UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION

2008

SAMPLE COSTS TO PRODUCE
WHEAT
FOR GRAIN

SAN JOAQUIN VALLEY - SOUTH
Irrigated

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San Joaquin Valley – South 2008

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INTRODUCTION

Sample costs to produce wheat for grain 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. "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 are available from the Department of Agricultural and Resource Economics' website http://coststudies.ucdavis.edu or by calling, UC Davis, (530) 752-4424. The studies can also be obtained from the local county UC Cooperative Extension offices.

ASSUMPTIONS

The assumptions refer to Tables 1 through 8 and pertain to sample costs to produce wheat for grain in the southern San Joaquin Valley. Practices described represent production practices and materials considered typical of well-managed wheat crop. Costs, materials, and practices in this study will not be applicable to all situations. Cultural practices vary among growers within the region. 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. The hypothetical farm consists of 3,000 non-contiguous acres of which 1,500 acres are rented and 1,500 owned by the grower. Wheat is planted on 25% of the acres (600 rented acres). Alfalfa, corn, cotton, vegetables and almonds are planted on the remaining acres. If water is available, the wheat may be doublecropped and in that case some annual costs (Cash and Non-Cash Overhead) are allocated to the wheat (50%) and the doublecrop which will most likely be corn (50%). The grower owned acres include 10 acres occupied by buildings and homestead.

Production Cultural Practices and Material Inputs

Land Preparation. In the fall anhydrous ammonia is injected on the field. The fields are disked twice to prepare the seedbed. Borders or levees are pulled at planned intervals creating checks for irrigation.

Planting. Wheat seed is drilled (planted) at a rate of 130 pounds per acre on flat ground. Planting normally occurs in the fall and in this study the grower drills the seed in the last week of November.

Fertilization. In November prior to land preparation, nitrogen (N) as anhydrous ammonia at 130 pounds per acre is applied by the grower using an injection rig provided by the fertilizer company. In February, N as urea is applied top dress by air at a rate of 50 pounds per acre. In April, 40 pounds of N as UN32 is applied in the irrigation water. In some areas, phosphorous may be required for grain crops at planting. Growers should apply fertilizer or soil amendments only after soil tests determine nutrient and pH levels.

Irrigation. The irrigation cost includes the water ($4.58 per acre-inch) and labor expense (0.15 hours per acre per irrigation). The crop is irrigated once in January, once in March, twice in April and once in May at four acre-inches per irrigation. The water is supplied by an irrigation district, although some growers may use or supplement with well water. Water prices vary among irrigation districts. The authors agreed that $55 per acre-foot ($4.58 per acre-inch) is a fair value for this study, based upon information from their respective growers.

Pest Management. The pesticides, rates, and application practices mentioned in this cost study are listed in the *UC IPM Pest Management Guidelines, Small Grains.* **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. Adjuvants are not included in this study. Pesticide cost will vary by grower location and the grower's purchasing volume or use. Material costs are shown as full retail from a single chemical dealer.

Pest Control Adviser (PCA). Written recommendations are required for many commercially applied pesticides and are available from licensed pest control advisers. In addition the PCA or an independent consultant will monitor the field for agronomic problems including irrigation and nutrition. Growers may hire private PCAs or receive the service as part of a service agreement with an agricultural chemical and fertilizer company. The company charges $8 per acre to monitor the field for nutrition, insects and diseases.

Weeds. Shark, Buctril, MCPA, or Clarity are post-emergent herbicides to control broadleaf weeds. They are generally applied in January or when weeds are very small. In this study, Shark is applied at 1.5 ounces per acre to control all weeds listed on the label. Puma is applied one week later at 10.6 fluid ounces for wild oats or canary grass control. The herbicides are applied commercially by air.

Harvest. The wheat is custom harvested for grain in June at $26 per acre. The custom harvester combines, transfers the wheat from the combine to a bankout wagon, which delivers and dumps the grain into bulk trailers for delivery to the mill. In this study the mill pays the hauling cost. After grain harvest, if the straw is sold, it is swathed and baled. All straw costs are incurred by the buyer.

Yields. The crop is assumed to yield 3.25 tons per acre of grain at 9 to 10% moisture. Based on grower input, yields in the San Joaquin Valley range from 2.0 to 4.5 tons per acre. In addition, the crop yields 1.8 to 2.4 tons of straw per acre and for this study is assumed to yield 2.0 tons per acre.

