
UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION

2008

SAMPLE COSTS
TO PRODUCE

BLACKEYE BEANS

Double Cropped



SAN JOAQUIN VALLEY – SOUTH

Tulare County

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INTRODUCTION

Sample costs to produce double cropped blackeye beans (*Vigna unguiculata*) in the southern 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. Practices described are based on the production practices considered typical for this crop and region, but will not apply to every farm situation. Sample costs for labor, materials, equipment and custom services are based on current figures. A “*Your Costs*” column in Tables 1 and 2 is provided to enter your costs.

The hypothetical farm operations, production practices, overhead, and calculations are described under the assumptions. For additional information or an explanation of 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 are available for many commodities. Current and some archived studies can be downloaded from the department website <http://coststudies.ucdavis.edu>, requested through Agricultural and Resource Economics at 530-752-1517 or obtained from the local county UC Cooperative Extension offices.

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ASSUMPTIONS

The assumptions refer to Tables 1 to 7 and pertain to sample costs to produce double cropped blackeye beans in the southern San Joaquin Valley, Tulare County. The cultural practices described represent production operations and materials considered typical on a well-managed 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 does not represent a specific farm and 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. The hypothetical field and row-crop farm consists of 1,000 non-contiguous acres on which 80 acres are being planted to blackeye beans. Other crops grown on the acres in rotation with blackeye beans include small grains, winter forage, alfalfa hay, sugar beets, cotton, and field corn. Roads, equipment yard, irrigation system and farmstead are on twenty acres.

Production Cultural Practices and Material Inputs

Land Preparation. The ground is disced two times with a stubble disc, then disced two times with an offset or finishing disc to pulverize the surface and incorporate the preplant herbicide. Beds are listed and shaped.

Planting. In June the CB46 variety is planted on 30-inch beds into moisture with an 8-row planter at 40 pounds (.40 cwt) of seed per acre. The seed is treated with fungicides to protect against seedling diseases.

Fertilization. Rhizobium, a nitrogen fixing bacteria, is added to the seed at planting. No other fertilizer is applied and is seldom required.

Irrigation. The field is furrow irrigated. An irrigation is made in May prior to planting (preirrigation). The next irrigation is made two to seven weeks after planting. In this study the first irrigation is in late-June followed by irrigations at approximately 10-day intervals during July and August. The grower can use either or both well and surface water. Well water is used at cost of \$4.38 per acre-inch or \$52.56 per acre-foot. Effective rainfall is not taken into account; therefore a total of 27-acre inches per year, including the preirrigation are applied to the field. To facilitate cultural operations, drainage ditches at the end of the field are opened and closed as necessary.

Pest Management. The pesticides and rates mentioned in this cost study are listed in *UC Integrated Pest Management Guidelines, Dry Beans*. For information on other pesticides available, pest identification, monitoring, and management visit the UC IPM website at www.ipm.ucdavis.edu. For information and pesticide use permits, contact the local county agricultural commissioner's office. **Pesticides mentioned in this study are used to calculate rates and costs. Although the pesticides mentioned are commonly used by growers, many other pesticides are available. Check with your PCA, field crops farm advisor, and/or the UC IPM website for current recommendations.** Adjuvants are recommended for use with many pesticides for effective control, but adjuvants, their costs and their availability are not included in this study. Pesticide costs may vary by location, brand, and grower volume. Pesticide costs in this study are taken from a single dealer and shown as full retail.

Pest Control Adviser (PCA). Written recommendations are required for many commercially applied pesticides and are written by licensed pest control advisers. In addition the PCA will monitor the field for agronomic problems including pests, diseases, and nutritional status. Growers may hire private PCAs or receive the service as part of a service agreement with an agricultural chemical and fertilizer company. Costs for a private PCA are not included in this study.

Weeds. Prior to planting as a part of land preparation, Prowl is applied with a boom attached to the front of a finish disc. The field is then disced lightly a second time to complete the Prowl incorporation. The field is cultivated with an 8-row cultivator one time in June.

