UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION

2008

SAMPLE COSTS TO PRODUCE
CORN SILAGE

SAN JOAQUIN VALLEY - South
Double Cropped Planting

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STUDY CONTENTS

INTRODUCTION

Sample costs to produce corn silage 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 for many commodities are available and can be requested through the Department of Agricultural and Resource Economics, UC Davis, (530) 752-4424. Current studies and several archived studies can be downloaded from the department website at http://coststudies.ucdavis.edu or obtained from selected county UC Cooperative Extension offices.

ASSUMPTIONS

The following assumptions refer to Tables 1 to 8 and pertain to sample costs to produce corn silage in the southern San Joaquin Valley. Practices described represent production practices and materials considered typical of a well-managed farm in the region. The costs, materials, and practices shown in this study will not apply to all situations. Establishment and production cultural practices vary by grower and the differences can be significant. **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 300 non-contiguous acres of which 150 acres are rented and 150 owned by the grower. Double cropped corn silage is planted on 140 acres of the 150 acres of rented land. The remaining 10 acres are roads and field edges. The grower-owned 150 acres includes 10 acres occupied by buildings and homestead, and 140 acres planted to other crops.

Production Cultural Practices and Material Inputs

Tables 1-3 show the costs associated with ground preparation, planting, growing, and harvesting corn silage.

Single Cropped vs. Double Cropped. Single cropped and double cropped corn silage have similar cultural practices, but planting is usually completed by early April for single cropped and then harvested in September. Single-cropped silage often results in higher yields than double cropped. Due to a longer growing season, there will be differences in pest control. In single crop operations the grower may subsoil the land as part of the land preparation. In double cropping for this study, the overhead costs are split between the crops.

Land Preparation. Land preparations begin in May immediately after harvest of the winter forage. The fields are then disced to incorporate the previous crop residue and break up large dirt clods. Borders are pulled to make irrigation basins for the preirrigation. After irrigation the borders are knocked down and two passes are made with a finish or offset disc to prepare the seedbed.

Planting. In late May, the conventional corn is planted on flat ground in 30 to 36-inch lines at a rate of 33,000 seeds per acre. A seed treatment (Lorsban) for cutworms and fertilizer (10-34-0) is applied with the planting. A custom planter does the planting for $20 per acre.

Conventional vs. Roundup Ready Corn. Although, some of the seed dealers say that the majority of silage corn planted this year is a Roundup Ready variety, conventional or standard corn is planted on the farm in this study. Price of the Roundup Ready corn seed is approximately 20% higher, but the cultural operations remain relatively the same.

Fertilization. Growers should apply fertilizer or soil amendments after soil tests determine nutrient and pH levels. At planting, 10-34-0 liquid fertilizer at 200 pounds per acre is applied. Additional nitrogen as anhydrous ammonia is applied with one June and two July irrigations at a rate of 60 pounds of nitrogen (N) per acre per application. Commercial fertilizers may be reduced or eliminated with the use of dairy pond water.

Irrigation. The grower uses both well and surface water at an average cost of $4.58 per acre-inch or $54.96 per acre-foot. A preplant irrigation of eight acre-inches is made in May. The amount of water applied preplant will vary depending on soil type and moisture remaining from winter rains and previous crop. Effective rainfall is not accounted for in this study. After planting, eight irrigations totaling 40 acre-inches of water are furrow run. Three of the irrigations, one in June and two in July, include nitrogen fertilizer injected into the water. Growing season irrigations start in June and end in September.

Pest Management. The pesticides and rates mentioned in this cost study are listed in *UC Integrated Pest Management Guidelines, Corn*. For more 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. Adjuvants or surfactants may be recommended for use with some pesticides, but are not included in this study. Pesticide costs vary by location and grower volume. Pesticide and fertilizer costs are taken from a different dealers. Pesticides are shown as full retail and fertilizer costs are typical grower retail in the region.

Pest Control Adviser (PCA). Written recommendations are required for many pesticides and are made by licensed pest control advisers. In addition the PCA will monitor the field for agronomic problems including pests and nutrition. Growers may hire private PCAs or receive the service as part of a service agreement with an agricultural chemical and fertilizer company. In this study, the PCA is provided by the ag chemical dealer.

