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**UNIVERSITY OF CALIFORNIA - COOPERATIVE EXTENSION**

**2015**

**SAMPLE COSTS TO PRODUCE  
FIELD CORN**



**IN THE  
SACRAMENTO VALLEY  
AND  
NORTHERN SAN JOAQUIN VALLEY**

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In the Sacramento Valley and northern San Joaquin Valley – 2015

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**INTRODUCTION**

The sample costs to produce field corn in the Sacramento Valley and northern San Joaquin Valley are presented in this study. The study is intended as a guide only, and can be used in making production decisions, determining potential returns, preparing budgets and evaluating production loans. Practices described are based on those production procedures considered typical for this crop and area. Sample costs for labor, materials, equipment, and custom services are based on current figures. Some costs and practices detailed in this study may not be applicable to your situation. A blank column, “*Your Costs*,” is provided to enter your actual costs on Tables 1 and 2.

The hypothetical farm operation, 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, 530-752-4651 or [dstewart@ucdavis.edu](mailto:dstewart@ucdavis.edu). An additional cost of production study for field corn grown in the Southern San Joaquin Valley is also available: *Sample Costs to Produce Field Corn in the Southern San Joaquin Valley-2015*.

Sample Cost of Production Studies for many commodities are available and can be requested through the Department of Agricultural and Resource Economics. Current studies can be downloaded from the department website at <http://coststudies.ucdavis.edu>. Archived studies are also available on the website.

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## ASSUMPTIONS

The following assumptions refer to tables 1 to 7 and pertain to sample costs to produce field corn in the Sacramento Valley and northern San Joaquin Valley. Practices described are not recommendations by the University of California, but rather represent production procedures considered typical for this crop and area. Cultural practices for the production of field corn vary by grower and region, and variations can be significant. The practices and inputs used in the cost study serve only as a sample or guide. The costs shown are on an annual, per acre basis. **The use of trade names 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.**

**Farm.** This report is based on a 2,900 acre field and row crop farm. Field corn is planted on 600 acres and the other 2,300 acres planted in rotation with the corn, processing tomatoes, alfalfa hay, rice, safflower, sunflower, dry beans and/or wheat. Typically, a grower with this amount of corn acreage will have several non-adjacent fields. A charge for equipment moving and set-up is shown in the tables under cultural costs. The entire 600 acres is rented and includes developed wells and the irrigation systems. All costs associated with land and the irrigation systems is incurred by the landowner. The grower also owns land, a shop and an equipment yard.

## CULTURAL PRACTICES AND MATERIAL INPUTS

**Land Preparation.** Primary tillage consists of sub-soiling, disking, rolling, laser land leveling, and listing beds which occurs in the fall of the year preceding planting. All operations are done on 100% of the acres unless noted. Chiseling to a depth of 18" inches and stubble disking are done on 25% (150 acres) of the corn acreage. 100% of the field is finished disced and rolled. Fields are laser leveled every four years. 25% of this operation is charged annually. The other 75% of the ground is smoothed in one pass with a tri-plane. Beds on 2.5-foot (30") centers are made with an eight-row lister, and shaped with a bed-shaper cultivator in the same pass.

**Stand Establishment.** Field corn is generally planted from late March through April. Approximately 34,000 seeds per acre are planted in April in this study with Roundup Ready corn seed with an 8-row precision planter.

**Fertilization.** At planting 151 pounds (15 gallons) of ammonium phosphate (10-34-0) plus one quart of chelated zinc is applied. This is equivalent to 15 pounds of actual nitrogen and 51 pounds of phosphorous ( $P_2O_5$ ) per acre. Aqua Ammonia (20-0-0) is applied as a side dress at a rate of 250 pounds of N per acre.

**Irrigation.** Cost of surface delivered irrigation water is volatile and varies between districts and regions. For this study water costs are 50% well/pumped and 50% Canal/district. \$65 per acre-foot (\$5.42 per acre inch) is charged. The irrigation costs shown in Tables 1, 2, and 3 include water, pumping, and labor charges. A total of 2.5 acre-feet (30 acre inch) are applied to the crop during the growing season. A single pre-irrigation of 5.0 acre-inches (when needed) in April and six post-plant irrigations are applied bi-weekly in May, June, and July. This study shows 31.0 acre inches applied in table 2. The pre-irrigation is calculated at 20% of the field requiring pre-irrigation, which equates at 1.0" of 5.0" total.

**Pest Management.** The pesticides and rates mentioned in this cost study are listed in the UC Integrated Pest Management (IPM) guidelines for corn, <http://ipm.ucdavis.edu/>. **Pesticides mentioned in this study are not recommendations, but those commonly used in the region.** For information on 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 <http://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 as a cost in this study.

*Pest Control Adviser/Certified Crop Advisor (PCA/CCA).* Written recommendations are required for many pesticides and are available from licensed PCA/CCA. In addition the PCA/CCA or an independent consultant will monitor the field for agronomic practices including irrigation and nutrition. Growers may hire a private PCA/CCA or receive the service as part of an agreement with an agricultural chemical and fertilizer company.

