1999

UNIVERSITY OF CALIFORNIA - COOPERATIVE EXTENSION

SAMPLE COSTS TO PRODUCE

~Beans~

COMMON DRY VARIETIES
SACRAMENTO VALLEY

Prepared by:

Rachael Long	U.C. Cooperative Extension Farm Advisor, Yolo & Solano Counties
Doug Munier	U.C. Cooperative Extension Farm Advisor, Glenn, Tehama & Butte Counties
Michael Cahn	U.C. Cooperative Extension Farm Advisor, Sutter & Yuba Counties
Jerry Schmierer	U.C. Cooperative Extension Farm Advisor, Colusa County
Kent Brittan	U.C. Cooperative Extension Farm Advisor, Sacramento County
Karen Klonsky	U.C. Cooperative Extension Economist, Department of Agricultural and Resource Economics, U.C. Davis
Pete Livingston	U.C. Cooperative Extension Staff Research Associate, Department of Agricultural and Resource Economics, U.C. Davis

INTRODUCTION

This study includes detailed costs and underlying assumptions for producing common dry beans in the Sacramento Valley. The hypothetical farm used in this report is 1,500 acres producing 100 acres of beans. Annual production costs are presented in Tables 1-7.

This study is intended as a guide only. It can be used to make production decisions, determine potential returns, prepare budgets and evaluate production loans. Sample costs given for labor, materials, equipment and contract services are based on current figures. Costs and practices detailed in this study will not be applicable to every situation. A blank, *Your Cost*, column is provided to enter your actual costs.

Tables include:

This and other cost studies can be obtained through the Department of Agricultural and Resource Economics, U.C. Davis (530-752-1515), or from selected county Cooperative Extension offices. For an explanation of calculations or assumptions used in this study refer to the attached Assumptions section or call the Department of Agricultural and Resource Economics, University of California – Davis, (530-752-3589).

ASSUMPTIONS

The following are assumptions pertaining to sample costs to produce dry beans in the Sacramento 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 Sacramento Valley. Costs and practices detailed in this study may not be applicable to all situations. Cultural practices for the production of dry beans 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 1,500 acre field and row crop farm of which 100 acres are producing dry beans and 1,400 acres are planted to alfalfa hay, field corn, sugar beets, and wheat. Other rotational crops that might be planted include safflower, sunflower, seed crops, 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 dry beans. Based on the yield and price assumed in this study land rent is $135.17 per acre. The land rented includes developed wells and irrigation system. The grower owns a shop and an equipment yard to repair and store equipment.

Labor. Basic hourly wages for workers are $8.12 and $5.75 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 $10.88 per hour for machine operators and $7.71 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.

Cultural Practices and Material Inputs

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

Once every eight years the field is laser leveled to maintain irrigation efficiency. All of the acreage is chiseled to open the soil structure and breakup any hardpan. The ground is disced once with a stubble disc and twice with a finishing disc, in preparation for listing the seedbeds. Beds are listed six rows per pass, 30 inches apart.

Stand Establishment. Stand establishment consists of several practices. In June, a preplant herbicide is sprayed and incorporated into the soil. Dry beans are planted in June and planting is usually completed by early July. Seeds are placed two to three inches deep into moist soil and begin to emerge in seven to ten days depending on soil temperature. There are several different varieties planted in the Sacramento Valley including kidney, pink, white, black turtle, pinto, cranberry, and miscellaneous varieties.

Irrigation. Dry beans are furrow irrigated with one preplant and four irrigations during the season. A total of 22 acre-inches of water is applied.

Fertilization. A preplant fertilizer is applied at the rate of 100 pounds of nitrogen per acre using aqua ammonia. Some growers may apply a starter fertilizer such as 8-24-0, primarily to supply phosphorus for plant growth.

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 two major insect pests are spider mites and lygus bugs. In some years corn ear worms and army worms are serious pests damaging developing pods.

Spider mites are treated in July with Kelthane® plus Dimethoate® for lygus control during the bloom period. A second treatment for lygus, worms and aphids is made in August using Orthene®. The mite/lygus treatment is applied by ground sprayer and the other insecticide application is made by air.

Disease damage is caused by rhizoctona and pythium root rot and 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 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.

