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**UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION**

**2006**

**SAMPLE COSTS TO PRODUCE**  
**ONIONS**

**RED ONION**



**SAN JOAQUIN VALLEY - South**

Prepared by:

Richard H. Molinar

UC Cooperative Extension Farm Advisor, Fresno County

Michael Yang

UC Agricultural Assistant, Fresno County

Karen M. Klonsky

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

Richard L. De Moura

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

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## SAMPLE COSTS TO PRODUCE ONIONS San Joaquin Valley - South 2006

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### INTRODUCTION

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

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

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

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## ASSUMPTIONS

The assumptions refer to Tables 1 to 6 and pertain to sample costs to produce onions in the San Joaquin Valley. The cultural practices described represent production operations and materials considered typical for a small farm in the region. Costs, materials, and practices in this study will not apply to all farms. Timing of and types of cultural practices will vary among growers within the region and from season to season due to variables such as weather, soil, and insect and disease pressure. **The use of trade names and cultural practices in this report does not constitute an endorsement or recommendation by the University of California nor is any criticism implied by omission of other similar products or cultural practices.**

**Farm.** This report is based on a 60 contiguous acre farm on rented land. In this study 20 acres are planted to red onions and the remaining acres to other vegetables.

### Production Operating Costs

**Land Preparation.** The grower rips the land one time, discs two times, rolls the ground and lists the beds in October. In a single operation after listing, the beds are shaped, and the drip tape laid. Besides the tractor driver, two people follow the shaper to handle the drip tape.

**Plant.** In this study, a specialty onion, Early Red Burger is planted. The onion transplants are planted in November, two lines (rows) per 38-inch bed at 4.5 inch in-row spacing or 73,000 plants per acre. Labor includes planting labor, a crew foreman, and two persons to deliver the plants throughout the day to the planting labor. Many growers will grow their own transplants, by planting onion seed in a nursery field in late August. For this study, the transplants are purchased.

**Irrigation.** Irrigation includes the water costs per irrigation and irrigation labor. The drip line is laid or buried in the center of the bed at bed shaping. After which, the laterals are laid and the drip line connected. Irrigation begins in November two to three days after planting. The field is irrigated twice a month from November through February and weekly in March and April, and during the early part of May. Water costs were provided from the growers pumping charges for the summer months and calculated per acre-inch. The crop uses 30 - 36 acres-inches per season. Assuming an efficiency application of 90%, 40 acre inches are applied. Rainfall is not taken into account in this study, but can affect the number of irrigations and irrigation water applied. Irrigation labor is calculated as 0.15 hours per acre per irrigation.

**Fertilization.** The crop is fertilized prior to planting by banding 15-15-15 in the bed at 500 pounds per acre. Another 500 pounds is banded in January at three to four leaf stage and at mid-season in March.

**Pest Management.** The pesticides and rates mentioned in this cost study are listed in *UC Integrated Pest Management, Onions*. For more information on other pesticides available, pest identification, monitoring, and management visit the above UC IPM website at [www.ipm.ucdavis.edu](http://www.ipm.ucdavis.edu) or contact your local farm advisor or pest control adviser. Adjuvants are recommended for many pesticides for effective control, but are not included in this study. Pesticide costs in this study are take from a single dealer and shown as full retail.

*Weeds.* Dacthal herbicide is sprayed over the beds after planting.

*Insects.* Treatment usually not necessary. Thrips can be a problem and are treated with Spinosaid (Entrust or Success).

*Diseases.* Ridomil Gold/Bravo fungicide is applied in January February, or March if disease pressure and rains are a problem for downy mildew control. The grower applies all sprays – in bad years there could be up to four or more applications. Pesticides in all applications are rotated to avoid resistance build-up.

**Pickup/ATV.** Costs for a 1/2-ton pickup are included in the study. The grower drives another 250 miles per acre for farming purposes. The miles driven is assumed and not taken from any specific data. Grower miles vary by farm size and location, and by crops grown.

