UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION

2008

SAMPLE COSTS TO PRODUCE

BLACKEYE BEANS

Single Cropped

SAN JOAQUIN VALLEY – SOUTH

Tulare County

Prepared by:

Carol A. Frate	UC Cooperative Extension Farm Advisor, Tulare 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

SAMPLE COSTS TO PRODUCE BLACKEYE BEANS
San Joaquin Valley – South 2008
Tulare County

STUDY CONTENTS

INTRODUCTION

Sample costs to produce blackeye beans (*Vigna unquiculata)* 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.

ASSUMPTIONS

The assumptions refer to Tables 1 to 7 and pertain to sample costs to produce 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 May 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 April prior to planting (preirrigation). The next irrigation is made two to seven weeks after planting. In this study the first irrigation is in mid-June followed by irrigations at approximately 10-day intervals beginning late June/early July and continuing through 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 35-acre inches per year, including the preirrigation is 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 and one time in July.

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 June at early bloom, and again in July. Armyworms, another pest of blackeyes, are treated with Orthene 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 harvested in September. 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 is this study is 30.43-hundredweight. After cleaning, assuming an 8% clean out, the net yield is 28-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 grades. 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.

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.

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 ((Purchase Price – Salvage Value) x Capital Recovery Factor) + (Salvage Value x 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.

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.

American Society of Farm Managers and Rural Appraisers. 2008. *Trends in Agricultural Land & Lease Values.* California Chapter of the American Society of Farms Managers and Rural Appraisers. Woodbridge, CA.

Boehlje, Michael D., and Vernon R. Eidman. 1984. *Farm Management*. John Wiley and Sons. New York, New York

California State Automobile Association. 2008. *Gas Price Averages November 2007 to April 2008.* AAA Press Room, San Francisco, CA. Internet accessed April 2008. http://www.csaa.com/portal/site/CSAA

California State Board of Equalization. *Fuel Tax Division Tax Rates.* Internet accessed April 2008. http://www.boe.ca.gov/sptaxprog/spftdrates.htm

Energy Information Administration. 2007-2008. *Weekly Retail on Highway Diesel Prices.* Internet accessed April 2008. http://tonto.eix.doe.gov/oog/info/wohdp

Frate, Carol A., Karen M. Klonsky, and Richard L. De Moura. 2001. *Sample Costs to Produce Blackeye Beans (Single Cropped)* San Joaquin Valley-South (Tulare County*).* UC Cooperative Extension. Department of Agriculture and Natural Resources, UC Davis. Davis, CA.

Hall, Anthony E. and Carol A. Frate (ed.). 1996. *Blackeye Bean Production in California*. University of California, Division of Agriculture and Natural Resources. Oakland, CA. Publication 21518.

University of California Statewide IPM Project. *UC Pest Management Guidelines, Beans.* 2007. University of California, Davis. CA. http://www.ipm.ucdavis.edu

---

For information concerning the above mentioned University of California publications contact UC DANR Communications Services at 1-800-994-8849, online at http://danrcs.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: Labor Cost	Fuel, Lube & Repairs	Material Cost	Custom/ Rent	Total Cost	Your Cost
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	26	0	29	
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	
Weed: Cultivate 2X	0.21	3	7	0	0	10	
Irrigate: (pumping cost + labor)	1.60	17	0	127	0	144	
Insect: Lygus (Warrior)	0.00	0	0	19	24	43	
Insect: Worms (Orthene)	0.00	0	0	16	12	28	
Pickup Truck Use	1.15	19	18	0	0	37	
TOTAL CULTURAL COSTS	4.23	60	76	215	36	387	
Harvest:							
Cut & Windrow Beans	0.00	0	0	0	35	35	
Thresh Beans	0.00	0	0	0	81	81	
Haul Beans To Warehouse	0.00	0	0	0	20	20	
Clean, Fumigate, Grade	0.00	0	0	0	108	108	
Insurance, Storage	0.00	0	0	0	28	28	
Assessments	0.00	0	0	7	0	7	
TOTAL HARVEST COSTS	0.00	0	0	7	271	278	
Interest on operating capital @ 6.75%						10	
TOTAL OPERATING COSTS/ACRE		60	76	222	307	675	
CASH OVERHEAD:							
Office Expense						50	
Liability Insurance						1	
Property Taxes						79	
Property Insurance						2	
Investment Repairs						5	
TOTAL CASH OVERHEAD COSTS						137	
TOTAL CASH COSTS/ACRE						812	
NON-CASH OVERHEAD (Capital Recovery):		Per producing Acre		-- Annual Cost -- Capital Recovery			
Land		7,653		325		325	
Shop Building		87		7		7	
Storage Building		8		1		1	
Fuel Tanks		7		0		0	
Shop Tools		15		1		1	
Irrigation System		153		10		10	
Equipment		193		20		20	
TOTAL NON-CASH OVERHEAD COSTS		8,116		364		364	
TOTAL COSTS/ACRE						1,176	

Introduction phrase indicates related paragraph in text.
X=times operation done as 2X=twice or two times.