Insects. Lygus bugs (*Lygus hesperus*) are the main insect pest in blackeyes. The lygus bugs can cause reduced yields, affect maturity and seed quality. To control lygus, Warrior is sprayed by air in July at early bloom, and again in August. All applications are made by helicopter. Spider mites may need to be treated in some fields, but is not shown as a cost in this study.

Diseases. Seeds are treated at the warehouse with fungicides to protect against seedling diseases and the treatment is included in the seed cost. Fusarium wilt (*Fusarium oxysporum*) is a major disease of blackeyes and is controlled by planting resistant varieties.

Harvest. The crop is custom cut in September and custom threshed (harvested) in October. The beans are cut below ground with bean knives attached to the belly of the tractor and then windrowed. Six or eight rows are cut in one pass. After one to three weeks of drying when the plants are dry and the beans are around 12% moisture, the beans are threshed with a bean harvester, dumped into bulk trucks and delivered to the warehouse. Custom harvest costs are charged on field weight and/or per acre. Cutting and windrowing cost \$35 per acre. Threshing cost \$20 per acre plus \$2 per hundredweight (cwt). Hauling costs are estimated at \$0.65 per hundredweight.

Yield. Field weight includes trash, dirt, stones, immature and broken beans. The field weight in this study is 26.09-hundredweight. After cleaning, assuming an 8% clean out, the net yield is 24-hundredweight of U.S. No. 1 beans.

Warehouse. The warehouse charges \$3.10 per hundredweight field weight to clean the beans, \$0.40 to fumigate, and \$18 per lot to grade. Lot sizes vary, but are considered to be a set of doubles or 6 bobtails. A set of doubles is calculated to be 500 hundredweight and the grading cost in this study was converted to cost per hundredweight. After cleaning, charges are based on clean weight. Insurance cost \$0.25 per hundredweight, storage for up to one year cost \$0.75 per hundredweight, and bagging into 50 pound bags is paid by the buyer.

Returns. Based on current markets for U.S. No. 1 grade blackeyes, an estimated price of \$32 per hundredweight clean seed is used to calculate returns. Table 4 shows a range of yields over a range of returns for No. 1 beans. Visual quality is important in blackeye marketing, and sales are based on USDA grade. See *United States Standards for Beans*, a publication of the U.S. Department of Agriculture, Federal Grain Inspection Service.

Assessments/Fees. The California Dry Bean Board (CDBB) assesses growers \$0.185 per clean hundredweight and the Blackeye Council \$0.07 per clean hundredweight. The CDBB and Council assessments provide funds for marketing and research. In some counties within the region other than Tulare, the Curly Top Virus Control Program (CTVCP) within the California Department of Food and Ag (CDFA) has a beet

leafhopper assessment (BLHA) of \$0.416 per clean hundredweight. Being Tulare County does not participate, the cost is not included.

Labor, Equipment and Interest

Labor. Hourly wages for workers are \$10.25 for machine operators and \$8.00 per hour non-machine labor. Adding 36% for the employer's share of federal and state payroll taxes, insurance, and other possible benefits gives the labor rates shown of \$13.94 and \$10.88 per hour for machine labor and non-machine labor, respectively. 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, 2008 (personal email from California Department of Insurance, March 11, 2008, unreferenced). 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 for all equipment 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 takeoff (PTO) horsepower, and fuel type. Prices for on-farm delivery of red dye diesel and gasoline are \$3.54 (exclude excise taxes) and \$3.57 per gallon, respectively. The cost includes a 2% local sales tax on diesel fuel, but does not include excise taxes. Gasoline costs include an 8% sales tax plus federal and state excise tax. Some federal and excise tax can be refunded for on-farm use when filing your income tax. The costs are based on November 2007 to April 2008 American Automobile Association (AAA) and Department of Energy (DOE) monthly data. 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 6.75% 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. The interest rate is the basic rate provided by a farm lending agency as of April 2008.