*Weeds.* A mix of materials and cultural practices are used to manage weeds in corn. Beginning in February glyphosate, (Roundup PowerMax), is applied by an ATV-pulled sprayer system to the fallow beds to control early season weeds. Roundup is sprayed again in May, post emergence for additional weed control using a tractor mounted 8-row sprayer with drop nozzles. For broadleaf weed control, diglycolamine, (Clarity), herbicide is applied in May on 25% of the corn acreage using the same tractor mounted 8-row sprayer with drop nozzles. The corn is cultivated twice, once in March, opening of the fallow beds and again in May. The May cultivation is done in combination with furrowing out and the fertilizing operation.

*Insects and Diseases.* Corn has many insect and mite pests that can cause economic damage during any given season. In this study black, variegated and other cutworms are assumed to reach the pesticide treatment threshold on 20% of the acreage. Carbaryl, (Sevin 5) bait pellets is applied to control cutworms on the infested acres. A tractor mounted applicator is used to apply the bait in May. Spider mites can be a problem on mid-sized corn and may be controlled with an application of spiromesifen, (Oberon 2SC) sprayed on 60% of the acres in June, if monitoring indicates a need for treatment. The mite treatment is a custom aerial application.

**Harvest.** It is assumed that the grower owns a combine and header setup for corn and a bankout wagon. The corn crop is allowed to dry down in the field. The corn is dumped from the combine directly into the bankout wagon which transports the grain to semi-truck bulk grain trailers for transport to the buyer. Transportation from the field to the warehouse is paid by the buyer. Corn is normally harvested under 14% grain moisture. Above this moisture level the grain may require drying before it can be stored, which is an added cost that is not included in this study. Equipment for harvest operations are shown in investment costs on Table 4. Labor, fuel, repairs, and operating interest, are calculated as harvest costs in Tables 1 and 3. If a grower contracts his harvest operation, all harvesting equipment should be subtracted from harvest costs in Tables 1 & 3 and a custom charge added. Related costs should be subtracted from harvest costs in Tables 1 and 3 and a custom charge added.

*Post-harvest.* In this study the crop residue is chopped with a tractor and flail mower and then a tractor with a stubble disc and roller works the residue into the soil with one pass. 50% of this operation is charged to corn, the other 50% will be charged to the next crop. In some situations the stubble is baled and the bales are taken off the field by a custom farmer or dairy operation. The bales are traded in exchange for removal of the stubble.

**Yields.** Annual field corn yields from 5 counties, (Colusa, Glenn, Sacramento, Sutter, and Yolo) in the Sacramento Valley that report corn acreage ranged from 4.88 tons to 7.70 tons over the last three years,

(2011-2013). The weighted average corn yield for this region was calculated at 6.00 tons per acre and used for this study.

**Returns.** Average prices from the same 5 counties for field corn ranged from \$175 to \$300 per ton over the last three years, (2011-2013). A weighted average return of \$210 per ton was calculated and used for this study. Table 4 shows various returns over a range of yields and prices. The Agricultural Act of 2014 (2014 Farm Bill) authorizes nonrecourse marketing assistance loans (MALs) and loan deficiency payments (LDPs) for the 2014 through 2018 crop years for corn. Call your local Farm Service Agency for further information or check their website at [www.fsa.usda.gov/](http://www.fsa.usda.gov/).

**Labor.** Basic wages are \$12.50 and \$10.00 per hour for machine operators and non-machine workers (irrigators and manual laborers), respectively. Adding 37% for the employer's share of federal and state payroll taxes, insurance and other benefits raises the total labor costs to \$17.13 per hour for machine operators and \$13.70 per hour for non-machine laborers. The labor for operations involving machinery is 20% higher than the field operation time to account for equipment set up, road travel, maintenance, and repair. The current minimum wage is \$9.00 per hour.

## 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, sanitation services, equipment repairs, and management.

*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.

*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 5.75% per year. A nominal interest rate is the typical market cost of borrowed funds.

*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 0.843% of the average value of the assets over their useful life. Liability insurance covers accidents on the farm and costs \$1,643 for the entire farm.

*Office Expenses:* Office and business expenses are estimated at \$40 per acre. These expenses include office supplies, telephones, bookkeeping, accounting, legal fees, road maintenance, etc.

*Share Rent.* Leasing practices and rental rates for agricultural property are continually being adjusted due to changing production and market economics, land values, and relative bargaining positions of the landlord and tenant. Land used for corn production in the Sacramento Valley is commonly rented on a tenant-landowner basis with the landowner receiving between 15-20% of the gross income. In this study the landowner receives 18% of the gross crop receipts from the sale of 6.0 tons of corn. The share rent calculated using a \$213 per ton return price provides the landowner \$230 per acre. The tenant pays all cash costs to produce the crop except for the landowner's share of grain drying costs if required.

*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.

*Field Supervisors Salary.* Supervisors' salaries include insurance, payroll taxes and benefits. One third of one supervisor's time is allocated to corn at \$36 per acre.

## 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 of the investment (Boehlje and Eidman). The percent remaining value is calculated from equations developed by the 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 certain 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 used and the life of the machine.

*Interest Rate.* The interest rate of 4.25% used to calculate capital recovery cost is an interest rate from an agricultural lender. It is used to reflect the long-term realized rate of return to these specialized resources that can only be used effectively in the agricultural sector.