UC COOPERATIVE EXTENSION

Table 2. COSTS AND RETURNS PER ACRE to PRODUCE BLACKEYE BEANS

SAN JOAQUIN VALLEY - SOUTH 2008

	Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
GROSS RETURNS					
Blackeyes #1's	28.00	cwt	32.00	896	
OPERATING COSTS					
Herbicide:					
Prowl H2O	2.00	pint	5.32	11	
Water:					
Water - Pumped	35.00	acin	4.38	153	
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	
Orthene 75S	1.00	lb	15.79	16	
Custom:					
Air Application - Helicopter	3.00	acre	12.00	36	
Cut & Windrow Beans	1.00	acre	35.00	35	
Thresh - Basic Charge	1.00	acre	20.00	20	
Thresh - Weight Charge	30.43	cwt	2.00	61	
Haul Beans	30.43	cwt	0.65	20	
Clean Beans	30.43	cwt	3.10	94	
Fumigate Beans	30.43	cwt	0.40	12	
Grade Beans (Lot Charge)	30.43	cwt	0.04	1	
Insurance	28.00	cwt	0.25	7	
Storage	28.00	cwt	0.75	21	
Assessments:					
California Dry Bean Board	28.00	cwt	0.19	5	
Blackeye Council	28.00	cwt	0.07	2	
Labor (machine)	2.91	hrs	13.94	41	
Labor (non-machine)	1.81	hrs	10.88	20	
Fuel - Gas	3.95	gal	3.57	14	
Fuel - Diesel	12.21	gal	3.54	43	
Lube				9	
Machinery repair				10	
Interest on operating capital @ 6.75%				10	
TOTAL OPERATING COSTS/ACRE				675	
NET RETURNS ABOVE OPERATING COSTS				221	
CASH OVERHEAD COSTS:					
Office Expense				50	
Liability Insurance				1	
Property Taxes				79	
Property Insurance				2	
Investment Repairs				5	
TOTAL CASH OVERHEAD COSTS/ACRE				137	
TOTAL CASH COSTS/ACRE				813	

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				325	
Shop Building				7	
Storage Building				1	
Fuel Tanks				0	
Shop Tools				1	
Irrigation System				10	
Equipment				20	
TOTAL NON-CASH OVERHEAD COSTS/ACRE				364	
TOTAL COSTS/ACRE				1,176	
NET RETURNS ABOVE TOTAL COSTS				-280	

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	29												29
Irrigate: Close Tail Ditch	1		1			1							3
Land Prep: Shape Beds		17											17
Plant: Beans (seed + inoculant)		24											24
Weed: Cultivate 2X			5	5									10
Irrigate: (pumping cost + labor)			39	59	46								144
Insect: Lygus (Warrior)			22	22									43
Insect: Worms (Orthene)					28								28
Pickup Truck Use	5	5	5	5	5	5	5						37
TOTAL CULTURAL COSTS	85	46	74	92	79	6	5	0	0	0	0	0	387
Harvest:													
Cut & Windrow Beans						35							35
Thresh Beans						81							81
Haul Beans To Warehouse						20							20
Clean, Fumigate, Grade						108							108
Insurance, Storage						28							28
Assessments							7						7
TOTAL HARVEST COSTS	0	0	0	0	0	271	7	0	0	0	0	0	278
Interest on operating capital @ 6.75%	0	1	1	2	2	4	0						10
TOTAL OPERATING COSTS/ACRE	85	47	75	94	81	281	12	0	0	0	0	0	675
CASH OVERHEAD:													
Office Expense	7	7	7	7	7	7	7						50
Liability Insurance	0	0	0	0	0	0	0						1
Property Taxes				40						40			79
Property Insurance				1						1			2
Investment Repairs	0	0	0	0	0	0	0	0	0	0	0	0	5
TOTAL CASH OVERHEAD COSTS	8	8	8	48	8	8	8	0	0	41	0	0	137
TOTAL CASH COSTS/ACRE	93	55	82	142	89	289	20	0	0	41	0	0	812

UC COOPERATIVE EXTENSION

Table 4. RANGING ANALYSIS

SAN JOAQUIN VALLEY - SOUTH 2008

COSTS PER ACRE AT VARYING YIELDS TO PRODUCE BLACKEYE BEANS

	YIELD (cwt/acre)						
	19.00	22.00	25.00	28.00	31.00	34.00	37.00
OPERATING COSTS/ACRE:							
Cultural Cost	387	387	387	387	387	387	387
Harvest: Cut, Windrow, Thresh, Haul	110	118	127	136	144	153	162
Warehouse: Clean, Fumigate, Grade, Insurance, Storage	92	107	121	136	150	165	179
Assessments: CDBB & Blackeye Council	5	5	6	7	8	8	9
Interest on operating capital @ 6.75%	9	9	10	10	10	10	10
TOTAL OPERATING COSTS/ACRE	603	626	651	676	699	723	747
TOTAL OPERATING COSTS/CWT	32	28	26	24	23	21	20
CASH OVERHEAD COSTS/ACRE	137	137	137	137	137	137	137
TOTAL CASH COSTS/ACRE	740	763	788	813	836	860	884
TOTAL CASH COSTS/CWT	39	35	32	29	27	25	24
NON-CASH OVERHEAD COSTS/ACRE	364	364	364	364	364	364	364
TOTAL COSTS/ACRE	1,104	1,127	1,152	1,177	1,200	1,224	1,248
TOTAL COSTS/CWT	58	51	46	42	39	36	34