**Harvest.** The crop is hand harvested in May beginning when 10% of the leaves are laying over. In some situations the grower may roll the plants to enhance maturity but this sometimes damages the bulbs. The bulb surface is exposed, so the furrows are listed to throw dirt over the bulbs to reduce sun damage. The onions are undercut and lifted with a rod weeder or onion blade and left to cure for about five days. The onions are put into burlap bags (approximately 40 lbs) and left in the field 5 to 8 days, after which they are graded and field packed. The grower has four self-contained packing units on trailers. The units move from bag to bag through the field and it takes the four units 4.0 hours (1.0 hour each) per acre to grade and pack. Each unit has one tractor driver, one stacker and six grader/packers. A tractor driver with a trailer hauls the boxes to the grower's packinghouse. The stacker for each unit is also the stacker for the trailer and in this study one-half of the total stacking labor cost is allocated to hauling.

*Yields.* Based on grower information, the crop yields average 650 to 800 forty-pound boxes per acre. The average yield used in this report is 650 or 13 tons to calculate a range of yields over various prices.

*Returns.* Returns of \$8.00 per 40 pound box are 70% of the calculated average of shipping point prices (USDA market report) for June 2005 and 2006. The returns are used in the Ranging Analysis Table to calculate a range of returns over various yields.

**Labor.** Labor rates of \$12.42 per hour for machine operators and \$9.32 for general labor includes payroll overhead of 38%. The basic hourly wages are \$9.00 for machine operators and \$6.75 for general labor. The overhead includes the employers' share of federal and California state payroll taxes, workers' compensation insurance for truck crops (code 0172), and a percentage for other possible benefits. Workers' compensation costs will vary among growers, but for this study the cost is based upon the average industry final rate as of January 5, 2005 (California Department of Insurance). Labor for operations involving machinery are 20% higher than the operation time given in Table 1 to account for the extra labor involved in equipment set up, moving, maintenance, work breaks, and field repair.

**Equipment Operating Costs.** Repair costs are based on purchase price, annual hours of use, total hours of life, and repair coefficients formulated by ASAE. Fuel and lubrication costs are also determined by ASAE equations based on maximum PTO horsepower, and fuel type. Prices for on-farm delivery of red dye diesel and gasoline are \$2.00 and \$2.55 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 2005 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 9.25% per year. A nominal interest rate is the typical

market cost of borrowed funds. The interest rate is from a local agricultural lending agency and is the basic rate in effect as of January 2006. The interest cost of post harvest operations is discounted back to the last harvest month using a negative interest charge.

**Risk.** Production risks should not be minimized. While this study makes every effort to model a production system based on typical, real world practices, it cannot fully represent financial, agronomic and market risks, which affect the profitability and economic viability.

### **Cash Overhead**

Cash overhead consists of various cash expenses paid out during the year that are assigned to the whole farm and not to a particular operation. These costs include property taxes, interest on operating capital, office 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.

**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 0.70% of the average value of the assets over their useful life. Liability insurance covers accidents on the farm and costs \$529 for the entire farm.

**Office Expense.** Office and business expenses are estimated at \$30 per acre. These expenses include office supplies, telephones, bookkeeping, accounting, and legal fees. The cost is a general estimate and not based on any actual data.

**Land Rent.** The 60 acres are rented for cash at \$300 per acre. The rented land includes the irrigation system that is maintained by the landlord. Land rents range from \$250 to \$350 per acre.

**Investment Repairs.** Annual maintenance except land is calculated as two percent of the purchase price.

### **Non-Cash Overhead**

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

**Capital Recovery Costs.** Capital recovery cost is the annual depreciation and interest costs for a capital investment. It is the amount of money required each year to recover the difference between the purchase price and salvage value (unrecovered capital). It is equivalent to the annual payment on a loan for the investment with the down payment equal to the discounted salvage value. This is a more complex method of calculating ownership costs than straight-line depreciation and opportunity costs, but more accurately represents the annual costs of ownership because it takes the time value of money into account (Boehlje and Eidman). The formula for the calculation of the annual capital recovery costs is  $((\text{Purchase Price} - \text{Salvage Value}) \times \text{Capital Recovery Factor}) + (\text{Salvage Value} \times \text{Interest Rate})$ .

*Salvage Value.* Salvage value is an estimate of the remaining value of an investment at the end of its useful life. For farm machinery (tractors and implements) the remaining value is a percentage of the new cost

by the American Society of Agricultural Engineers (ASAE) based on equipment type and years of life. The life in years is estimated by dividing the wear out life, as given by ASAE by the annual hours of use in this operation. For other investments including irrigation systems, buildings, and miscellaneous equipment, the value at the end of its useful life is zero. The salvage value for land is the purchase price because land does not depreciate. The purchase price and salvage value for equipment and investments are shown in the tables.