*Crop Insurance.* Crop insurance for grain corn is available and is based on the grower's average yields. The farmer can select the level of coverage from 50 to 75% of average yield and costs will vary depending upon coverage level. For farmers to be eligible for premium support on their federal crop insurance, a completed and signed AD-1026 form must be on file with the Farm Service Agency, FSA. Contact the local crop insurance agent for your costs. You may also visit the USDA website <http://forms.sc.egov.usda.gov/efcommon/eFileServices/eForms/AD1026.PDF>.

*Irrigation System.* The fields are irrigated using a furrow irrigation system. Water is delivered from a pump or district ditch and distributed by way of surface mainlines and valves. The land owner is responsible for the main pump and delivery of water to the grower's irrigation system. Irrigation equipment owned by the grower consists of booster pumps, (if needed), main lines, siphon tubes, V-ditcher, ditch closer-8' angle blade and various hand tools. Irrigation operations, equipment to perform these operations and water costs are listed in tables 1, 2 and 3. Irrigation equipment owned by the grower such as main lines and siphon tubes are listed in table 1 under capital recovery and again in table 5.

*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 grain corn is grown on rented land.

*Shop Building.* The shop building is an 8,000 square foot metal building on a cement slab with bathroom, lunch room and office space.

*Shop Tools.* This includes an assortment of tools needed for repairs and maintenance.

*Fuel Tanks.* Two 5,000-gallon fuel tanks using electric pumps are used to hold diesel and gasoline. The tanks are setup in a cement containment pad that meets federal, state, and county regulations.

**Equipment Costs.** Equipment costs are composed of three parts: non-cash overhead, cash overhead, and operating costs. The non-cash overhead was discussed above. The cash overhead consists of property taxes and insurance on the equipment at the rates given above. The operating costs consist of repairs, fuel, and lubrication. 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 and travel time.

*Fuel, Lube & Repairs.* Repair costs are based on purchase price, annual hours of use, total hours of life, and repair coefficients formulated by the ASAE. Fuel and lubrication costs are also determined by ASAE equations based on maximum Power-Take-Off horsepower, and fuel type. Prices for on-farm delivery of diesel and unleaded gasoline are \$3.17 and \$3.41 per gallon, respectively. These prices reflect market price during June of 2015.

*GPS Guidance Systems.* GPS/GIS tractor-mounted guidance and precision agriculture systems are included in this study. The costs for the systems annual activation fee is under cash overhead and the GPS unit hardware costs are under non-cash overhead. Usage of these systems can reflect a significant cost savings.

**Risk.** Risks associated with field corn production are not assigned a production cost. While this study makes an 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 of corn production. Because of the risk involved, growers should consider all of the agronomic and economic risks before committing resources to corn production in the Sacramento Valley. Crop insurance may be a viable option that each grower should review to determine if it is appropriate for their situation.

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

## REFERENCES

American Society of Agricultural and Biological Engineers. (ASABE). July, 2013. “*American Society of Agricultural Engineers Standards Yearbook*”. Russell H. Hahn and Evelyn E. Rosentreter (ed.). St. Joseph, MO. 41st edition, ANSI/ASAE S279\_17.PDF. [hq@asabe.org](mailto:hq@asabe.org)

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

California Chapter of the American Society of Farm Managers and Rural Appraisers. 2015. *Trends in Agricultural Land and Lease Values*. California Chapter of the American Society of Farm Managers and Rural Appraisers, Inc. Woodbridge, CA. [www.calasfmra.com](http://www.calasfmra.com).

California Department of Insurance, Rate Regulation Branch.  
<http://www.insurance.ca.gov/0500-about-us/>

CDFA-California County Agricultural Commissioners, California Annual Agricultural Crop Reports. 2011 –2013. California Department of Food and Agricultural, Sacramento, CA.  
<http://www.nass.usda.gov/ca/bul/agcom/indexcac.htm>

Energy Information Administration, 2015. Weekly Retail on Highway Diesel Prices.  
<http://tonto.eia.doe.gov/oog/info/gdu/gasdiesel.asp>.

University of California Agriculture and Natural Resources. UC IPM Statewide Pest Management Program. <http://www.ipm.ucdavis.edu/>

University of California Cooperative Extension, Kent L. Brittan, Jerry L. Schmierer, Douglas J. Munier, Karen Klonsky, Pete Livingston, “*Sample Costs to Produce Field Corn in The Sacramento Valley on Mineral Soils-2008*”. <http://coststudies.ucdavis.edu/en/archived/>.



UC COOPERATIVE EXTENSION  
**TABLE 1. COSTS PER ACRE TO PRODUCE FIELD CORN**  
 SACRAMENTO VALLEY AND NORTHERN SAN JOAQUIN VALLEY-2015