Risk. The risks associated with crop production 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 profitability and economic viability. Growers may purchase Federal crop insurance for some crops to reduce the production risk associated with specific natural hazards.

Cash Overhead

Cash overhead consists of various cash expenses paid out during the year that are assigned to the whole farm, not to a particular operation. The field in this study is double cropped; therefore, approximately one-half of the overhead costs are allocated to the other crop.

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 0.740% of the average value of the assets over their useful life. Liability insurance covers accidents on the farm and costs \$1,216 for the entire farm or \$1.24 per producing acre.

Office Expense. Office and business expenses for 1,000 acres are estimated at \$50 per producing acre. These expenses include office supplies, telephones, accounting, legal fees, road maintenance, and miscellaneous cash overhead expenses. Costs are estimated and not based on any specific data.

Investment Repairs. Annual repairs on investments or capital recovery items that require maintenance are 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. Being the field is double cropped, approximately one-half of the Capital Recovery costs are allocated to the other crop.

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 prices 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 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 the 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 Table 5.

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 and equipment life.

Interest Rate. The interest rate of 4.25% used to calculate capital recovery cost is the effective long term interest rate effective April 2008. The interest rate is provided by a local farm lending agency and will vary according to risk and amount of loan.

Irrigation system. Water cost varies across the San Joaquin Valley depending on the irrigation district and well characteristics. The farm has three wells and each is 150 deep. Each well has a 75 horsepower electric pump that pumps from a 100-foot depth. The delivery system is an underground cement pipeline with alfalfa valves. A canal also runs through the ranch and is connected to the delivery system by gravity feed. The cost

of the irrigation system includes refurbishment of the wells and the value of the delivery system. The cost is an estimate and not based on any irrigation company data.

Land. The price of the land includes an already developed well and irrigation system. Land suitable for bean production will vary widely in value across the region. Prices range from \$5,000 to \$12,000 per acre (2008 Trends & Leases). The land in this study is owned by the grower and is valued at \$7,500 per acre.

Building. The metal buildings are on a cement slab and comprise 2,400 square feet.

Storage Shed. A small shed used to store pesticides that is posted with warning signs and locked.

Tools. This includes shop tools, hand tools, and miscellaneous field tools such as pruning tools.

Fuel Tanks. Two 250-gallon fuel tanks using gravity feed are on metal stands. The tanks are setup in a cement containment pad that meets federal, state, and county regulations.

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 Table 5. 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.

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

UC COOPERATIVE EXTENSION
Table 1. COSTS PER ACRE to PRODUCE BLACKEYE BEANS
 SAN JOAQUIN VALLEY - SOUTH 2008

Operation	Operation Time (Hrs/A)	Cash and Labor Cost per acre				Total Cost	Your Cost
		Labor Cost	Fuel, Lube & Repairs	Material Cost	Custom/ Rent		
Cultural:							
Land Prep: Stubble Disc 2X	0.27	5	14	0	0	19	
Weed: Preplant (Prowl)	0.09	2	3	11	0	16	
Weed: Incorporate Herbicide	0.08	1	4	0	0	6	
Land Prep: List Beds	0.14	2	7	0	0	9	
Irrigate: Make Tail Ditch	0.06	1	2	0	0	3	
Irrigate: Preplant	0.21	2	0	22	0	24	
Irrigate: Close Tail Ditch	0.06	1	2	0	0	3	
Land Prep: Shape Beds	0.25	4	13	0	0	17	
Plant: Beans (seed + inoculant)	0.11	2	6	16	0	24	
Irrigate: (pumping cost + labor)	1.40	2	3	96	0	102	
Weed: Cultivate	0.10	15	0	0	0	15	
Insect: Lygus (Warrior)	0.00	0	0	19	24	43	
Pickup Truck Use	1.15	19	18	0	0	37	
TOTAL CULTURAL COSTS	3.92	56	73	164	24	317	
Harvest:							
Cut & Windrow Beans	0.00	0	0	0	35	35	
Thresh Beans	0.00	0	0	0	72	72	
Haul Beans To Warehouse	0.00	0	0	0	17	17	
Clean, Fumigate, Grade	0.00	0	0	0	92	92	
Insurance, Storage,	0.00	0	0	0	24	24	
Assessments: CDBB, BE Council	0.00	0	0	6	0	6	
TOTAL HARVEST COSTS	0.00	0	0	6	240	247	
Interest on operating capital @ 6.75%						9	
TOTAL OPERATING COSTS/ACRE		56	73	170	264	573	
*CASH OVERHEAD:							
Office Expense						25	
Liability Insurance						1	
Property Taxes						39	
Property Insurance						1	
Investment Repairs						3	
TOTAL CASH OVERHEAD COSTS						68	
TOTAL CASH COSTS/ACRE						641	
NON-CASH OVERHEAD (Capital Recovery):							
		Per producing Acre		*Annual Cost Capital Recovery			
Land		7,653		159		159	
Shop Building		87		3		3	
Storage Building		8		0		0	
Fuel Tanks/Above Ground		7		0		0	
Shop Tools		15		1		1	
Irrigation System		153		5		5	
Equipment		186		19		19	
TOTAL NON-CASH OVERHEAD COSTS		8,109		188		188	
TOTAL COSTS/ACRE						829	