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

*Interest Rate.* The interest rate of 6.25% used to calculate capital recovery cost is the effective long term interest rate in January 2006. The interest rate is provided by a local farm lending agency and will vary according to risk and amount of loan.

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

**Irrigation/Laterals.** The landlord maintains the irrigation system. The grower purchases drip tape for the beds annually and owns the lateral lines that connect to the drip tape. The filed is broken into sections with drip irrigation runs of no more than 300 feet long.

**Equipment.** Farm equipment is purchased new or used, but the study shows the current purchase price for new equipment. The new purchase price is adjusted to 60% to indicate a mix of new and used equipment. Annual ownership costs for equipment and other investments are shown in the Whole Farm Annual Equipment, Investment, and Business Overhead Costs table. Equipment costs are composed of three parts: non-cash overhead, cash overhead, and operating costs. Both of the overhead factors have been discussed in previous sections. The operating costs consist of repairs, fuel, and lubrication and are discussed under operating costs.

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

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**Table 1. COST PER ACRE TO PRODUCE ONION**  
 SAN JOAQUIN VALLEY 2006

Operation	Operation Time		Cash and Labor Costs per Acre				Total Cost	Your Cost
	Machine (Hrs/A)	Labor (Hrs/A)	Labor Cost	Fuel, Lube & Repairs	Material Cost	Custom/Rent		
Cultural:								
Land Prep: Rip	0.32		5	10	0	0	15	
Land Prep: Disk 2X	0.28		4	9	0	0	13	
Land Prep: List Beds	0.11		2	1	0	0	3	
Fertilize: Band (15-15-15)	0.39		6	4	326	0	335	
Land Prep: Shape Beds/Lay Tape	2.50	5.00	84	29	165	0	278	
Irrigation: Trench for laterals/Connect drip	0.20	3.50	36	1	0	0	37	
Plant: Transplant	0.00	12.00	112	0	365	220	697	
Weed: (Dacthal)	0.28		4	2	132	0	138	
Irrigate	0.00	2.70	25	0	193	0	218	
Disease: Downy Mildew (Ridomil)	0.18		3	2	50	0	55	
Pickup: Business Use	2.50		37	36	0	0	73	
<b>TOTAL CULTURAL COSTS</b>	<b>6.76</b>	<b>23.20</b>	<b>317</b>	<b>94</b>	<b>1,231</b>	<b>220</b>	<b>1,862</b>	
Harvest:								
Harvest: List Furrows (cover onions)	0.50		7	6	0	0	13	
Harvest: Undercut Plants	1.00		15	5	0	0	20	
Harvest: Sack/Bag	0.00		0	0	325	325	650	
Harvest: Grade & Pack	4.00	26.00	302	23	715	0	1,040	
Load & Haul	4.00	2.00	78	45	0	0	123	
<b>TOTAL HARVEST COSTS</b>	<b>9.50</b>	<b>28.00</b>	<b>403</b>	<b>79</b>	<b>1,040</b>	<b>325</b>	<b>1,846</b>	
Interest on operating capital @ 9.25%							105	
<b>TOTAL OPERATING COSTS/ACRE</b>	<b>16.26</b>	<b>51.20</b>	<b>719</b>	<b>173</b>	<b>2,271</b>	<b>545</b>	<b>3,813</b>	
CASH OVERHEAD:								
Land Rent							300	
Office							30	
Liability Insurance							9	
Property Taxes							8	
Property Insurance							5	
Investment Repairs							3	
<b>TOTAL CASH OVERHEAD COSTS</b>							<b>354</b>	
<b>TOTAL CASH COSTS/ACRE</b>							<b>4,167</b>	
Non-Cash Overhead (Capital Recovery)								
			Per Producing Acre		Annual Cost			
					Capital Recovery			
Miscellaneous Field/Shop Tools			100		24		24	
Irrigation Laterals			39		15		15	
Equipment			1,179		120		120	
<b>TOTAL NON-CASH OVERHEAD COSTS</b>			<b>1,318</b>		<b>159</b>		<b>159</b>	
<b>TOTAL COSTS/ACRE</b>							<b>4,326</b>	