NET RETURNS PER ACRE ABOVE OPERATING COSTS

PRICE	YIELD (cwt/acre)						
$/cwt	19.00	22.00	25.00	28.00	31.00	34.00	37.00
20.00	-223	-186	-151	-116	-79	-43	-7
23.00	-166	-120	-76	-32	14	59	104
26.00	-109	-54	-1	52	107	161	215
29.00	-52	12	74	136	200	263	326
32.00	5	78	149	220	293	365	437
35.00	62	144	224	304	386	467	548
38.00	119	210	299	388	479	569	659

NET RETURNS PER ACRE ABOVE CASH COSTS

PRICE	YIELD (cwt/acre)						
$/cwt	19.00	22.00	25.00	28.00	31.00	34.00	37.00
20.00	-360	-323	-288	-253	-216	-180	-144
23.00	-303	-257	-213	-169	-123	-78	-33
26.00	-246	-191	-138	-85	-30	24	78
29.00	-189	-125	-63	-1	63	126	189
32.00	-132	-59	12	83	156	228	300
35.00	-75	7	87	167	249	330	411
38.00	-18	73	162	251	342	432	522

NET RETURNS PER ACRE ABOVE TOTAL COSTS

PRICE	YIELD (cwt/acre)						
$/cwt	19.00	22.00	25.00	28.00	31.00	34.00	37.00
20.00	-724	-687	-652	-617	-580	-544	-508
23.00	-667	-621	-577	-533	-487	-442	-397
26.00	-610	-555	-502	-449	-394	-340	-286
29.00	-553	-489	-427	-365	-301	-238	-175
32.00	-496	-423	-352	-281	-208	-136	-64
35.00	-439	-357	-277	-197	-115	-34	47
38.00	-382	-291	-202	-113	-22	68	158

UC COOPERATIVE EXTENSION

Table 5. WHOLE FARM ANNUAL EQUIPMENT, INVESTMENT and BUSINESS OVERHEAD

SAN JOAQUIN VALLEY - SOUTH 2008

ANNUAL EQUIPMENT COSTS

						Cash Overhead		
Yr	Description	Price	Yrs Life	Salvage Value	Capital Recovery	Insur-ance	Taxes	Total
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	831
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	30,000	5	5,600	5,757	132	178	6,067
08	Planter - Air 8Row	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	36,167	1,548	2,092	39,808
	60% of New Cost *	211,480		39,613	21,700	929	1,255	23,885

*Used to reflect a mix of new and used equipment

ANNUAL INVESTMENT COSTS

					Cash Overhead			
Description	Price	Yrs Life	Salvage Value	Capital Recovery	Insur-ance	Taxes	Repairs	Total
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						
		Actual		Cash Overhead		Operating			
Yr	Description	Hours Used	Capital Recovery	Insur-ance	Taxes	Repairs	Fuel & Lube	Total Oper.	Total Costs/Hr.
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	134	2.15	0.10	0.14	1.13	0.00	1.13	3.52
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	132	3.41	0.16	0.22	2.38	0.00	2.38	6.17
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 – 1/2 Ton	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 BLACKEYE BEANS

SAN JOAQUIN VALLEY - SOUTH 2008

MONTH	OPERATION	TRACTOR	IMPLEMENT	LABOR HRS/acre	MATERIAL	RATE/AC	UNIT
April	Stubble Disk	170 HP	Stubble Disk				
April	Weed: Preplant Herbicide Application	110 HP	Disk Offset 21'		Prowl	2.00	pint
			Spray Boom 25'				
			Saddle Tank 300 gal				
April	Weed: Incorporate Herbicide	170 HP	Disk Offset 21'				
April	Land Prep: List Beds	170 HP	Lister 6 row				
April	Irrigate: Make Tail/Drainage Ditch	110 HP	Ditcher				
June		110 HP	Ditcher				
June		110 HP	Ditcher				
April	Irrigate: Preplant irrigation			0.20	Water	6.00	acin
June	Irrigate:			0.40	Water	8.00	acin
July				0.60	Water	12.00	acin
August				0.60	Water	9.00	acin
April	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				
May	Plant Beans	170 HP	Air Planter		Beans	0.40	cwt
					Rhizobium	0.40	pkg
June	Cultivate	110 HP	Cultivator 8-Row				
July		110 HP	Cultivator 8-Row				
June	Insect: Lygus	Custom - Air			Warrior	3.00	floz
July		Custom - Air			Warrior	3.00	floz
August	Insect: Worms	Custom - Air			Orthene	1.00	lb
September	Harvest: Cut & Windrow Beans	Custom					
	Harvest: Thresh Beans	Custom					
	Haul to Warehouse	Custom					
	Warehouse: Clean, Fumigate, Grade	Custom					
	Warehouse: Insurance, Storage	Custom					