Equipment Cash Costs. Equipment costs are composed of three parts; capital recovery, cash overhead, and operating costs. The operating costs consist of fuel, lubrication, and repairs.

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 horsepower (hp) and type of fuel used. The fuel and repair cost per acre for each operation in Table 2 is determined by multiplying the total hourly operating cost in Table 6 for each piece of equipment used for the cultural practice by the number of hours per acre for that operation. Tractor time is 10% higher than implement time for a given operation to account for setup time. Prices for on-farm delivery of diesel and gasoline are $0.62 and $1.02 per gallon, respectively.

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 and left to dry on top of the beds. One to two days later, depending on bean moisture, the cut beans are raked into windrows. Each windrow consists of six to eight rows combined into one row. If windrowed beans are rained on additional rakings maybe used to turn and dry the lower portion of the windrow. Beans are ready for harvest when they reach approximately 12% moisture.

Beans are custom windrowed and threshed at respective costs of $20 per acre and $40.50 per acre based on the weight in the field. Postharvest bean costs include cleaning and storage at the warehouse for a charge of $3.58 per hundredweight (cwt). Black turtle beans are often polished after cleaning and is included in the cost to clean and store.

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"*.

Assessments. Dry bean growers pay a fee to the Dry Bean Advisory Board based on yields. The assessment has two components. First, is a basic fee of $0.18 per cwt for any variety of bean produced. The second assessment ranges from $0.01 to $0.08 per cwt depending on the variety grown. A combined assessment of $0.22 per cwt is used in this study.

Yields. The crop yield used in this study is 19.2 cwt per acre at 12% moisture. The yield is after cleaning at the warehouse. Yields for various unspecified bean varieties are indicated in Table A. Sutter County reports significant acreage of pink beans grown and yields and prices over the past five years are shown in Table B.

Table A. Dry bean yields for counties in the Sacramento Valley [1/] [2/]

County	1994	1995	1996	1997	1998
	cwt/acre				
Butte	21	16	23	19	17
Colusa	21	17	18	21	14
Glenn	18	21	21	22	-
Sacramento	22	20	-	20	-
Solano	19	19	17	18	20
Sutter	12	16	12	14	-
Tehama	24	20	22	25	16
Yolo	34	32	16	24	11
Annual	21	20	18	20	16

[1/] Data from County Crop Reports, 1994-1998. Published by California Agricultural Statistics Service.
[2/] Bean varieties are unspecified in the crop reports.

Table B. Pink bean yields and prices for Sutter County

	1994	1995	1996	1997	1998	Average
Cwt/Acre	17	16	14	13	17	15
$/Cwt	25.70	25.25	31.30	29.70	23.25	27.04

[1/] Data from Sutter County Crop Reports, 1994-1998.

Returns. A selling price of a $32 per cwt is used to estimate income from the sale of dry beans. Prices for unspecified common dry bean varieties for the past five years are shown in Table C.

Table C. Dry bean prices for counties in the Sacramento Valley [1/] [2/]

County	1994	1995	1996	1997	1998
	$/cwt				
Butte	31	23	40	30	32
Colusa	31	30	37	28	35
Glenn	30	30	39	27	47
Sacrament	30	28	-	25	-
Solano	28	28	34	28	30
Sutter	31	34	38	36	35
Tehama	28	31	37	33	35
Yolo	26	31	34	32	31
Annual	29	29	37	30	35

[1/] Data from County Crop Reports, 1994-1998. Published by California Agricultural Statistics Service.
[2/] Bean varieties are unspecified in the crop reports.

Risk. Risks associated with dry 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 dry bean production.

OVERHEAD COSTS

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.

Capital Recovery Costs. Non-cash overhead is calculated as the capital recovery cost for equipment and other farm investments. Although farm equipment on farms in the Sacramento Valley might 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 1-3, and 5. 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.

$$\left(\text{Purchase Price} - \text{Salvage Value}\right) \times \text{Capital Recovery Factor} + \text{Salvage Value} \times \text{Interest Rate}$$

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 (i.e., tractors

and implements) the remaining value is a percentage of the new cost of the investment. The calculation for the annual capital recovery costs is as follows.

$$New\ Price \times \%\ Remaining\ Value$$

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.