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**Table 2. COSTS AND RETURNS PER ACRE TO PRODUCE ONION**  
 SAN JOAQUIN VALLEY - 2006

	Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
<b>GROSS RETURNS</b>					
Red Onion	650	box	8.00	5,200	
<b>OPERATING COSTS</b>					
<b>Fertilizer:</b>					
15-15-15	1,500.00	lb	0.22	326	
<b>Irrigation:</b>					
DripTape 5 mil	13,755.00	foot	0.01	165	
Water Pumped	40.00	acin	4.83	193	
<b>Seed:</b>					
Onion Transplants	73.00	thou	5.00	365	
<b>Custom:</b>					
Transplant Onion Labor	13,750.00	foot	0.02	220	
Bagging Labor (harvest)	650.00	each	0.50	325	
<b>Herbicide:</b>					
Dacthal W-75	7.00	lb	18.85	132	
<b>Fungicide:</b>					
Ridomil Gold Bravo	2.00	lb	25.06	32	
<b>Carton:</b>					
Onion Bags (harvest)	650.00	each	0.50	325	
Boxes 40 lb	650.00	each	1.10	715	
Labor (machine)	19.51	hrs	12.42	242	
Labor (non-machine)	51.20	hrs	9.32	477	
Fuel - Gas	10.41	gal	2.55	27	
Fuel - Diesel	47.54	gal	2.00	95	
Lube				18	
Machinery repair				33	
Interest on operating capital @ 9.25%				105	
<b>TOTAL OPERATING COSTS/ACRE</b>				<b>3,813</b>	
<b>NET RETURNS ABOVE OPERATING COSTS</b>				<b>1,387</b>	
<b>CASH OVERHEAD COSTS:</b>					
Land Rent				300	
Office				30	
Liability Insurance				9	
Property Taxes				8	
Property Insurance				5	
Investment Repairs				3	
<b>TOTAL CASH OVERHEAD COSTS/ACRE</b>				<b>354</b>	
<b>TOTAL CASH COSTS/ACRE</b>				<b>4,167</b>	
<b>NON-CASH OVERHEAD COSTS (Capital Recovery)</b>					
Miscellaneous Field/Shop Tools				24	
Irrigation Laterals				15	
Equipment				120	
<b>TOTAL NON-CASH OVERHEAD COSTS/ACRE</b>				<b>159</b>	
<b>TOTAL COSTS/ACRE</b>				<b>4,326</b>	
<b>NET RETURNS ABOVE TOTAL COSTS</b>				<b>874</b>	

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**Table 3. MONTHLY CASH COSTS PER ACRE TO PRODUCE ONION**  
 SAN JOAQUIN VALLEY - 2006

Beginning OCT 05	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
Ending SEPT 06	05	05	05	06	06	06	06	06	06	06	06	06	
Cultural:													
Land Prep: Rip	15												15
Land Prep: Disk 2X	13												13
Land Prep: List Beds	3												3
Fertilize: Band (15-15-15)	112			112		112							335
Land Prep: Shape Beds/Lay Tape	278												278
Trench for laterals/Connect drip	37												37
Plant: Transplant		697											697
Weed: (Dacthal)		138											138
Irrigate		22	22	22	22	52	52	26					218
Disease: Downy Mildew (Ridomil)				55									55
Pickup: Business Use	9	9	9	9	9	9	9	9					73
<b>TOTAL CULTURAL COSTS</b>	<b>467</b>	<b>866</b>	<b>31</b>	<b>198</b>	<b>31</b>	<b>173</b>	<b>61</b>	<b>35</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1,862</b>
Harvest:													
Harvest: List Furrows								13					13
Harvest: Undercut Plants								20					20
Harvest: Sack/Bag								650					650
Harvest: Grade & Pack								1,040					1,040
Load & Haul								123					123
<b>TOTAL HARVEST COSTS</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1,846</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1,846</b>
Interest on operating capital @ 9.25%	4	10	11	12	12	14	14	29	0	0	0	0	105
<b>TOTAL OPERATING COSTS/ACRE</b>	<b>470</b>	<b>876</b>	<b>42</b>	<b>210</b>	<b>44</b>	<b>186</b>	<b>75</b>	<b>1,910</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3,813</b>
OVERHEAD:													
Land Rent								300					300
Office	4	4	4	4	4	4	4	4					30
Liability Insurance	1	1	1	1	1	1	1	1					9
Property Taxes			4				4						8
Property Insurance				3							3		6
Investment Repairs	0	0	0	0	0	0	0	0	0	0	0	0	3
<b>TOTAL CASH OVERHEAD COSTS</b>	<b>5</b>	<b>5</b>	<b>9</b>	<b>8</b>	<b>5</b>	<b>5</b>	<b>9</b>	<b>305</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>354</b>
<b>TOTAL CASH COSTS/ACRE</b>	<b>475</b>	<b>881</b>	<b>51</b>	<b>218</b>	<b>49</b>	<b>191</b>	<b>84</b>	<b>2,215</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>4,167</b>