Operation	Operation	Cash and Labor Costs per Acre						Total Cost	Your Cost
	Time (Hrs/A)	Labor Cost	Fuel	Lube & Repairs	Material Cost	Custom/Rent			
Pre-plant:									
Chisel 18" Depth 25% of Ac	0.04	1	2	1	0	0	3		
Stubble Disc & Roll 25% of Ac	0.04	1	2	1	0	0	3		
Finish Disc & Roll	0.11	2	5	3	0	0	10		
Tri-plane 75% of Ac	0.11	2	5	2	0	0	10		
Laser Level 25% of Ac	0.00	0	0	0	0	40	40		
List-Shape Beds	0.15	3	4	2	0	0	10		
Weeds-Fallow Beds Roundup PowerMax	0.05	1	0	0	9	0	10		
Open-Fallow Beds	0.15	3	4	2	0	0	9		
Open Ditch	0.05	1	2	1	0	0	4		
Pre-irrigate 20% of Ac	0.00	3	0	0	5	0	9		
Close Ditch	0.08	2	1	1	0	0	4		
<b>TOTAL PRE-PLANT COSTS</b>	<b>0.79</b>	<b>20</b>	<b>26</b>	<b>13</b>	<b>14</b>	<b>40</b>	<b>112</b>		
Cultural :									
Plant Corn-Starter Fertilizer	0.25	5	7	3	152	0	167		
Break Crust 10% of Ac	0.03	1	1	0	0	0	1		
Open Ditch 2X	0.10	2	5	2	0	0	8		
Irrigate 6X	0.00	103	0	0	163	0	265		
Close Ditch 2X	0.17	3	3	1	0	0	7		
Insects-Cutworms 20% of Ac	0.03	1	0	0	2	0	3		
Cultivate-Sidedress Fertilizer	0.10	2	3	1	145	5	156		
Weeds-Post Plant Roundup PowerMax	0.13	3	4	2	9	0	16		
Weeds-Post Plant-Broadleaf 25% of Ac	0.03	1	1	0	7	0	9		
Insects-Mites 60% of Ac	0.00	0	0	0	17	9	26		
Service Truck	0.17	3	2	2	0	0	7		
Pickup Trucks	0.42	17	6	2	0	0	24		
<b>TOTAL CULTURAL COSTS</b>	<b>1.42</b>	<b>140</b>	<b>30</b>	<b>14</b>	<b>494</b>	<b>14</b>	<b>692</b>		
Harvest :									
Harvest-Combine Corn	0.25	5	18	13	0	0	35		
Bank Out Grain	0.23	5	6	4	0	0	15		
Land Rent (18% of Return/Ac)	0.00	0	0	0	230	0	230		
<b>TOTAL HARVEST COSTS</b>	<b>0.48</b>	<b>10</b>	<b>24</b>	<b>17</b>	<b>230</b>	<b>0</b>	<b>281</b>		
Post-Harvest:									
Chop Stubble 50% of Ac	0.06	1	1	1	0	0	3		
Disc Stubble 50% of Ac	0.08	2	4	2	0	0	7		
<b>TOTAL POST-HARVEST COSTS</b>	<b>0.14</b>	<b>3</b>	<b>5</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>10</b>		
Interest on Operating Capital at 5.75%									22
<b>TOTAL OPERATING COSTS/ACRE</b>	<b>3</b>	<b>173</b>	<b>84</b>	<b>46</b>	<b>738</b>	<b>54</b>	<b>1,117</b>		

**TABLE 1. CONTINUED**  
**SACRAMENTO VALLEY AND NORTHERN SAN JOAQUIN VALLEY-2015**

Operation	Operation	Cash and Labor Costs per Acre					Total Cost	Your Cost
	Time (Hrs/A)	Labor Cost	Fuel	Lube & Repairs	Material Cost	Custom/Rent		
<b>CASH OVERHEAD:</b>								
Liability Insurance							1	
Office Expense							50	
Miscellaneous Costs (Training)							20	
Supervisor Salary							36	
GPS Auto-Trac Activation Fee							1	
Property Taxes							2	
Property Insurance							0	
Investment Repairs							2	
<b>TOTAL CASH OVERHEAD COSTS/ACRE</b>							<b>112</b>	
<b>TOTAL CASH COSTS/ACRE</b>							<b>1,229</b>	
<b>NON-CASH OVERHEAD:</b>								
		Per Producing Acre		Annual Cost Capital Recovery				
Closed Mixing System		2		0			0	
Fuel Storage Tanks (2)		8		1			1	
Irrigation Main Line 10" 1/4 Mile		9		1			1	
Shop Building 8,000 Sqft		69		4			4	
Shop Tools		7		1			1	
Siphon Pipe-1.5" (400)		1		0			0	
Implement Carrier		6		1			1	
GPS Guidance System		3		0			0	
Truck-Bobtail-5th Wheel Equipment		16		1			1	
		754		78			78	
<b>TOTAL NON-CASH OVERHEAD COSTS</b>							<b>87</b>	
<b>TOTAL COSTS/ACRE</b>							<b>1,316</b>	

UC COOPERATIVE EXTENSION  
**TABLE 2. COSTS AND RETURNS PER ACRE TO PRODUCE FIELD CORN**  
 SACRAMENTO VALLEY AND NORTHERN SAN JOAQUIN VALLEY -2015

	Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
<b>GROSS RETURNS</b>					
Corn	6	Ton	210.00	1,260	
<b>TOTAL GROSS RETURNS</b>				1,260	
<b>OPERATING COSTS</b>					
<b>Fertilizer:</b>				<b>230</b>	
10-34-0	151.00	Lb	0.55	83	
Zinc Chelate 6%	2.00	Pint	0.91	2	
20-0-0 Aqua Ammonium	250.00	Lb N	0.58	145	
<b>Insecticide:</b>				<b>19</b>	
Sevin 5 Bait (Pellets)	2.00	Lb	0.78	2	
Oberon 2SC	3.60	floz	4.78	17	
<b>Herbicide:</b>				<b>25</b>	
Roundup PowerMax	4.00	Pint	4.31	17	
Clarity	0.50	Pint	14.88	7	
<b>Seed:</b>				<b>67</b>	
Corn Seed Roundup-ready	34.00	Thou	1.96	67	
<b>Custom:</b>				<b>54</b>	
Laser Plane	0.25	Acre	160.00	40	
Aqua Injection Implement	1.00	Acre	5.00	5	
Aerial Application	0.60	Acre	15.00	9	
<b>Irrigation:</b>				<b>168</b>	
Water-Corn-SV	31.00	AcIn	5.42	168	
<b>Land Rent:</b>				<b>230</b>	
Land Rent-Sac Valley-18%	6.00	Ton	38.34	230	
<b>Labor</b>				<b>173</b>	
Equipment Operator Labor	3.89	hrs	17.13	67	
Irrigation Labor	7.75	hrs	13.70	106	
<b>Machinery</b>				<b>131</b>	
Fuel-Gas	1.67	gal	3.41	6	
Fuel-Diesel	24.85	gal	3.17	79	
Lube				13	
Machinery Repair				34	
Interest on Operating Capital @ 5.75%				22	
<b>TOTAL OPERATING COSTS/ACRE</b>				1,118	
<b>TOTAL OPERATING COSTS/TON</b>				186	
<b>NET RETURNS ABOVE OPERATING COSTS</b>				142	

**TABLE 2. CONTINUED**  
**SACRAMENTO VALLEY AND NORTHERN SAN JOAQUIN VALLEY -2015**

	Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
<b>CASH OVERHEAD COSTS</b>					
Liability Insurance				1	
Office Expense				50	
Miscellaneous Costs (Training)				20	
Supervisor Salary				36	
GPS Auto-Trac Activation Fee				1	
Property Taxes				2	
Property Insurance				0	
Investment Repairs				2	
<b>TOTAL CASH OVERHEAD COSTS/ACRE</b>				<b>112</b>	
<b>TOTAL CASH OVERHEAD COSTS/TON</b>				<b>19</b>	
<b>TOTAL CASH COSTS/ACRE</b>				<b>1,230</b>	
<b>TOTAL CASH COSTS/TON</b>				<b>205</b>	
<b>NET RETURNS ABOVE CASH COSTS</b>				<b>30</b>	
<b>NON-CASH OVERHEAD COSTS (Capital Recovery)</b>					
Closed Mixing System				0	
Fuel Storage Tanks (2)				1	
Irrigation Main Line 10" 1/4 Mile				1	
Shop Building 8,000 Sqft				4	
Shop Tools				1	
Siphon Pipe-1.5" (400)				0	
Implement Carrier				1	
GPS Guidance System				0	
Truck-Bobtail-5th Wheel Equipment				78	
<b>TOTAL NON-CASH OVERHEAD COSTS/ACRE</b>				<b>87</b>	
<b>TOTAL NON-CASH OVERHEAD COSTS/TON</b>				<b>15</b>	
<b>TOTAL COST/ACRE</b>				<b>1,317</b>	
<b>TOTAL COST/TON</b>				<b>220</b>	
<b>NET RETURNS ABOVE TOTAL COST</b>				<b>-57</b>	

UC COOPERATIVE EXTENSION  
**TABLE 3. MONTHLY COSTS PER ACRE TO PRODUCE FIELD CORN**  
 SACRAMENTO VALLEY AND NORTHERN SAN JOAQUIN VALLEY -2015

	OCT 14	NOV 14	DEC 14	JAN 15	FEB 15	MAR 15	APR 15	MAY 15	JUN 15	JUL 15	AUG 15	SEP 15	OCT 15	Total
<b>Pre-plant:</b>														
Chisel 18" Depth 25% of Ac	3													3
Stubble Disc & Roll 25% of Ac	3													3
Finish Disc & Roll	10													10
Tri-plane 75% of Ac	10													10
Laser Level 25% of Ac	40													40
List-Shape Beds	10													10
Weeds-Fallow Beds Roundup PowerMax					10									10
Open-Fallow Beds						9								9
Open Ditch							4							4
Pre-irrigate 20% of Ac							9							9
Close Ditch							4							4
<b>TOTAL PRE-PLANT COSTS</b>	<b>76</b>				<b>10</b>	<b>9</b>	<b>17</b>							<b>112</b>
<b>Cultural:</b>														
Plant Corn-Starter Fertilizer							167							167
Break Crust 10% of Ac								1						1
Open Ditch 2X								8						8
Irrigate 6X								88	88	88				265
Close Ditch 2X								4			4			7
Insects-Cutworms 20% of Ac								3						3
Cultivate-Sidedress Fertilizer								156						156
Weeds-Post Plant Roundup PowerMax								16						16
Weeds-Post Plant-Broadleaf 25% of Ac								9						9
Insects-Mites 60% of Ac									26					26
Service Truck												7		7
Pickup Trucks												24		24
<b>TOTAL CULTURAL COSTS</b>	<b>0</b>				<b>0</b>	<b>0</b>	<b>167</b>	<b>287</b>	<b>115</b>	<b>88</b>	<b>4</b>	<b>32</b>		<b>692</b>
<b>Harvest:</b>														
Harvest-Combine Corn													35	35
Bank Out Grain													15	15
Land Rent (18% of Return/Ac)													230	230
<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>0</b>	<b>281</b>		<b>281</b>
<b>Post-Harvest:</b>														
Chop Stubble 50% of Ac													3	3
Disc Stubble 50% of Ac													7	7
<b>TOTAL POST-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>0</b>	<b>0</b>	<b>10</b>	<b>10</b>
Interest on Operating Capital @ 5.75%	0	0	0	0	0	0	1	3	3	4	4	5	0	22
<b>TOTAL OPERATING COSTS/ACRE</b>	<b>77</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>10</b>	<b>10</b>	<b>185</b>	<b>289</b>	<b>118</b>	<b>92</b>	<b>7</b>	<b>317</b>	<b>10</b>	<b>1,117</b>