Weeds. Post plant weed control consists of mechanical and chemical practices. Shortly after planting, a herbicide (Yukon) is applied for broadleaf and nutsedge control. Normally, seven to eight days after the post-emergent herbicide application, the field is cultivated and furrowed. A layby application of Prowl is applied in June.

Insects. Several insect and spider mite pests attack corn, but spider mites are the only one assumed to reach an economic threshold in this study. Monitoring is important for effective insect control and to minimize insect control costs. Spider mites are controlled with a custom application of an insecticide/miticide (Oberon). An insecticide (Lorsban) is applied with the seed at planting for cutworm control.

Harvest. In September the corn is harvested, processed, hauled, and packed into a silage pit by a custom operator. The custom rate for harvesting, processing, hauling, and packing is $9.00 per ton. Regular harvesting, which excludes the kernel processing is approximately $1.00 less. Growers or buyers bagging the silage should add $6 per ton to their harvesting cost. Additional per ton per mile charges are incurred for hauls greater than two miles. Normally, non-dairy growers sell the crop standing and the buyer or dairy pays the harvesting cost.

If the grower harvests corn using their own equipment, harvest expense (custom harvest costs) is subtracted from harvest costs in Tables 1, 2, and 3. The cash cost for operating grower owned equipment is then added to the harvest costs and the cost of owning harvest equipment added to Non-Cash Overhead.

Yields. The crop is assumed to yield 30 tons per acre at 70% moisture. Individual yields can range from 15 to 35 tons per acre in this region.

Returns. Based on the 2007 market, a price of $33 per ton is used to calculate returns. Tables 4 and 5 show a range of grower returns over a range of yields. Table 4 shows net returns including harvest costs and Table 5 shows net returns when the crop is sold standing and harvest costs are incurred by the buyer.

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.

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.

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.

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 Costs

Cash overhead consists of various cash expenses paid out during the year that are assigned to the farm and not to a particular operation. For this budget one-half of the costs are allocated to the double or other crop.

Property Taxes. Counties charge a base property tax at the rate of 1% on the assessed value of the property including land, equipment, buildings, and improvements. In some counties special assessment districts exist and charge additional taxes on property. 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. Land value is assumed to remain unchanged.

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 $884 for the entire farm or $3.16 per producing acre.

Office Expense. Office and business expenses are estimated at $40 per producing acre. For double crop the expense is split equally between the crops. These expenses include office supplies, telephones, bookkeeping, accounting, legal fees, and miscellaneous overhead expenses

Land Rent. The cash rent for the land is $175 per acre or $188 per production acre (140 acres) for a single crop. For double-cropped land with winter forage, one-half of the rent is allocated to the corn silage and one-half to the winter forage. The land rented includes developed wells and irrigation system. Land rent appears as a Cash Overhead cost.

Investment Repairs. Annual repairs are calculated as 2% of the purchase price.

Non-Cash Overhead

Non-cash overhead is calculated as the capital recovery cost for equipment and other farm investments. One-half of the overhead costs are allocated to the double or 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 ((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 6.

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.

Land. Land values for row crop land in the region range from $2,500 per acre to $20,000 per acre. Prices are affected by location, soil type, and water availability. In this study the silage is grown on rented land (see Land Rent).

Irrigation System. An irrigation district supplies water, though growers may supplement this with well water in some areas. The amount of water used to irrigate corn will vary in the San Joaquin Valley. District and well water costs were combined to obtain an average cost for water. The permanent irrigation system consists of buried mainline. This part of the system is already in place when the land is purchased/rented.

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. COSTS PER ACRE to PRODUCE CORN SILAGE