UC COOPERATIVE EXTENSION  
**Table 4. RANGING ANALYSIS**  
 SAN JOAQUIN VALLEY - 2006

COSTS PER ACRE AT VARYING YIELD TO PRODUCE RED ONIONS

	YIELD (40 lb boxes/acre)						
	350	450	550	650	750	850	950
<b>OPERATING COSTS/ACRE:</b>							
Cultural Cost	1,862	1,862	1,862	1,862	1,862	1,862	1,862
Harvest Cost (Pick & Haul)	982	1,270	1,558	1,846	2,134	2,422	2,710
Interest on operating capital	98	101	103	105	107	109	112
<i>TOTAL OPERATING COSTS/ACRE</i>	2,942	3,233	3,523	3,813	4,103	4,393	4,684
<i>TOTAL OPERATING COSTS/box</i>	8.41	7.18	6.41	5.87	5.47	5.17	4.93
<b>CASH OVERHEAD COSTS/ACRE</b>							
<i>TOTAL CASH COSTS/ACRE</i>	3,294	3,586	3,877	4,167	4,458	4,749	5,040
<i>TOTAL CASH COSTS/box</i>	9.41	7.97	7.05	6.41	5.94	5.59	5.31
<b>NON-CASH OVERHEAD COSTS/ACRE</b>							
<i>TOTAL COSTS/ACRE</i>	3,433	3,732	4,030	4,326	4,623	4,919	5,215
<i>TOTAL COSTS/box</i>	9.81	8.29	7.33	6.66	6.16	5.79	5.49

NET RETURNS PER ACRE ABOVE OPERATING COSTS

PRICE \$/box	YIELD (40 lb boxes/acre)						
	350	450	550	650	750	850	950
7.00	-492	-83	327	737	1,147	1,557	1,966
7.50	-317	142	602	1,062	1,522	1,982	2,441
8.00	-142	367	877	1,387	1,897	2,407	2,916
8.50	33	592	1,152	1,712	2,272	2,832	3,391
9.00	208	817	1,427	2,037	2,647	3,257	3,866
9.50	383	1,042	1,702	2,362	3,022	3,682	4,341
10.00	558	1,267	1,977	2,687	3,397	4,107	4,816

NET RETURNS PER ACRE ABOVE CASH COSTS

PRICE \$/box	YIELD (40 lb boxes/acre)						
	350	450	550	650	750	850	950
7.00	-844	-436	-27	383	792	1,201	1,610
7.50	-669	-211	248	708	1,167	1,626	2,085
8.00	-494	14	523	1,033	1,542	2,051	2,560
8.50	-319	239	798	1,358	1,917	2,476	3,035
9.00	-144	464	1,073	1,683	2,292	2,901	3,510
9.50	31	689	1,348	2,008	2,667	3,326	3,985
10.00	206	914	1,623	2,333	3,042	3,751	4,460

NET RETURNS PER ACRE ABOVE TOTAL COSTS

PRICE \$/box	YIELD (40 lb boxes/acre)						
	350	450	550	650	750	850	950
7.00	-983	-582	-180	224	627	1,031	1,435
7.50	-808	-357	95	549	1,002	1,456	1,910
8.00	-633	-132	370	874	1,377	1,881	2,385
8.50	-458	93	645	1,199	1,752	2,306	2,860
9.00	-283	318	920	1,524	2,127	2,731	3,335
9.50	-108	543	1,195	1,849	2,502	3,156	3,810
10.00	67	768	1,470	2,174	2,877	3,581	4,285