Introduction phrase (i.e. Weed :) refers to related paragraph in text. X=times operation done as 2X=twice or two times

*Approximately one-half of the costs allocated between the two crops.

UC COOPERATIVE EXTENSION
Table 2. COSTS AND RETURNS PER ACRE to PRODUCE BLACK EYE BEANS
 SAN JOAQUIN VALLEY - SOUTH 2008

	Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
GROSS RETURNS					
Blackeyes #1's	24.00	cwt	32.00	768	
OPERATING COSTS					
Herbicide:					
Prowl H2O	2.00	pint	5.32	11	
Water:					
Water - Pumped	27.00	acin	4.38	118	
Seed:					
CB 46 Blackeye (Certified)	0.40	cwt	35.00	14	
Inoculant:					
Rhizobium	0.40	pkg	4.75	2	
Insecticide:					
Warrior	6.00	floz	3.24	19	
Custom:					
Air Application - Helicopter	2.00	acre	12.00	24	
Cut & Windrow Beans	1.00	acre	35.00	35	
Thresh - Basic Charge	1.00	acre	20.00	20	
Thresh - Weight Charge	26.09	cwt	2.00	52	
Haul Beans	26.09	cwt	0.65	17	
Clean Beans	26.09	cwt	3.10	81	
Fumigate Beans	26.09	cwt	0.40	10	
Grade Beans (Lot Charge)	26.09	cwt	0.04	1	
Insurance	24.00	cwt	0.25	6	
Storage	24.00	cwt	0.75	18	
Assessments:					
California Dry Bean Board	24.00	cwt	0.19	4	
Blackeye Council	24.00	cwt	0.07	2	
Labor (machine)	2.79	hrs	13.94	39	
Labor (non-machine)	1.61	hrs	10.88	18	
Fuel - Gas	3.95	gal	3.57	14	
Fuel - Diesel	11.49	gal	3.54	41	
Lube				8	
Machinery repair				10	
Interest on operating capital @ 6.75%				9	
TOTAL OPERATING COSTS/ACRE				573	
NET RETURNS ABOVE OPERATING COSTS				195	
CASH OVERHEAD COSTS:					
Office Expense				25	
Liability Insurance				1	
Property Taxes				39	
Property Insurance				1	
Investment Repairs				3	
TOTAL CASH OVERHEAD COSTS/ACRE				68	
TOTAL CASH COSTS/ACRE				641	

UC COOPERATIVE EXTENSION
Table 2. CONTINUED

	Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
NON-CASH OVERHEAD COSTS (Capital Recovery):					
Land				159	
Shop Building				3	
Storage Building				0	
Fuel Tanks/Above Ground				0	
Shop Tools				1	
Irrigation System				5	
Equipment				19	
TOTAL NON-CASH OVERHEAD COSTS/ACRE				188	
TOTAL COSTS/ACRE				829	
NET RETURNS ABOVE TOTAL COSTS				-61	