SAN JOAQUIN VALLEY - 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: Disc Stubble 2X	0.35	6	22	0	0	27	
Land Prep: Pull Borders	0.08	1	3	0	0	4	
Irrigate: Preirrigate	0.10	1	0	37	0	38	
Land Prep: Knock Down Borders	0.08	1	3	0	0	4	
Land Prep: Finish Disc 2X	0.25	4	16	0	0	20	
Plant: Seed w/insecticide (Lorsban) +fertilizer (10-34-0)	0.00	0	0	152	20	172	
Weed: Post plant (Yukon)	0.13	2	3	21	0	26	
Weed: Layby (Prowl)	0.13	2	3	17	0	22	
Weed: Cultivate	0.15	2	4	0	0	6	
Insect: Mites (Oberon)	0.00	0	0	31	10	41	
Irrigate 3X- Fertilize (80-0-0) Water Run 3X	0.30	3	0	191	0	194	
Irrigate 5X	0.50	5	0	115	0	120	
Pickup Truck Use	0.38	6	5	0	0	11	
TOTAL CULTURAL COSTS	2.45	36	58	563	30	686	
Harvest:							
Harvest - Cut, Haul & Pack	0.00	0	0	0	270	270	
TOTAL HARVEST COSTS	0.00	0	0	0	270	270	
Interest on operating capital @ 6.75%						16	
TOTAL OPERATING COSTS/ACRE		36	58	563	300	972	
*Cash Overhead:							
Liability Insurance						2	
Office Expense						20	
Land Rent (per producing acre)						94	
Property Taxes						3	
Property Insurance						2	
Investment Repairs						4	
TOTAL CASH OVERHEAD COSTS						123	
TOTAL CASH COSTS/ACRE						1,096	

*Non-Cash Overhead (Capital Recovery):	Per producing Acre	-- Annual Cost -- Capital Recovery	
Fuel Tanks/Aboveground	12	1	1
Fuel Wagon	5	1	1
Buildings	143	9	9
Shop/Field Tools	27	2	2
Equipment	283	22	22
TOTAL NON-CASH OVERHEAD COSTS	469	34	34
TOTAL COSTS/ACRE			1,130

Note: X=times as 2X=2 times or passes. *1/2 costs allocated to double or other crop.

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Table 2. COSTS and RETURNS PER ACRE to PRODUCE CORN SILAGE

SAN JOAQUIN VALLEY - 2008

	Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Acre
GROSS RETURNS				
Corn Silage	30.00	ton	33.00	990
OPERATING COSTS				
Irrigation:				
Water	48.00	acin	4.58	220
Herbicide:				
Yukon	6.00	oz	3.52	21
Prowl H20	3.00	pint	5.70	17
Seed:				
Corn Seed (conventional, treated)	33.00	thou	1.25	41
Fertilizer:				
10-34-0	200.00	lb	0.55	110
80-0-0 (NH3)	180.00	lb N	0.68	122
Insecticide:				
Lorsban 15G	2.00	oz	0.15	0
Oberon 2SC	7.00	floz	4.40	31
Custom:				
Plant	1.00	acre	20.00	20
Ground Spray Application	1.00	acre	10.00	10
Harvest w/Processing, Haul & Pack	30.00	ton	9.00	270
Labor (machine)	1.85	hrs	13.94	26
Labor (non-machine)	0.90	hrs	10.88	10
Fuel - Gas	0.95	gal	3.57	3
Fuel - Diesel	10.98	gal	3.54	39
Lube				6
Machinery repair				9
Interest on operating capital @ 6.75%				16
TOTAL OPERATING COSTS/ACRE				972
NET RETURNS ABOVE OPERATING COSTS				18
*Cash Overhead:				
Liability Insurance				2
Office Expense				20
Land Rent (per producing acre)				94
Property Taxes				3
Property Insurance				2
Investment Repairs				4
TOTAL CASH OVERHEAD COSTS				123
TOTAL CASH COSTS/ACRE				1,096
*Non-Cash Overhead (Capital Recovery):				
Fuel Tanks/Aboveground				1
Fuel Wagon				1
Buildings				9
Shop/Field Tools				2
Equipment				22
TOTAL NON-CASH OVERHEAD COSTS				34
TOTAL COSTS/ACRE				1,130
NET RETURNS ABOVE TOTAL COSTS				-140

*1/2 costs allocated to double or other crop.