Returns. A price of a $180 per ton based on growers' current preselling price is used to calculate returns over a range of yields. Various returns are shown in the Ranging Table 4 for grain sales over a range of yields. Straw sales over a range of yields are shown in Ranging Table 5. The grower does not incur any additional costs for the straw above the costs of producing the wheat; therefore, no production costs are included. For a total net return, add the proper number from both tables together.

Assessments. The California Wheat Commission (CWC) collects a fee of $1.00 per ton under a state marketing order. The CWC funds research and market development.

Pickup. The pickup travels 7.18 miles per acre for wheat production use or a total of 4,308 miles per year. Costs are estimated and not based on any specific data.

Labor, Equipment and Interest Costs

Labor. Labor rates of $13.94 per hour for machine operators and $10.88 for general labor includes payroll overhead of 36%. The basic hourly wages are $10.25 for machine operators and $8.00 for general labor. The overhead includes the employers' share of federal and California state payroll taxes, workers' compensation insurance for field crops (code 0071), 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, 2008 (California Department of Insurance, 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.

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 rate will vary depending upon various factors, but the rate in this study is considered a typical lending rate by a farm lending agency as of April 2008.

Equipment Operating Costs. 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 power take off (PTO) horsepower and fuel type. Prices for **on-farm delivery** of diesel and gasoline are $3.54 (excludes excise taxes) and $3.57 per gallon, respectively. The fuel prices are the average costs from November 2007 through April 2008 derived from American Automobile Association (AAA) and Energy Information Administration monthly data. The cost includes a 2.25% sales tax for diesel fuel, and federal and excise taxes plus an 8% sales tax on gasoline. The federal and state excise tax on gasoline used on the farm can be refunded for on-farm use when filing your income tax. The fuel, lube, and repair cost per acre for each operation in the "Cost Per Acre to Produce" table is determined by multiplying the total hourly operating cost in the "Hourly Equipment Costs" table for each piece of equipment used from the Operation Time (Hrs/A) column 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.

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, not to a particular operation. If the field is double cropped, allocate 50% of the costs to each 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 vary depending on the assets included and the amount of coverage. Property insurance provides coverage for property loss and is charged at 0.74% of the average value of the assets over their useful life. Liability insurance covers accidents on the farm and costs $1,533 for the entire farm or $0.51 per producing acre.

Office. Costs are estimated at $35 per acre for the ranch and are not based on any specific information, except that there is a cost involved for bookkeeping, payroll, tax preparation, and telephone.

Land Rent. Annual land rents for a field crop ranges from $100 to $300 per acre. The wheat is planted on the rented land and costs $225 per acre.

Investment Repairs. Annual repairs on investments or capital recovery items that require maintenance are calculated as 2% of the purchase price. Repairs are not calculated for land and establishment costs.

Non-Cash Overhead

Non-cash overhead is calculated as the capital recovery cost for equipment and other farm investments. If the field is double cropped, allocate 50% of the costs to each crop.

Capital Recovery Costs. Capital recovery cost is the annual depreciation and interest costs for a capital investment and is the amount of money required each year to recover the difference between the purchase price

and salvage value (unrecovered capital). The capital recovery costs are 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 the estimated value of an investment at the end of its useful life. For farm machinery the value is a percentage of the new cost of the investment (Boehlje and Eidman). The value is calculated from equations developed by 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.

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% is used to calculate capital recovery. The rate will vary depending upon size of loan and other lending agency conditions, but is a suggested rate by a farm lending agency in April 2008.

Tools. Includes shop equipment/tools and other tools used on the farm and does not recognize any specific inventory.

Irrigation System. The permanent irrigation system consists of wells, pumps and motors, and buried mainline with alfalfa valves. The maintenance costs are included in the land rental price.

Land. Cropland with district water suitable for wheat production typically ranges in value among counties from $4,500 to $12,000 per acre. The land in this study that is owned by the grower cost $8,000 per acre. Being the wheat is on rented land, land ownership costs are not shown.

Global Positioning System. Global Positioning System (GPS) is included based on grower estimates for steering equipment on the tractor, rate monitors on the implements and any other items that are needed to make the equipment effective. The data is not taken from any specific inventory.