UC COOPERATIVE EXTENSION

**Table 5. WHOLE FARM ANNUAL EQUIPMENT, INVESTMENT, AND BUSINESS OVERHEAD COSTS**  
SAN JOAQUIN VALLEY - 2006

ANNUAL EQUIPMENT COSTS

Yr	Description	Price	Yrs Life	Salvage Value	Capital Recovery	Cash Overhead		Total
						Insur- ance	Taxes	
06	180HP 4WD Tractor	110,000	20	14,114	9,412	434	621	10,467
06	35HP 2WD Tractor #1	15,265	20	1,959	1,306	60	86	1,453
06	35HP 2WD Tractor #2	15,265	20	1,959	1,306	60	86	1,453
06	35HP 2WD Tractor #3	15,265	20	1,959	1,306	60	86	1,453
06	35HP 2WD Tractor #4	15,265	20	1,959	1,306	60	86	1,453
06	75HP 2WD Tractor	28,891	20	3,707	2,472	114	163	2,749
06	Bed Shaper 15'	10,000	10	1,768	1,242	41	59	1,342
06	Blade Rear 3 point 6'	1,012	20	53	89	4	5	98
06	Boom Sprayer 300 gal	4,500	10	796	559	19	26	604
06	Disk Offset 15'	21,000	20	1,095	1,839	77	110	2,027
06	Fertilizer Applicator 15'	12,000	20	625	1,051	44	63	1,158
06	Furrowing Shank 5'	150	20	8	13	1	1	14
06	Lister - 15'	3,800	12	526	429	15	22	466
06	Packing Unit Onion #1	900	10	159	112	4	5	121
06	Packing Unit Onion #2	900	10	159	112	4	5	121
06	Packing Unit Onion #3	900	10	159	112	4	5	121
06	Packing Unit Onion #4	900	10	159	112	4	5	121
06	Pickup 1/2 Ton	28,000	5	12,549	4,477	142	203	4,822
06	Ripper 15'	11,000	20	573	963	41	58	1,062
06	Rod Weeder 6'	1,200	15	115	121	5	7	133
06	Trailer 12x16	4,500	20	235	394	17	24	434
06	Weed Sprayer 100 gal	3,424	10	606	425	14	20	460
TOTAL		304,137		45,242	29,159	1,223	1,748	32,130
60% of New Cost *		182,482		27,145	17,496	734	1,049	19,278

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

ANNUAL INVESTMENT COSTS

Description	Price	Yrs Life	Salvage Value	Capital Recovery	Cash Overhead			Total
					Insur- ance	Taxes	Repairs	
Irrigation Laterals 2904 ft.	784	3		295	3	4	16	317
Miscellaneous Field/Shop Tools	6,000	5		1,434	21	30	120	1,605
TOTAL INVESTMENT	6,784		0	1,729	24	34	136	1,922

ANNUAL BUSINESS OVERHEAD COSTS

Description	Units/ Farm	Unit	Price/ Unit	Total Cost
Land Rent	60	acre	300.00	18,000
Liability Insurance	60	acre	8.82	529
Office Expense	60	acre	30.00	1,800