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Table 3. MONTHLY CASH COSTS PER ACRE to PRODUCE CORN SILAGE

SAN JOAQUIN VALLEY - 2008

Beginning JAN 08 Ending DEC 08	JAN 08	FEB 08	MAR 08	APR 08	MAY 08	JUN 08	JUL 08	AUG 08	SEP 08	OCT 08	NOV 08	DEC 08	TOTAL
Cultural:													
Land Prep: Disc Stubble 2X					27								27
Land Prep: Pull Borders					2	2							4
Irrigate: Preirrigate					38								38
Land Prep: Knock Down Borders					2				2				4
Land Prep: Finish Disc 2X					20								20
Plant: Seed w/insecticide (Lorsban) +fertilizer (10-34-0)					172								172
Weed: Post plant (Yukon)						26							26
Weed: Layby (Prowl)						22							22
Weed: Cultivate						6							6
Insect: Mites (Oberon)						41							41
Irrigate 3X- Fertilize (80-0-0) Water Run 3X						65	130						194
Irrigate 5X							24	72	24				120
Pickup Truck Use					2	2	2	2	2				11
TOTAL CULTURAL COSTS					263	165	156	74	28				686
Harvest:													
Harvest - Cut, Haul & Pack									270				270
TOTAL HARVEST COSTS									270				270
Interest on operating capital @6.75%					1	2	3	4	5				16
TOTAL OPERATING COSTS/ACRE					265	167	159	78	304				972
*Cash Overhead:													
Liability Insurance					2								2
Office Expense					4	4	4	4	4				20
Land Rent (per producing acre)									94				94
Property Taxes							3						3
Property Insurance					2								2
Investment Repairs					1	1	1	1	1				4
TOTAL CASH OVERHEAD COSTS					8	5	7	5	98				124
TOTAL CASH COSTS/ACRE					273	172	166	82	402				1,096

*1/2 costs allocated to double or other crop.

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Table 4. RANGING ANALYSIS including Harvest Costs

SAN JOAQUIN VALLEY - 2008

COSTS PER ACRE AT VARYING YIELDS TO PRODUCE CORN SILAGE

	YIELD (ton/acre)						
	24.00	26.00	28.00	30.00	32.00	34.00	36.00
OPERATING COSTS:							
Cultural Cost	686	686	686	686	686	686	686
Harvest Cost	216	234	252	270	288	306	324
Interest on operating capital @ 6.75%	16	16	16	16	16	16	17
TOTAL OPERATING COSTS/acre	918	936	954	972	990	1,008	1,027
Total Operating Cost/ton	38	36	34	32	31	30	29
CASH OVERHEAD COSTS	123	123	123	123	123	123	123
TOTAL CASH COSTS/acre	1,041	1,059	1,077	1,095	1,113	1,131	1,150
Total Cash Costs/ton	43	41	38	37	35	33	32
NON-CASH OVERHEAD COSTS/acre	34	34	34	34	34	34	34
TOTAL COSTS/ACRE	1,075	1,093	1,111	1,129	1,147	1,165	1,184
Total Cost/ton	45	42	40	38	36	34	33

NET RETURNS PER ACRE ABOVE OPERATING COSTS

PRICE	YIELD (ton/acre)						
$/ton	24.00	26.00	28.00	30.00	32.00	34.00	36.00
24.00	-342	-312	-282	-252	-222	-192	-163
27.00	-270	-234	-198	-162	-126	-90	-55
30.00	-198	-156	-114	-72	-30	12	53
33.00	-126	-78	-30	18	66	114	161
36.00	-54	0	54	108	162	216	269
39.00	18	78	138	198	258	318	377
42.00	90	156	222	288	354	420	485

NET RETURNS PER ACRE ABOVE CASH COSTS

PRICE	YIELD (ton/acre)						
$/ton	24.00	26.00	28.00	30.00	32.00	34.00	36.00
24.00	-465	-435	-405	-375	-345	-315	-286
27.00	-393	-357	-321	-285	-249	-213	-178
30.00	-321	-279	-237	-195	-153	-111	-70
33.00	-249	-201	-153	-105	-57	-9	38
36.00	-177	-123	-69	-15	39	93	146
39.00	-105	-45	15	75	135	195	254
42.00	-33	33	99	165	231	297	362

NET RETURNS PER ACRE ABOVE TOTAL COSTS

PRICE	YIELD (ton/acre)						
$/ton	24.00	26.00	28.00	30.00	32.00	34.00	36.00
24.00	-499	-469	-439	-409	-379	-349	-320
27.00	-427	-391	-355	-319	-283	-247	-212
30.00	-355	-313	-271	-229	-187	-145	-104
33.00	-283	-235	-187	-139	-91	-43	4
36.00	-211	-157	-103	-49	5	59	112
39.00	-139	-79	-19	41	101	161	220
42.00	-67	-1	65	131	197	263	328