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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 DRY BEANS
SACRAMENTO VALLEY – 1999

Labor Rate: $10.88/hr. machine labor
$7.71/hr. non-machine labor

Interest Rate: 9.69%
Yield per Acre: 19.2 Cwt

Operation	Time (Hrs/A)	Labor Cost	Fuel,Lube & Repairs	Material Cost	Custom/ Rent	Total Cost	Your Cost
		---------- Cash and Labor Costs per Acre ----------					
Cultural:							
Laser Level (1 In 8 Years)	0.00	0	0	0	10	10	
Chisel (Deep Chisel)	0.25	3	4	0	0	7	
Disc Stubble	0.25	3	4	0	0	7	
Weed Control - Preplant Herbicide	0.20	3	2	24	0	28	
Finish Disc 2X	0.40	5	6	0	0	12	
List Beds & Apply Fertilizer	0.15	2	1	32	0	35	
Make Drain 2X	0.07	1	1	0	0	2	
Pre-irrigation	2.40	19	0	8	0	27	
Plant Beans	0.25	7	3	30	0	40	
Irrigate – In-season 4X	4.80	37	0	27	0	64	
Close Drains 2X	0.07	1	0	0	0	1	
Cultivate 2X	0.40	5	3	0	0	9	
Insect Control - Mites/Lygus	0.33	4	3	21	0	28	
Insect Control - Worm/Aphids/Lygus	0.00	0	0	15	8	23	
Pickup Truck Use	0.55	14	4	0	0	18	
TOTAL CULTURAL COSTS	10.13	105	31	157	18	310	
Harvest:							
Cut & Rake Beans - Custom	0.00	0	0	0	20	20	
Thresh Beans - Custom	0.00	0	0	0	41	41	
Haul Beans To Warehouse	0.00	0	0	0	6	6	
Clean, Bag, Store & Insurance	0.00	0	0	0	69	69	
Dry Bean Advisory Board Assessment	0.00	0	0	4	0	4	
TOTAL HARVEST COSTS	0.00	0	0	4	135	139	
Interest on operating capital @ 9.69%						11	
TOTAL OPERATING COSTS/ACRE		105	31	161	153	461	
CASH OVERHEAD:							
Office Expense						1	
Liability Insurance						10	
Land Rent						135	
Property Taxes						2	
Property Insurance						1	
Investment Repairs						1	
TOTAL CASH OVERHEAD COSTS						151	
TOTAL CASH COSTS/ACRE						612	
CAPITAL RECOVERY COSTS (7.4% Interest Rate):							
Investment		Per producing Acre		-- Annual Cost -- Capital Recovery			
Fuel Tanks		12		1		1	
Fuel Wagon		1		0		0	
Shop Building		47		4		4	
Shop Tools		9		1		1	
Siphon Tubes		3		0		0	
Tool Carrier		11		1		1	
Equipment		237		31		31	
TOTAL CAPITAL RECOVERY COSTS		320		39		39	
TOTAL COSTS/ACRE						650	

Table 2.