Equipment. Although, farm equipment is purchased new or used, 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. 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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Table 1. COSTS PER ACRE to PRODUCE WHEAT

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:							
Fertilize: Preplant (Anhydrous Ammonia)	0.07	1	3	95	0	99	
Land Prep: Disk 2X	0.22	4	15	0	0	18	
Land Prep: Pull Borders	0.04	1	2	0	0	2	
Plant: Wheat	0.12	2	5	55	0	62	
Weed: Postemergent (Shark)	0.00	0	0	12	8	20	
Weed: Wild Oats (Puma)	0.00	0	0	22	8	30	
Irrigate: Water & Labor 5X	0.75	8	0	92	0	100	
Fertilize: Top Dress (Urea)	0.00	0	0	56	8	64	
Fertilize: Water Run (UN32)	0.00	0	0	34	0	34	
Pest Control Adviser/Consultant	0.00	0	0	0	8	8	
Pickup Truck Use	0.24	4	3	0	0	7	
TOTAL CULTURAL COSTS	1.44	20	27	365	32	444	
Harvest:							
Harvest: Combine (hauling paid by mill)	0.00	0	0	0	26	26	
Assessment	0.00	0	0	3	0	3	
TOTAL HARVEST COSTS	0.00	0	0	3	26	29	
Interest on operating capital @ 6.75%						15	
TOTAL OPERATING COSTS/ACRE		20	27	369	58	488	
CASH OVERHEAD*:							
Office Expense						35	
Liability Insurance						1	
Land Rent						225	
Property Taxes						1	
Property Insurance						1	
Investment Repairs						1	
TOTAL CASH OVERHEAD COSTS						263	
TOTAL CASH COSTS/ACRE						751	
NON-CASH OVERHEAD (Capital Recovery)*:		Per producing acre		Annual Cost Capital Recovery			
Buildings		27		2		2	
Shop Tools		5		0		0	
Fuel Tanks		2		0		0	
Global Positioning System (GPS)		13		3		3	
Equipment		73		9		9	
TOTAL NON-CASH OVERHEAD COSTS		120		14		14	
TOTAL COSTS/ACRE						765	

*For double cropped-allocate 50% to each crop

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Table 2. COSTS AND RETURNS PER ACRE to PRODUCE WHEAT

SAN JOAQUIN VALLEY – South 2008

	Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
GROSS RETURNS					
Wheat (grain)	3.25	ton	180.00	585	
Wheat (straw)	2.00	ton	35.00	70	
TOTAL RETURNS			215.00	655	
OPERATING COSTS					
Fertilizer:					
80-0-0 (Anhydrous Ammonia)	130.00	lb N	0.73	95	
46-0-0 (Urea)	50.00	lb N	1.12	56	
32-0-0 (UN32)	40.00	lb N	0.86	34	
Seed:					
Wheat	130.00	lb	0.42	55	
Herbicide:					
Shark EW	1.50	oz	7.69	12	
Puma 1EC	10.60	floz	2.11	22	
Custom:					
Air Application	3.00	acre	8.00	24	
Combine Wheat	1.00	acre	26.00	26	
Pest Control Adviser/Consultant	1.00	acre	8.00	8	
Irrigation:					
Water	20.00	acin	4.58	92	
Assessment:					
California Wheat Commission (CWC)	3.25	ton	1.00	3	
Labor (machine)	0.82	hrs	13.94	11	
Labor (non-machine)	0.75	hrs	10.88	8	
Fuel - Gas	0.60	gal	3.57	2	
Fuel - Diesel	4.83	gal	3.54	17	
Lube				3	
Machinery repair				5	
Interest on operating capital @ 6.75%				15	
TOTAL OPERATING COSTS/ACRE				488	
NET RETURNS ABOVE OPERATING COSTS				167	
CASH OVERHEAD COSTS*:					
Office Expense				35	
Liability Insurance				1	
Land Rent				225	
Property Taxes				1	
Property Insurance				1	
Investment Repairs				1	
TOTAL CASH OVERHEAD COSTS/ACRE				263	
TOTAL CASH COSTS/ACRE				751	
NON-CASH OVERHEAD COSTS (Capital Recovery)*:					
Buildings				2	
Shop Tools				0	
Fuel Tanks				0	
Global Positioning System (GPS)				3	
Equipment				9	
TOTAL NON-CASH OVERHEAD COSTS/ACRE				14	
TOTAL COSTS/ACRE				765	
NET RETURNS ABOVE TOTAL COSTS				-110	

*For double cropped-allocate 50% to each crop

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Table 3. MONTHLY CASH COSTS PER ACRE to PRODUCE WHEAT