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Table 5. RANGING ANALYSIS for Corn Silage sold in field (No harvest costs)

SAN JOAQUIN VALLEY - 2008

COSTS PER ACRE AT VARYING YIELD TO PRODUCE CORN SILAGE

	YIELD (ton/acre)						
	24.00	26.00	28.00	30.00	32.00	34.00	36.00
OPERATING COSTS:							
Cultural Cost	686	686	686	686	686	686	686
Interest on operating capital @ 6.75%	15	15	15	15	15	15	15
TOTAL OPERATING COSTS/acre	701	701	701	701	701	701	701
Total Operating Cost/ton	29	27	25	23	22	21	19
CASH OVERHEAD COSTS	123	123	123	123	123	123	123
TOTAL CASH COSTS/acre	824	824	824	824	824	824	824
Total Cash Costs/ton	34	32	29	27	26	24	23
NON-CASH OVERHEAD COSTS/acre	34	34	34	34	34	34	34
TOTAL COSTS/ACRE	858	858	858	858	858	858	858
Total Cost/ton	36	33	31	29	27	25	24

NET RETURNS PER ACRE ABOVE OPERATING COSTS

PRICE	YIELD (ton/acre)						
$/ton	24.00	26.00	28.00	30.00	32.00	34.00	36.00
24.00	-125	-77	-29	19	67	115	163
27.00	-53	1	55	109	163	217	271
30.00	19	79	139	199	259	319	379
33.00	91	157	223	289	355	421	487
36.00	163	235	307	379	451	523	595
39.00	235	313	391	469	547	625	703
42.00	307	391	475	559	643	727	811

NET RETURNS PER ACRE ABOVE CASH COSTS

PRICE	YIELD (ton/acre)						
$/ton	24.00	26.00	28.00	30.00	32.00	34.00	36.00
24.00	-248	-200	-152	-104	-56	-8	40
27.00	-176	-122	-68	-14	40	94	148
30.00	-104	-44	16	76	136	196	256
33.00	-32	34	100	166	232	298	364
36.00	40	112	184	256	328	400	472
39.00	112	190	268	346	424	502	580
42.00	184	268	352	436	520	604	688

NET RETURNS PER ACRE ABOVE TOTAL COSTS

PRICE	YIELD (ton/acre)						
$/ton	24.00	26.00	28.00	30.00	32.00	34.00	36.00
24.00	-282	-234	-186	-138	-90	-42	6
27.00	-210	-156	-102	-48	6	60	114
30.00	-138	-78	-18	42	102	162	222
33.00	-66	0	66	132	198	264	330
36.00	6	78	150	222	294	366	438
39.00	78	156	234	312	390	468	546
42.00	150	234	318	402	486	570	654

UC COOPERATIVE EXTENSION

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

SAN JOAQUIN VALLEY - 2008

ANNUAL EQUIPMENT COSTS

						Cash Overhead		
Yr	Description	Price	Yrs Life	Salvage Value	Capital Recovery	Insur-ance	Taxes	Total
08	130 HP 2WD Tractor	82,132	20	10,538	5,833	343	463	6,639
08	200 HP Crawler	172,650	20	22,153	12,262	721	974	13,957
08	92 HP 2WD Tractor	60,000	20	7,699	4,261	250	338	4,850
08	Cultivator - 6 Row	8,580	12	1,188	850	36	49	935
08	Disc - Border	2,150	20	112	158	8	11	178
08	Disc - Finish 18'	31,734	20	1,654	2,333	124	167	2,623
08	Disc - Stubble 14'	36,036	20	1,878	2,649	140	190	2,979
08	Pickup 1/2 Ton	28,000	5	12,549	4,028	150	203	4,381
08	Rear Blade - 8'	3,380	20	176	248	13	18	279
08	Saddle Tank 300Gal	3,218	15	309	279	13	18	310
08	Spray Boom - 20'	1,850	15	178	161	8	10	178
TOTAL		429,730		58,434	33,063	1,806	2,441	37,310
	60% of New Cost *	257,838		35,060	19,838	1,084	1,464	22,386