UC COOPERATIVE EXTENSION  
**TABLE 4. RANGING ANALYSIS – FIELD CORN**  
 SACRAMENTO VALLEY AND NORTHERN SAN JOAQUIN VALLEY-2015

COSTS PER ACRE AND PER TON AT VARYING YIELDS TO PRODUCE CORN

	YIELD (Tons)						
	3.00	4.00	5.00	6.00	7.00	8.00	9.00
<b>OPERATING COSTS/ACRE:</b>							
Pre-plant	112	112	112	112	112	112	112
Cultural	692	692	692	692	692	692	692
Harvest	165	204	242	281	319	357	396
Post-Harvest	10	10	10	10	10	10	10
Interest on Operating Capital @ 5.75%	22	22	22	22	22	23	23
<b>TOTAL OPERATING COSTS/ACRE</b>	<b>1,001</b>	<b>1,040</b>	<b>1,078</b>	<b>1,117</b>	<b>1,156</b>	<b>1,194</b>	<b>1,233</b>
<b>TOTAL OPERATING COSTS/TON</b>	<b>333.81</b>	<b>259.99</b>	<b>215.69</b>	<b>186.17</b>	<b>165.07</b>	<b>149.25</b>	<b>136.95</b>
<b>CASH OVERHEAD COSTS/ACRE</b>	<b>112</b>	<b>112</b>	<b>112</b>	<b>112</b>	<b>112</b>	<b>112</b>	<b>112</b>
<b>TOTAL CASH COSTS/ACRE</b>	<b>1,113</b>	<b>1,152</b>	<b>1,190</b>	<b>1,229</b>	<b>1,267</b>	<b>1,306</b>	<b>1,344</b>
<b>TOTAL CASH COSTS/TON</b>	<b>371.05</b>	<b>287.92</b>	<b>238.04</b>	<b>204.79</b>	<b>181.04</b>	<b>163.22</b>	<b>149.37</b>
<b>NON-CASH OVERHEAD COSTS/ACRE</b>	<b>87</b>	<b>87</b>	<b>87</b>	<b>87</b>	<b>87</b>	<b>87</b>	<b>87</b>
<b>TOTAL COSTS/ACRE</b>	<b>1,200</b>	<b>1,239</b>	<b>1,278</b>	<b>1,316</b>	<b>1,355</b>	<b>1,393</b>	<b>1,432</b>
<b>TOTAL COSTS/TON</b>	<b>400.00</b>	<b>310.00</b>	<b>256.00</b>	<b>219.00</b>	<b>194.00</b>	<b>174.00</b>	<b>159.00</b>

Net Return per Acre above Operating Costs for Corn Sacramento Valley-2015

PRICE (\$/ton)	YIELD (Tons /acre)						
Corn	3.00	4.00	5.00	6.00	7.00	8.00	9.00
150.00	-551	-440	-328	-217	-106	6	117
170.00	-491	-360	-228	-97	34	166	297
190.00	-431	-280	-128	23	174	326	477
210.00	-371	-200	-28	143	314	486	657
230.00	-311	-120	72	263	454	646	837
250.00	-251	-40	172	383	594	806	1,017
270.00	-191	40	272	503	734	966	1,197

Net Return per Acre above Cash Costs for Corn Sacramento Valley-2015

PRICE (\$/ton)	YIELD (Tons /acre)						
Corn	3.00	4.00	5.00	6.00	7.00	8.00	9.00
150.00	-663	-552	-440	-329	-217	-106	6
170.00	-603	-472	-340	-209	-77	54	186
190.00	-543	-392	-240	-89	63	214	366
210.00	-483	-312	-140	31	203	374	546
230.00	-423	-232	-40	151	343	534	726
250.00	-363	-152	60	271	483	694	906
270.00	-303	-72	160	391	623	854	1,086

Net Return per Acre above Total Costs for Corn Sacramento Valley-2015

PRICE (\$/ton)	YIELD (Tons /acre)						
Corn	3.00	4.00	5.00	6.00	7.00	8.00	9.00
150.00	-750	-639	-528	-416	-305	-193	-82
170.00	-690	-559	-428	-296	-165	-33	98
190.00	-630	-479	-328	-176	-25	127	278
210.00	-570	-399	-228	-56	115	287	458
230.00	-510	-319	-128	64	255	447	638
250.00	-450	-239	-28	184	395	607	818
270.00	-390	-159	72	304	535	767	998