UC COOPERATIVE EXTENSION
Table 3. MONTHLY CASH COSTS PER ACRE to PRODUCE BLACKEYE BEANS
 SAN JOAQUIN VALLEY - SOUTH 2008

Beginning APR 08	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	TOTAL
Ending MAR 09	08	08	08	08	08	08	08	08	08	09	09	09	
Cultural:													
Land Prep: Stubble Disc 2X			19										19
Weed: Preplant (Prowl)			16										16
Weed: Incorporate Herbicide			6										6
Land Prep: List Beds			9										9
Irrigate: Make Tail Ditch			1	1	1								3
Irrigate: Preplant			24										24
Irrigate: Close Tail Ditch			1	1			1						3
Land Prep: Shape Beds			17										17
Plant: Beans (seed + inoculant)				24									24
Irrigate: (pumping cost + labor)				20	46	46							112
Weed: Cultivate				5									5
Insect: Lygus (Warrior)					22	22							43
Pickup Truck Use	5	5	5	5	5	5	5	5					37
TOTAL CULTURAL COSTS	5	97	55	73	72	6	5	5					317
Harvest:													
Cut & Windrow Beans							35						35
Thresh Beans								72					72
Haul Beans To Warehouse								17					17
Clean, Fumigate, Grade								92					92
Insurance, Storage								24					24
Assessments: CDBB, BE Council								0	6				6
TOTAL HARVEST COSTS							35	205	6				247
Interest on operating capital @ 6.75%	0	1	1	1	2	2	3	0					9
TOTAL OPERATING COSTS/ACRE	5	97	56	75	74	43	213	11	0	0	0	0	573
OVERHEAD:													
Office Expense	3	3	3	3	3	3	3	3					25
Liability Insurance	0	0	0	0	0	0	0	0					1
Property Taxes				20						20			39
Property Insurance				1						1			1
Investment Repairs	0	0	0	0	0	0	0	0	0	0	0	0	3
TOTAL CASH OVERHEAD COSTS	3	3	3	24	3	3	3	3	0	20	0	0	68
TOTAL CASH COSTS/ACRE	8	100	60	98	77	46	217	14	0	20	0	0	641

UC COOPERATIVE EXTENSION
Table 4. RANGING ANALYSIS
 SAN JOAQUIN VALLEY - SOUTH 2008

COSTS PER ACRE AT VARYING YIELD TO PRODUCE BLACKEYE BEANS

	YIELD (cwt/acre)						
	18.00	20.00	22.00	24.00	26.00	28.00	30.00
OPERATING COSTS/ACRE:							
Cultural Cost	317	317	317	317	317	317	317
Harvest: Cut, Windrow, Thresh, Haul	107	113	118	124	130	136	141
Warehouse: Clean, Fumigate, Grade, Insurance, Storage	87	97	107	116	126	136	145
Assessments: CDBB & Blackeye Council	5	5	6	6	7	7	8
Interest on operating capital @ 6.75%	9	9	9	9	10	10	10
TOTAL OPERATING COSTS/ACRE	525	541	557	572	590	606	621
TOTAL OPERATING COSTS/CWT	29	27	25	24	23	22	21
CASH OVERHEAD COSTS/ACRE							
TOTAL CASH COSTS/ACRE	593	609	625	640	658	674	689
TOTAL CASH COSTS/CWT	33	30	28	27	25	24	23
NON-CASH OVERHEAD COSTS/ACRE							
TOTAL COSTS/ACRE	781	797	813	828	846	862	877
TOTAL COSTS/CWT	43	40	37	35	33	31	29

