			5.00	Water	10.00	irri	25.00
Trellis: Install	Mar			32.00	Stakes	1,200.00	ea	1,188.00
					Netting	7,250.00	ft	137.75
Crop Protection: Remove/Discard Tunnels	Apr	Pickup	Trailer	4.00	Landfill	230	lb	4.60
Weed: Hand Spray Furrow (Roundup)	Apr			1.50	Roundup	16.00	floz	7.81
	June			1.50	Roundup	16.00	floz	7.81
Weed: Hand Hoe	May			3.00				
Field Cleanup: Chop, Remove/Discard Trellis & Mulch	Aug	Pickup	Trailer	80.00	Landfill	325	lb	6.50
Miscellaneous Pickup Use	All	Pickup						
Harvest: Hand Pick	May			109.20	Boxes	145.00	ea	145.00
	June			112.50	Boxes	150.00	ea	150.00
	July			109.20	Boxes	145.00	ea	145.00
Haul	May	Pickup	Trailer					
	June	Pickup	Trailer					
	July	Pickup	Trailer					