SAN JOAQUIN VALLEY – South 2008

Beginning NOV 07 Ending OCT 08	NOV 07	DEC 07	JAN 08	FEB 08	MAR 08	APR 08	MAY 08	JUN 08	JUL 08	AUG 08	SEP 08	OCT 08	TOTAL
Fertilize: Preplant (Anhydrous Ammonia)	99												99
Land Prep: Disk 2X	18												18
Land Prep: Pull Borders	2												2
Plant: Wheat	62												62
Weed: Postemergent (Shark)			20										20
Weed: Wild Oats (Puma)			30										30
Irrigate: Water & Labor 5X			20		20	40	20						100
Fertilize: Top Dress (Urea)				64									64
Fertilize: Water Run (UN32)						34							34
Pest Control Adviser/Consultant	1	1	1	1	1	1	1	1					8
Pickup Truck Use	1	1	1	1	1	1	1	1	1	1	1	1	7
TOTAL CULTURAL COSTS	183	2	71	66	22	76	22	2	1	1	1	1	444
Harvest:													
Harvest: Combine (hauling paid by mill)								26					26
Assessment								3					3
TOTAL HARVEST COSTS								29					29
Interest on operating capital @ 6.75%	1	1	1	2	2	2	2	3	0	0	0	0	15
TOTAL OPERATING COSTS/ACRE	184	3	73	67	23	78	24	33	1	1	1	1	488
OVERHEAD:													
Office Expense	4	4	4	4	4	4	4	4					35
Liability Insurance				1									1
Land Rent								225					225
Property Taxes				0					0				1
Property Insurance				1									1
Investment Repairs	0	0	0	0	0	0	0	0	0	0	0	0	1
TOTAL CASH OVERHEAD COSTS	4	4	4	6	4	4	4	229	0	0	0	0	263
TOTAL CASH COSTS/ACRE	188	7	77	73	28	83	28	263	1	1	1	1	751

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Table 4 RANGING ANALYSIS for WHEAT (grain)

SAN JOAQUIN VALLEY – South 2008

COSTS PER ACRE AT VARYING YIELDS TO PRODUCE WHEAT for GRAIN

	YIELD (ton/acre)						
	1.75	2.25	2.75	3.25	3.75	4.25	4.75
OPERATING COSTS:							
Cultural Cost	444	444	444	444	444	444	444
Harvest Cost	26	26	26	26	26	26	26
Assessment	2	2	3	3	4	4	5
Interest on operating capital @ 6.75%	15	15	15	15	15	15	15
TOTAL OPERATING COSTS/acre	487	487	488	488	489	489	490
Total Operating Cost/ton	278	217	178	150	130	115	103
CASH OVERHEAD COSTS	263	263	263	263	263	263	263
TOTAL CASH COSTS/acre	750	750	751	751	752	752	753
Total Cash Costs/ton	429	333	273	231	201	177	159
NON-CASH OVERHEAD COSTS	14	14	14	14	14	14	14
TOTAL COSTS/acre	764	764	765	765	766	766	767
Total Costs/ton	437	340	278	235	204	180	162

NET RETURNS PER ACRE ABOVE OPERATING COSTS

PRICE	YIELD (ton/acre)						
$/ton	1.75	2.25	2.75	3.25	3.75	4.25	4.75
140.00	-242	-172	-103	-33	36	106	175
160.00	-207	-127	-48	32	111	191	270
180.00	-172	-82	7	97	186	276	365
200.00	-137	-37	62	162	261	361	460
220.00	-102	8	117	227	336	446	555
240.00	-67	53	172	292	411	531	650
260.00	-32	98	227	357	486	616	745

NET RETURNS PER ACRE ABOVE CASH COSTS

PRICE	YIELD (ton/acre)						
$/ton	1.75	2.25	2.75	3.25	3.75	4.25	4.75
140.00	-505	-435	-366	-296	-227	-157	-88
160.00	-470	-390	-311	-231	-152	-72	7
180.00	-435	-345	-256	-166	-77	13	102
200.00	-400	-300	-201	-101	-2	98	197
220.00	-365	-255	-146	-36	73	183	292
240.00	-330	-210	-91	29	148	268	387
260.00	-295	-165	-36	94	223	353	482

NET RETURNS PER ACRE ABOVE TOTAL COSTS

PRICE	YIELD (ton/acre)						
$/ton	1.75	2.25	2.75	3.25	3.75	4.25	4.75
140.00	-519	-449	-380	-310	-241	-171	-102
160.00	-484	-404	-325	-245	-166	-86	-7
180.00	-449	-359	-270	-180	-91	-1	88
200.00	-414	-314	-215	-115	-16	84	183
220.00	-379	-269	-160	-50	59	169	278
240.00	-344	-224	-105	15	134	254	373
260.00	-309	-179	-50	80	209	339	468