NET RETURNS PER ACRE ABOVE OPERATING COSTS

PRICE \$/cwt	YIELD (cwt/acre)						
	18.00	20.00	22.00	24.00	26.00	28.00	30.00
20.00	-165	-141	-117	-92	-70	-46	-21
23.00	-111	-81	-51	-20	8	38	69
26.00	-57	-21	15	52	86	122	159
29.00	-3	39	81	124	164	206	249
32.00	51	99	147	196	242	290	339
35.00	105	159	213	268	320	374	429
38.00	159	219	279	340	398	458	519

NET RETURNS PER ACRE ABOVE CASH COSTS

PRICE \$/cwt	YIELD (cwt/acre)						
	18.00	20.00	22.00	24.00	26.00	28.00	30.00
20.00	-233	-209	-185	-160	-138	-114	-89
23.00	-179	-149	-119	-88	-60	-30	1
26.00	-125	-89	-53	-16	18	54	91
29.00	-71	-29	13	56	96	138	181
32.00	-17	31	79	128	174	222	271
35.00	37	91	145	200	252	306	361
38.00	91	151	211	272	330	390	451

NET RETURNS PER ACRE ABOVE TOTAL COSTS

PRICE \$/cwt	YIELD (cwt/acre)						
	18.00	20.00	22.00	24.00	26.00	28.00	30.00
20.00	-421	-397	-373	-348	-326	-302	-277
23.00	-367	-337	-307	-276	-248	-218	-187
26.00	-313	-277	-241	-204	-170	-134	-97
29.00	-259	-217	-175	-132	-92	-50	-7
32.00	-205	-157	-109	-60	-14	34	83
35.00	-151	-97	-43	12	64	118	173
38.00	-97	-37	23	84	142	202	263

UC COOPERATIVE EXTENSION

Table 5. WHOLE FARM ANNUAL EQUIPMENT, INVESTMENT AND BUSINESS OVERHEAD
SAN JOAQUIN VALLEY - SOUTH 2008

ANNUAL EQUIPMENT COSTS

Yr	Description	Price	Yrs Life	Salvage Value	Capital Recovery	Cash Overhead		Total
						Insur- ance	Taxes	
08	110 hp 2wd Tractor	68,676	12	17,170	6,298	318	429	7,045
08	170 hp 4wd Tractor	125,364	12	31,343	11,496	580	784	12,859
08	Bed Shaper - 6 Row	13,292	15	1,276	1,154	54	73	1,281
08	Cultivator - 8 Row	5,500	15	528	477	22	30	530
08	Disc - Offset 21'	25,369	15	2,436	2,202	103	139	2,444
08	Disc - Stubble 16'	25,800	15	2,477	2,240	105	141	2,486
08	Ditcher - V	8,631	12	829	749	35	47	832
08	Lister - 6 Row	6,800	15	653	590	28	37	655
08	Pickup - Used	10,500	5	350	2,311	40	54	2,405
08	Pickup Truck - 1/2 ton	30,000	5	5,600	5,757	132	178	6,067
08	Planter - Air 8 Row	25,000	15	2,400	2,170	101	137	2,409
08	Rear Blade - 8'	3,380	18	225	264	13	18	295
08	Saddle Tank 300 Gal	2,374	10	420	262	10	14	286
08	Spray Boom - 25'	1,781	10	315	196	8	10	215
TOTAL		352,467		66,022	36,168	1,548	2,092	39,808
60% of New Cost *		211,480		39,613	21,701	929	1,255	23,885

*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	
Buildings (2400 sqft)	85,000	20		6,394	315	425	1,700	8,833
Fuel Tanks (above ground)	6,514	20	250	482	25	34	130	671
Irrigation System	150,000	25		9,857	555	750	3,000	14,162
Land (1000 acres)	7,500,000	50	7,500,000	318,750	0	75,000	0	393,750
Shop Tools	15,000	20		1,128	56	75	300	1,559
Storage Building	8,000	20		602	30	40	60	731
TOTAL INVESTMENT	7,764,514		7,500,250	337,213	980	76,324	5,190	419,706

ANNUAL BUSINESS OVERHEAD COSTS

Description	Units/ Farm	Unit	Price/ Unit	Total Cost
Liability Insurance	980	acre	1.24	1,215
Office Expense	980	acre	50.00	49,000