U.C. COOPERATIVE EXTENSION
COSTS AND RETURNS PER ACRE TO PRODUCE DRY BEANS
SACRAMENTO VALLEY - 1999

Labor Rate: $10.88/hr. machine labor
$7.71/hr. non-machine labor

Interest Rate:9.69%

	Quantity/Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
GROSS RETURNS					
Dry Beans	19.2	Cwt	32.00	614	
TOTAL GROSS RETURNS FOR DRY BEANS				614	
Laser Level	0.13	Acre	75.00	10	
Air Application	1.00	Acre	8.00	8	
Cut & Rake	1.00	Acre	20.00	20	
Thresh Beans	1.00	Acre	40.50	41	
Haul Beans	19.20	Cwt	0.29	6	
Clean, Bag, Store & Polish	19.20	Cwt	3.58	69	
Herbicide:					
Treflan Pro 5	1.50	Pint	5.36	8	
Dual 8E	1.50	Pint	10.35	16	
Fertilizer:					
20-0-0	100.00	Lb N	0.317	32	
Seed:					
Dry Bean Seed	60.00	Lb	0.50	30	
Irrigation:					
Water	22.00	AcIn	1.61	35	
Miticide:					
Kelthane MF	2.00	Pint	8.65	17	
Insecticide:					
Dimethoate 4EC	1.00	Pint	4.10	4	
Orthene	1.00	Lb	15.02	15	
Assessment:					
Dry Bean Advisory Board	19.20	Cwt	0.22	4	
Labor (machine)	4.17	Hrs	10.88	45	
Labor (non-machine)	7.70	Hrs	7.71	59	
Fuel - Gas	2.48	Gal	1.02	3	
Fuel - Diesel	19.39	Gal	0.62	12	
Lube				2	
Machinery repair				14	
Interest on operating capital @9.69%				11	
TOTAL OPERATING COSTS/ACRE				461	
NET RETURNS ABOVE OPERATING				154	
CASH OVERHEAD COSTS:					
Office Expense				1	
Liability Insurance				10	
Land Rent				135	
Property Taxes				2	
Property Insurance				1	
Investment Repairs				1	
TOTAL CASH OVERHEAD COSTS/ACRE				151	
TOTAL CASH COSTS/ACRE				612	
CAPITAL RECOVERY COSTS (7.4% Interest Rate):					
Shop Buildings				1	
Fuel Tanks & Pumps				0	
Shop Tools				4	
Fuel Wagon				1	
Tool Carrier				0	
Siphon Tubes				1	
Equipment				31	
TOTAL CAPITAL RECOVERY				39	
TOTAL COSTS/ACRE				650	
NET RETURNS ABOVE TOTAL COSTS				-36	

Table 3.

U.C. COOPERATIVE EXTENSION
MONTHLY CASH COSTS PER ACRE TO PRODUCE DRY BEANS
SACRAMENTO VALLEY – 1999

Beginning OCT 98	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	TOTAL
Ending NOV 99	98	98	98	99	99	99	99	99	99	99	99	99	99	99	
Cultural:															
Laser Level (1 In 8 Years)	10														10
Chisel (Deep Chisel)	7														7
Disc Stubble							7								7
Weed Control - Preplant Herbicide									28						28
Finish Disc 2X									12						12
List Beds & Apply Fertilize									35						35
Make Drain 2X									1	1					2
Pre-irrigation									27						27
Plant Beans									40						40
Irrigate – In-season 4X										33	31				64
Close Drains 2X									0			1			1
Cultivate 2X									4	4					9
Insect Control - Mites/Lygus										28					28
Insect Control - Lygus/Worms/Lygus											23				23
Pickup Truck Use	2	2	2	2	2	2	2	2	2	2	2	2			18
TOTAL CULTURAL COSTS	18	2	2	2	2	2	9	2	148	68	56	3			310
Harvest:															
Cut & Rake Beans - Custom												20			20
Thresh Beans - Custom												41			41
Haul Beans To Warehouse												6			6
Clean, Bag, Store & Polish												69			69
Dry Bean Advisory Board Assessment												4			4
TOTAL HARVEST COSTS												139			139
Interest on opeating capital @ 9.69%	0	0	0	0	0	0	0	1	1	2	2	3			11
TOTAL OPERATING COSTS/ACRE	18	2	2	2	2	2	9	2	150	70	58	145			461
CASH OVERHEAD:															
Liability Insurance				1											1
Office Expense	1	1	1	1	1	1	1	1	1	1	1	1			10
Land Rent														135	135
Property Taxes				1						1					2
Property Insurance				1						1					1
Investment Repairs	0	0	0	0	0	0	0	0	0	0	0	0			1
TOTAL CASH OVERHEAD COSTS	1	1	1	4	1	1	1	1	1	3	1	1		135	151
TOTAL CASH COSTS/ACRE	19	3	3	5	3	3	10	3	151	72	59	146		135	612