ANNUAL INVESTMENT COSTS

					Cash Overhead			
Description	Price	Yrs Life	Salvage Value	Capital Recovery	Insur-ance	Taxes	Repairs	Total
Fuel Wagon	2,850	10	285	332	12	16	57	417
Fuel Tanks/Aboveground	6,514	20	250	482	25	34	130	671
Buildings 2,400 sqft	80,000	30		4,768	296	400	1,600	7,064
Shop/Field Tools	15,000	20	600	1,109	58	78	300	1,544
TOTAL INVESTMENT	104,364		1,135	6,691	390	527	2,087	9,695

ANNUAL BUSINESS OVERHEAD COSTS

Description	Units/ Farm	Unit	Price/ Unit	Total Cost
Liability Insurance	280	acre	3.16	885
Office Expense	280	acre	40.00	11,200
Rent: Silage acres (140 acres planted)	150	acre	175.00	26,250

Farm size = 300 acres, Planted acres = 280.

UC COOPERATIVE EXTENSION

Table 7. HOURLY EQUIPMENT COSTS

SAN JOAQUIN VALLEY - 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	130 HP 2WD Tractor	599.60	5.84	0.34	0.46	3.58	30.71	34.29	40.93
08	200 HP Crawler	737.40	9.98	0.59	0.79	4.29	47.25	51.54	62.90
08	92 HP 2WD Tractor	599.80	4.26	0.25	0.34	2.61	18.39	21.00	25.85
08	Cultivator - 6 Row	165.60	3.08	0.13	0.18	1.82	0.00	1.82	5.21
08	Disc - Border	100.20	0.95	0.05	0.07	0.34	0.00	0.34	1.41
08	Disc - Finish 18'	99.60	14.06	0.74	1.01	4.97	0.00	4.97	20.78
08	Disc - Stubble 14'	100.40	15.83	0.84	1.13	5.64	0.00	5.64	23.44
08	Pickup 1/2 Ton	291.20	8.48	0.31	0.42	1.83	10.26	12.09	21.30
08	Rear Blade - 8'	150.20	0.99	0.05	0.07	0.50	0.00	0.50	1.61
08	Saddle Tank 300Gal	99.60	1.68	0.08	0.11	0.86	0.00	0.86	2.73
08	Spray Boom - 20'	99.60	0.97	0.05	0.06	0.49	0.00	0.49	1.57

UC COOPERATIVE EXTENSION

Table 8. OPERATIONS WITH EQUIPMENT & MATERIAL INPUTS

SAN JOAQUIN VALLEY - 2008

Operation	Operation Month	Equipment Tractor	Implement	Non-Mach Labor hrs/acre	Material	Broadcast Rate/acre	Unit
Cultural:							
Land Prep: Disc Stubble 2X	May	200HP Crawler	Stubble Disc				
Land Prep: Pull Borders	May	130HP	Border Disc				
Irrigate: Preirrigate	May			0.10	Water	8.00	acin
Land Prep: Knock Down Borders	May	130HP	Rear Blade				
Land Prep: Finish Disc 2X	May	200HP Crawler	Finish Disc				
Plant: Seed. Insect: Cutworm. Fertilize	May	Custom			Seed	33.00	thou
					Lorsban	2.00	oz
					10-34-0	200.00	lb
Weed: Post Plant	May	92HP	Saddle Tank & Spray Boom		Yukon	6.00	oz
Weed: Layby	June	92HP	Saddle Tank & Spray Boom		Prowl	3.00	pint
Weed: Cultivate	June	92HP	Cultivator				
Insect: Mites	June	Custom			Oberon	7.00	floz
Irrigate: Pull Borders	June	130HP	Border Disc				
Irrigate & Fertilize:	June			0.10	Water	5.00	acin
					80-0-0	60.00	lb N
Irrigate	July			0.10	Water	5.00	acin
Irrigate & Fertilize	July			0.10	Water	5.00	acin
					80-0-0	60.00	lb N
	July			0.10	Water	5.00	acin
					80-0-0	60.00	lb N
Irrigate	August			0.10	Water	5.00	acin
	August			0.10	Water	5.00	acin
	August			0.10	Water	5.00	acin
	September			0.10	Water	5.00	acin
Irrigate: Knock Down Borders	September	130HP	Rear Blade				
Harvest	Custom						