UC COOPERATIVE EXTENSION  
**Table 6. HOURLY EQUIPMENT COSTS**  
 SAN JOAQUIN VALLEY 2006

Yr	Description	Actual	Cash Overhead			Operating		Total Costs/Hr.	
		Hours Used	Capital Recovery	Insur- ance	Taxes	Repairs	Fuel & Lube		
06	180HP 4WD Tractor	800.20	7.06	0.33	0.47	2.54	24.03	26.57	34.43
06	35HP 2WD Tractor #1	571.20	1.37	0.06	0.09	0.62	3.95	4.57	6.09
06	35HP 2WD Tractor #2	88.00	8.91	0.41	0.59	0.62	3.95	4.57	14.48
06	35HP 2WD Tractor #3	88.00	8.91	0.41	0.59	0.62	3.95	4.57	14.48
06	35HP 2WD Tractor #4	88.00	8.91	0.41	0.59	0.62	3.95	4.57	14.48
06	75HP 2WD Tractor	620.30	2.39	0.11	0.16	1.17	8.47	9.64	12.30
06	Bed Shaper 15'	200.00	3.73	0.12	0.18	1.13	0	1.13	5.16
06	Blade Rear 3 point 6'	100.00	0.53	0.02	0.03	0.15	0	0.15	0.73
06	Boom Sprayer 300 gal	149.60	2.24	0.07	0.11	1.2	0	1.20	3.62
06	Disk Offset 15'	99.50	11.09	0.47	0.67	3.11	0	3.11	15.34
06	Fertilizer Applicator 15'	64.90	9.72	0.41	0.58	4.41	0	4.41	15.12
06	Furrowing Shank 5'	10.00	0.79	0.03	0.05	0.03	0	0.03	0.90
06	Lister - 15'	166.20	1.55	0.05	0.08	0.76	0	0.76	2.44
06	Packing Unit Onion #1	20.00	3.35	0.11	0.16	0.73	0	0.73	4.35
06	Packing Unit Onion #2	20.00	3.35	0.11	0.16	0.73	0	0.73	4.35
06	Packing Unit Onion #3	20.00	3.35	0.11	0.16	0.73	0	0.73	4.35
06	Packing Unit Onion #4	20.00	3.35	0.11	0.16	0.73	0	0.73	4.35
06	Pickup 1/2 Ton	285.00	9.43	0.30	0.43	2.08	12.22	14.30	24.46
06	Ripper 15'	100.50	5.75	0.24	0.35	2.35	0	2.35	8.69
06	Rod Weeder 6'	20.00	3.62	0.14	0.20	0.26	0	0.26	4.22
06	Trailer 12x16	150.00	1.58	0.07	0.10	0.65	0	0.65	2.40
06	Weed Sprayer 100 gal	149.60	1.71	0.06	0.08	0.91	0	0.91	2.76

UC COOPERATIVE EXTENSION  
**Table 7. OPERATIONS WITH EQUIPMENT**  
 SAN JOAQUIN VALLEY - 2006

Operation	Operation Month	Tractor	Implement	Labor Hrs	Material	Broadcast Rate/acre	Unit
Cultural:							
Land Prep: Rip	Oct	180HP 4WD	Ripper 15'				
Land Prep: Disk	Oct	180HP 4WD	Disk 15'				
Land Prep: List Beds	Oct	75HP 2WD	Lister 15'				
Fertilize: Band	Oct	35HP 2WD	Fertilizer Spreader		15-15-15	500.00	lb
	Jan	35HP 2WD	Fertilizer Spreader		15-15-15	500.00	lb
	Mar	35HP 2WD	Fertilizer Spreader		15-15-15	500.00	lb
Land Prep: Shape Beds/Lay Drip Tape	Oct	75HP 2WD	Bedshaper 3R	5.00	Drip Tape	13,755.00	ft
Trench for laterals/Connect Drip	Oct	35HP 2WD	Furrowing Shank 5'	3.00			
Trench for laterals/Connect Drip	Oct	35HP 2WD	Rear Blade	0.50			
Transplant	Nov			12.00	Transplants	73.00	thou
					Transplant onions	1.60	ft
Weed:(Dacthal)	Nov	35HP 2WD	Weed Sprayer		Dacthal	7.00	lb
Irrigate 2X	Nov			0.30	Water	4.00	acin
Irrigate 2X	Dec			0.30	Water	4.00	acin
Irrigate 2X	Jan			0.30	Water	4.00	acin
Irrigate 2X	Feb			0.30	Water	4.00	acin
Irrigate 4X	Mar			0.60	Water	9.60	acin
Irrigate 4X	Apr			0.60	Water	9.60	acin
Irrigate 2X	Mar			0.30	Water	4.80	acin
Disease: Downy Mildew	Jan	75HP 2WD	Boom Sprayer		Ridomil	2.00	lb
Harvest: List furrows, cover plants	May	75HP 2WD	Lister 15'				
Harvest: Undercut Plants	May	35HP 2WD	Rod Weeder				
Harvest: Sack/Bag	May				Onion Bags	650.00	ea
					Bagging Labor	650.00	ea
Harvest: Pickup, Grade, & Pack	May	35HP 2WD	Packing Unit 1	6.50	Boxes	162.00	ea
		35HP 2WD	Packing Unit 2	6.50	Boxes	163.00	ea
		35HP 2WD	Packing Unit 3	6.50	Boxes	163.00	ea
		35HP 2WD	Packing Unit 4	6.50	Boxes	162.00	ea
Harvest: Load & Haul	May	75HP 2WD	Trailer	2.00			