UC COOPERATIVE EXTENSION  
**TABLE 5. WHOLE FARM ANNUAL EQUIPMENT, INVESTMENT, AND BUSINESS OVERHEAD COSTS**  
 SACRAMENTO VALLEY AND NORTHERN SAN JOAQUIN VALLEY-2015

ANNUAL EQUIPMENT COSTS

Yr	Description	Price	Yrs Life	Salvage Value	Capital Recovery	Cash Overhead		Total
						Insur- ance	Taxes	
15	Disc - Finish 18'	38,000	20	1,981	2,923	17	200	3,140
15	248HP4WD Tractor	267,765	15	52,129	22,901	135	1,599	24,636
15	140 HP2WD Tractor	158,044	15	30,768	13,517	80	944	14,541
15	95 HP4WD Tractor	93,000	15	18,105	7,954	47	556	8,556
15	Triplane 16'	38,000	15	3,648	3,427	18	208	3,653
15	Bait Applicator 8-Row	8,550	15	821	771	4	47	822
15	Rear Blade - 8'	7,500	15	720	676	3	41	721
15	Bed Lister-Shaper 8-Row 30"	21,000	12	2,909	2,151	10	120	2,280
15	Alloway-Bed Shaper 8-Row 20'	13,090	12	1,813	1,341	6	75	1,421
15	Ditcher - V	9,285	12	1,286	951	4	53	1,008
15	Corn Harvester-Header 8-Row	490,000	10	92,429	55,254	245	2,912	58,412
15	Service Truck	120,000	10	35,446	12,501	66	777	13,344
15	Disc - Stubble 18'	45,000	10	7,958	5,117	22	265	5,404
15	Planter-Air 8-Row 20'	42,000	10	7,922	4,736	21	250	5,007
15	Bank Out Wagon 30 Ton	38,000	10	6,720	4,321	19	224	4,564
15	Flail Mower 16'	14,900	10	2,635	1,694	7	88	1,789
15	ATV Spray System-40' Boom	9,700	10	1,715	1,103	5	57	1,165
15	ATV-4WD	8,500	10	1,503	967	4	50	1,021
15	Chisel 24'	20,000	8	4,516	2,586	10	123	2,719
15	Pickup 3/4 Ton	32,000	5	14,342	4,732	20	232	4,983
15	Pickup 1/2 Ton	28,000	5	12,549	4,140	17	203	4,360
15	Ring Roller 18'	21,000	5	6,840	3,573	12	139	3,724
15	Cultivator 8-Row	11,050	5	3,599	1,880	6	73	1,959
15	Fertilizer-Sidedress Bar 20'	9,450	5	3,283	1,570	5	64	1,639
15	Spray Boom - 20'	3,600	5	1,173	612	2	24	638
15	300 Gallon Saddle Tank (Pair)	1,660	4	611	323	1	11	335
TOTAL		1,549,094	-	317,423	161,724	787	9,333	171,843
60% of New Cost*		929,456	-	190,454	97,034	472	5,600	103,106

\*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	
<b>INVESTMENT</b>								
Shop Building 8,000 Sqft	200,000	30	0	12,642	84	1,000	4,000	17,726
Fuel Storage Tanks (2)	21,950	20	250	1,716	9	111	130	1,967
Shop Tools	20,000	20	2,000	1,509	9	110	400	2,028
Irrigation Main Line 10" 1/4 Mile	26,892	15	2,689	2,420	12	148	538	3,119
Siphon Pipe-1.5" (400)	2,400	15	240	216	1	13	48	278
Implement Carrier	16,700	15	1,670	1,503	8	92	334	1,937
Truck-Bobtail-5th Wheel	45,000	15	4,500	4,050	21	248	900	5,218
Closed Mixing System	5,074	10	507	608	2	28	101	740
GPS Guidance System	8,500	10	850	1,019	4	47	170	1,240
TOTAL INVESTMENT	346,516	-	12,706	25,684	151	1,796	6,621	34,252

ANNUAL BUSINESS OVERHEAD COSTS

Description	Units/ Farm	Unit	Price/ Unit	Total Cost
Liability Insurance	2900	Acre	0.56	1,643
Office Expense	600	Acre	50.00	30,000
Miscellaneous Costs (Training)	600	Acre	20.00	12,000
Supervisor Salary	600	Acre	36	21,600
GPS Auto-Trac Activation Fee	1.0	Farm	3500	3,500