U.C. COOPERATIVE EXTENSION

Table4. WHOLE FARM ANNUAL EQUIPMENT, INVESTMENT, AND BUSINESS OVERHEAD COSTS
SACRAMENTO VALLEY – 1999

ANNUAL EQUIPMENT COSTS

Yr	Description	Price	Yrs Life	Salvage Value	Capital Recovery	- Cash Overhead - Insur-ance	Taxes	Total
99	200 HP Crawler	163,020	10	48,154	20,221	753	1,056	22,030
99	90 HP 2WD Tractor	61,134	10	18,058	7,583	282	396	8,262
99	Chisel - Heavy 11'	3,799	12	526	460	15	22	497
99	Cult - 6 Row	9,059	10	1,602	1,200	38	53	1,291
99	Disc - Finish 18'	16,088	12	2,228	1,947	65	92	2,104
99	Disc - Stubble 16'	12,944	12	1,793	1,567	53	74	1,693
99	Ditcher V	4,474	15	430	487	17	25	529
99	Lister - 6 Row	1,565	12	217	189	6	9	205
99	Pickup Truck - 1/2 Ton	14,719	5	6,597	2,490	76	107	2,673
99	Pickup Truck - 3/4 Ton	17,628	7	6,687	2,553	87	122	2,762
99	Planter - 6 Row	15,015	10	2,655	1,989	63	88	2,140
99	Rear Blade - 8'	2,495	18	166	251	9	13	273
99	Saddle Tank – 300 Gal	3,218	10	569	426	14	19	459
99	Spray Boom - 20'	482	10	85	64	2	3	69
TOTAL		325,640		89,767	41,428	1,481	2,077	44,986
60% of New Cost *		195,384		53,860	24,857	889	1,246	26,992

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

ANNUAL INVESTMENT COSTS

Description	Price	Yrs Life	Salvage Value	Capital Recovery	-------- Cash Overhead -------- Insur-ance	Taxes	Repairs	Total
INVESTMENT								
Fuel Tanks	16,377	20	1,638	1,556	64	90	50	1,760
Fuel Wagon	1,969	10	197	272	8	11	52	342
Shop Building	66,423	25	6,642	5,808	260	365	1,328	7,761
Shop Tools	12,916	20	1,292	1,227	51	71	258	1,607
Siphon Tubes	3,690	20	369	351	14	20	92	477
Tool Carrier	15,010	15	1,501	1,632	59	83	300	2,073
TOTAL INVESTMENT	116,385		11,639	10,845	456	640	2,079	14,021

ANNUAL BUSINESS OVERHEAD COSTS

Description	Units/ Farm	Unit	Price/ Unit	Total Cost
Land Rent	100	Acre	135.17	13,517
Liability Insurance	1,400	Acre	0.87	1,218
Office Expense	1,400	Acre	10.00	14,000

Table 5.

U.C. COOPERATIVE EXTENSION
HOURLY EQUIPMENT COSTS
SACRAMENTO VALLEY – 1999

		COSTS PER HOUR						
			- Cash Overhead -		Operating			
Description	Actual Hours Used	Capital Recovery	Insur-ance	Taxes	Repairs	Fuel & Lube	Total Oper.	Total Costs/Hr.
200 HP Crawler	1,389.7	8.73	0.33	0.46	4.15	8.28	12.43	21.94
90 HP 2WD Tractor	953.9	4.77	0.18	0.25	2.72	3.22	5.94	11.14
Chisel - Heavy 11'	166.0	1.66	0.06	0.08	0.78	0.00	0.78	2.58
Cult - 6 Row	200.0	3.60	0.11	0.16	1.85	0.00	1.85	5.72
Disc - Finish 18'	166.0	7.04	0.24	0.33	2.50	0.00	2.50	10.11
Disc - Stubble 16'	166.0	5.66	0.19	0.27	2.02	0.00	2.02	8.13
Ditcher V	166.0	1.76	0.06	0.09	1.37	0.00	1.37	3.29
Lister - 6 Row	165.5	0.69	0.02	0.03	0.31	0.00	0.31	1.05
Pickup Truck - 1/2 Ton	285.0	5.24	0.16	0.22	0.95	2.93	3.88	9.51
Pickup Truck - 3/4 Ton	285.0	5.38	0.18	0.26	1.28	2.35	3.63	9.45
Planter - 6 Row	150.0	7.96	0.25	0.35	3.94	0.00	3.94	12.50
Rear Blade - 8'	166.0	0.91	0.03	0.05	0.36	0.00	0.36	1.35
Saddle Tank - 300 Gal	164.8	1.55	0.05	0.07	0.85	0.00	0.85	2.52
Spray Boom - 20'	149.3	0.26	0.01	0.01	0.13	0.00	0.13	0.40

Table 6.