UC COOPERATIVE EXTENSION
Table 6. HOURLY EQUIPMENT COSTS
 SAN JOAQUIN VALLEY - SOUTH 2008

		COSTS PER HOUR							
Yr	Description	Actual Hours Used	Capital Recovery	Cash Overhead			Operating		Total Costs/Hr.
				Insur- ance	Taxes	Repairs	Fuel & Lube	Total Oper.	
08	110 hp 2wd Tractor	1,000	3.78	0.19	0.26	3.17	25.99	29.16	33.39
08	170 hp 4wd Tractor	1,333	5.17	0.26	0.35	3.31	40.16	43.47	49.25
08	Bed Shaper - 6 Row	123	5.63	0.26	0.36	2.75	0.00	2.75	9.00
08	Cultivator - 8 Row	131	2.18	0.10	0.14	1.13	0.00	1.13	3.55
08	Disc - Offset 21'	133	9.94	0.46	0.63	4.09	0.00	4.09	15.12
08	Disc - Stubble 16'	133	10.13	0.47	0.64	4.15	0.00	4.15	15.39
08	Ditcher - V	133	3.39	0.16	0.21	2.38	0.00	2.38	6.14
08	Lister - 6 Row	133	2.66	0.12	0.17	1.40	0.00	1.40	4.35
08	Pickup - Used	500	2.77	0.05	0.07	0.79	12.32	13.11	16.00
08	Pickup Truck - 1/2	666	5.19	0.12	0.16	1.96	15.40	17.36	22.83
08	Planter - Air 8 Row	80	16.24	0.76	1.02	5.23	0.00	5.23	23.25
08	Rear Blade - 8'	167	0.95	0.05	0.06	0.51	0.00	0.51	1.57
08	Saddle Tank 300 Gal	149	1.05	0.04	0.06	0.64	0.00	0.64	1.79
08	Spray Boom - 25'	149	0.79	0.03	0.04	0.48	0.00	0.48	1.34

UC COOPERATIVE EXTENSION
Table 7. OPERATIONS WITH MATERIALS & EQUIPMENT FOR BLACK EYE BEANS
 SAN JOAQUIN VALLEY - SOUTH 2008

MONTH	OPERATION	TRACTOR	IMPLEMENT	LABOR	MATERIAL		UNIT
				HRS/acre		RATE/AC	
May	Stubble Disk	170 HP	Stubble Disk				
May	Weed: Preplant Herbicide Application	110 HP	Disk Offset 21' Spray Boom 25' Saddle Tank 300 gal		Prowl	2.00	pint
May	Weed: Incorporate Herbicide	170 HP	Disk Offset 21'				
May	Land Prep: List Beds	170 HP	Lister 6 row				
May	Irrigate: Make Tail Ditch	110 HP	Ditcher				
June		110 HP	Ditcher				
July		110 HP	Ditcher				
April	Irrigate: Preplant irrigation			0.20	Water	5.00	acin
June	Irrigate:			0.40	Water	4.00	acin
July				0.60	Water	9.00	acin
August				0.60	Water	9.00	acin
May	Irrigate: Close Tail Ditch	110 HP	Rear Blade				
June		110 HP	Rear Blade				
September		110 HP	Rear Blade				
May	Land Prep: Shape Beds	170 HP	Bed Shaper 6 row				
June	Plant Beans	170 HP	Air Planter		Beans	0.40	cwt
					Rhizobium	0.40	pkg
June	Cultivate	110 HP	Cultivator 8-Row				
July	Insect: Lygus	Custom - Air			Warrior	3.00	floz
August		Custom - Air			Warrior	3.00	floz
September	Harvest: Cut & Windrow Beans	Custom					
	Harvest: Thresh Beans	Custom					
	Haul to Warehouse	Custom					
	Warehouse: Clean, Fumigate, Grade	Custom					
	Warehouse: Insurance, Storage	Custom					