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Table 5. RANGING ANALYSIS for WHEAT STRAW

SAN JOAQUIN VALLEY – South 2008

NET RETURNS PER ACRE for WHEAT STRAW

PRICE	YIELD (ton/acre)					
$/ton	1.50	1.75	2.00	2.25	2.50	3.00
29.00	44	51	58	65	73	87
31.00	47	54	62	70	78	93
33.00	50	58	66	74	83	99
35.00	53	61	70	79	88	105
37.00	56	65	74	83	93	111
39.00	59	68	78	88	98	117
41.00	62	72	82	92	103	123

If selling straw add appropriate number to Net Returns Tables in Table 4

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Table 6. WHOLE FARM ANNUAL EQUIPMENT, INVESTMENT, and BUSINESS OVERHEAD COSTS

SAN JOAQUIN VALLEY - South 2008

ANNUAL EQUIPMENT COSTS

						Cash Overhead		
Yr	Description	Price	Yrs Life	Salvage Value	Capital Recovery	Insur-ance	Taxes	Total
08	125HP 2WD Tractor	108,450	10	32,034	10,900	520	702	12,123
08	215HP Trac Tractor	206,704	10	61,057	20,776	991	1,339	23,106
08	Anhydrous Ammonia Rig (loaned)	0	10	0	0	0	0	0
08	Disc - Border	2,150	10	380	237	9	13	259
08	Disc - Finish 21'	34,000	8	7,677	4,276	154	208	4,639
08	Pickup 1/2 Ton	28,000	5	12,549	4,028	150	203	4,381
08	Planter-Drill 21'	24,000	10	4,244	2,647	105	141	2,892
	TOTAL	403,304		117,941	42,865	1,929	2,606	47,400
	60% of New Cost *	241,982		70,765	25,719	1,157	1,564	28,440

*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
Fuel Tanks in Containment (2-300 gal)	6,514	20		490	24	33	130	677
Shop Building, 2400 sqft	80,000	25		5,257	296	400	1,600	7,553
Shop & Field Tools	15,000	20	1,200	1,089	60	81	300	1,530
Global Positioning System (GPS)	40,000	5		9,048	148	200	800	10,196
TOTAL INVESTMENT	141,514		1,200	15,884	528	714	2,830	19,956

ANNUAL BUSINESS OVERHEAD COSTS

Description	Units/ Farm	Unit	Price/ Unit	Total Cost
Land Rent (600 acres)	600.00	acre	225.00	135,000
Liability Insurance	3,000.00	acre	0.51	1,530
Office Expense	3,000.00	acre	35.00	105,000

UC COOPERATIVE EXTENSION

Table 7. 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	125HP 2WD Tractor	1,200	5.45	0.26	0.35	5.09	29.53	34.62	40.68
08	215HP Trac Tractor	1,600	7.79	0.37	0.50	5.54	50.80	56.34	65.00
08	Anhydrous Ammonia Rig (loaned)	200	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08	Disc - Border	200	0.71	0.03	0.04	0.36	0.00	0.36	1.14
08	Disc - Finish 21'	250	10.27	0.37	0.50	5.71	0.00	5.71	16.85
08	Pickup 1/2 Ton	285	8.50	0.32	0.43	1.83	10.26	12.09	21.34
08	Planter-Drill 21'	150	10.60	0.42	0.57	6.67	0.00	6.67	18.26

UC COOPERATIVE EXTENSION

Table 8. OPERATIONS WITH EQUIPMENT

SAN JOAQUIN VALLEY – South 2008

	Operation	Equipment		Non-Machine			
Operation	Month	Tractor	Implement	Labor	Material	Rate/acre	Unit
Fertilize: Preplant	November	125 HP	Anhydrous Rig		80-0-0	130.00	lb N
Fertilize: Topdress	February	Custom (air)			46-0-0	50.00	lb N
Fertilize: Water Run	April				32-0-0	40.00	lb N
Land Prep: Disk 2X	November	215 HP	Disc - Finish				
Land Prep: Pull Borders	November	125 HP	Disc - Border				
Plant	November	125 HP	Planter-Drill		Wheat	130.00	lb
Weed: Post emergent	January	Custom (air)			Shark	1.50	oz
Weed: Wild Oats	January	Custom (air)			Puma	10.60	floz
Irrigate:	January			0.15	Water	4.00	acin
	March			0.15	Water	4.00	acin
	April			0.15	Water	4.00	acin
	April			0.15	Water	4.00	acin
	May			0.15	Water	4.00	acin
Harvest:	June	Custom					