U.C. COOPERATIVE EXTENSION
RANGING ANALYSIS
SACRAMENTO VALLEY - 1999

COSTS PER ACRE AT VARYING YIELDS TO PRODUCE DRY BEANS

	YIELD (CWT/ACRE)						
	5	10	15	20	25	30	35
OPERATING COSTS/ACRE:							
Cultural Cost	310	310	310	310	310	310	310
Harvest Cost	81	101	122	142	163	183	204
Interest on operating capital	11	11	11	11	11	12	12
TOTAL OPERATING COSTS/ACRE	402	423	443	464	485	505	526
TOTAL OPERATING COSTS/CWT	80.00	42.00	30.00	23.00	19.39	16.84	15.03
CASH OVERHEAD COSTS/ACRE	151	151	151	151	151	151	151
TOTAL CASH COSTS/ACRE	553	574	594	615	636	656	677
TOTAL CASH COSTS/CWT	111.00	57.00	40.00	31.00	25.00	22.00	19.34
NON-CASH OVERHEAD COSTS/ACRE	39	39	39	39	39	39	39
TOTAL COSTS/ACRE	592	612	633	653	674	695	715
TOTAL COSTS/CWT	118.00	61.00	42.00	33.00	27.00	23.00	20.00

NET RETURNS PER ACRE ABOVE OPERATING COSTS FOR DRY BEANS

PRICE (DOLLARS/CWT)	YIELD (CWT/ACRE)						
Dry Beans	5	10	15	20	25	30	35
20.00	-302	-223	-143	-64	15	95	174
24.00	-282	-183	-83	16	115	215	314
28.00	-262	-143	-23	96	215	335	454
32.00	-242	-103	37	176	315	455	594
36.00	-222	-63	97	256	415	575	734
40.00	-202	-23	157	336	515	695	874
44.00	-182	17	217	416	615	815	1,014

NET RETURNS PER ACRE ABOVE CASH COSTS FOR DRY BEANS

PRICE (DOLLARS/CWT)	YIELD (CWT/ACRE)						
Dry Beans	5	10	15	20	25	30	35
20.00	-453	-374	-294	-215	-136	-56	23
24.00	-433	-334	-234	-135	-36	64	163
28.00	-413	-294	-174	-55	64	184	303
32.00	-393	-254	-114	25	164	304	443
36.00	-373	-214	-54	105	264	424	583
40.00	-353	-174	6	185	364	544	723
44.00	-333	-134	66	265	464	664	863

NET RETURNS PER ACRE ABOVE TOTAL COSTS FOR DRY BEANS

PRICE (DOLLARS/CWT)	YIELD (CWT/ACRE)						
Dry Beans	5	10	15	20	25	30	35
20.00	-492	-412	-333	-253	-174	-95	-15
24.00	-472	-372	-273	-173	-74	25	125
28.00	-452	-332	-213	-93	26	145	265
32.00	-432	-292	-153	-13	126	265	405
36.00	-412	-252	-93	67	226	385	545
40.00	-392	-212	-33	147	326	505	685
44.00	-372	-172	27	227	426	625	825

Table 7.

U.C. COOPERATIVE EXTENSION
COSTS AND RETURNS / BREAKEVEN ANALYSIS
SACRAMENTO VALLEY – 1999

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)
Dry Beans	614	461	154	612	3	650	-36

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)
Dry Beans	61,440	46,079	15,361	61,167	273	65,018	-3,578

BREAKEVEN PRICES PER YIELD UNIT

			-------- Breakeven Price To Cover --------		
CROP	Base Yield (Units/Acre)	Yield Units	Operating Costs	Cash Costs	Total Costs
			---------- $ per Yield Unit ----------		
Dry Beans	19.2	Cwt	24.00	31.86	33.86

BREAKEVEN YIELDS PER ACRE

			-------- Breakeven Yield To Cover --------		
CROP	Yield Units	Base Price ($/Unit)	Operating Costs	Cash Costs	Total Costs
			---------- Yield Units /Acre ----------		
Dry Beans	Cwt	32.00	14.4	19.1	20.3