UC COOPERATIVE EXTENSION  
**TABLE 6. HOURLY EQUIPMENT COSTS**  
 SACRAMENTO VALLEY AND NORTHERN SAN JOAQUIN VALLEY-2015

Yr	Description	Corn Sacramento Valley-2015			Cash Overhead			Operating		Total Costs/Hr.
		Hours Used	Total Hours Used	Capital Recovery	Insur- ance	Taxes	Lube & Repairs	Fuel	Total Oper.	
15	248HP4WD Tractor	353	1066	12.89	0.08	0.90	13.03	41.39	54.43	68.29
15	95 HP4WD Tractor	248	1066	4.48	0.03	0.31	4.59	14.79	19.38	24.19
15	140 HP2WD Tractor	677	800	10.14	0.06	0.71	10.92	25.76	36.67	47.58
15	300 Gallon Saddle Tank (Pair)	303	500	0.39	0.00	0.01	0.03	0.00	0.03	0.43
15	Planter-Air 8-Row 20'	150	500	5.68	0.03	0.30	0.92	0.00	0.92	6.93
15	Pickup 1/2 Ton	250	400	6.21	0.03	0.30	3.05	6.39	9.44	15.98
15	Pickup 3/4 Ton	250	400	7.10	0.03	0.35	3.41	6.82	10.23	17.70
15	Ring Roller 18'	158	400	5.36	0.02	0.21	2.45	0.00	2.45	8.03
15	Fertilizer-Sidedress Bar 20'	150	400	2.36	0.01	0.10	0.15	0.00	0.15	2.61
15	Cultivator 8-Row	58	400	2.82	0.01	0.11	2.32	0.00	2.32	5.26
15	Corn Harvester-Header 8-Row	165	300	110.51	0.49	5.82	45.84	64.39	110.23	227.06
15	Bank Out Wagon 30 Ton	135	300	8.64	0.04	0.45	5.84	0.00	5.84	14.97
15	Spray Boom - 20'	95	300	1.22	0.00	0.05	0.99	0.00	0.99	2.26
15	Chisel 24'	24	250	6.21	0.02	0.29	4.60	0.00	4.60	11.13
15	Rear Blade - 8'	150	200	2.03	0.01	0.12	1.13	0.00	1.13	3.30
15	Service Truck	100	200	37.50	0.20	2.33	13.03	9.51	22.54	62.57
15	Disc - Stubble 18'	69	200	15.35	0.07	0.79	7.42	0.00	7.42	23.64
15	Flail Mower 16'	39	200	5.08	0.02	0.26	6.28	0.00	6.28	11.65
15	Ditcher - V	90	166	3.44	0.02	0.19	2.58	0.00	2.58	6.23
15	Bed Lister-Shaper 8-Row 30"	88	166	7.77	0.04	0.43	4.39	0.00	4.39	12.64
15	Alloway-Bed Shaper 8-Row 20'	88	166	4.85	0.02	0.27	2.74	0.00	2.74	7.88
15	Triplane 16'	68	150	13.71	0.07	0.83	5.27	0.00	5.27	19.88
15	ATV-4WD	35	150	3.87	0.02	0.20	0.63	3.41	4.04	8.12
15	ATV Spray System-40' Boom	32	150	4.41	0.02	0.23	2.61	0.00	2.61	7.27
15	Disc - Finish 18'	69	100	17.54	0.10	1.20	5.87	0.00	5.87	24.71
15	Bait Applicator 8-Row	17	100	4.63	0.02	0.28	0.00	0.00	0.00	4.93



UC COOPERATIVE EXTENSION  
**TABLE 7. OPERATIONS WITH EQUIPMENT & MATERIALS**  
 SACRAMENTO VALLEY AND NORTHERN SAN JOAQUIN VALLEY-2015

Operation	Operation Month	Tractor	Implement	Labor Type/ Material	Rate/ acre	Unit
Chisel 18" Depth 25% of Ac	Oct	248HP4WD Tractor	Chisel 24'	Equipment Operator Labor	0.05	hour
Stubble Disc & Roll	Oct	248HP4WD Tractor	Disc - Stubble 18' Ring Roller 18'	Equipment Operator Labor	0.05	hour
Finish Disc & Roll	Oct	248HP4WD Tractor	Disc - Finish 18' Ring Roller 18'	Equipment Operator Labor	0.14	hour
Tri-plane 75% of Ac	Oct	248HP4WD Tractor	Triplane 16'	Equipment Operator Labor	0.14	hour
Laser Level 25% of Ac	Oct			Laser Plane	0.25	Acre
List-Shape Beds	Oct	140 HP2WD Tractor	Bed Lister-Shaper 8-Row 30"	Equipment Operator Labor	0.18	hour
Weeds-Fallow Beds	Feb		ATV-4WD	Equipment Operator Labor	0.06	hour
				Roundup PowerMax	2.00	Pint
			ATV Spray System-40' Boom			
Open Fallow Beds	Mar	140 HP2WD Tractor	Alloway-Bed Shaper 8-Row 20'	Equipment Operator Labor	0.18	hour
Open Ditch	Apr	248HP4WD Tractor	Ditcher - V	Equipment Operator Labor	0.06	hour
Pre-irrigate 20% of Ac	Apr			Irrigation Labor	0.25	hour
				Water-Corn-SV	1.20	AcIn
Close Ditch	Apr	95 HP4WD Tractor	Rear Blade - 8'	Equipment Operator Labor	0.10	hour
Plant Corn-Starter Fertilizer	Apr	140 HP2WD Tractor	Planter-Air 8-Row 20'	Equipment Operator Labor	0.30	hour
				Corn Seed Roundup-ready	34.00	Thou
			300 Gallon Saddle Tank (Pair)	10-34-0	151.00	Lb
			Fertilizer-Sidedress Bar 20'	Zinc Chelate 6%	2.00	Pint
Break Crust 10% of Ac	May	95 HP4WD Tractor	Ring Roller 18'	Equipment Operator Labor	0.04	hour
Open Ditch 2X	May	248HP4WD Tractor	Ditcher - V	Equipment Operator Labor	0.06	hour
	May	248HP4WD Tractor	Ditcher - V	Equipment Operator Labor	0.06	hour
Irrigate 6X	May			Irrigation Labor	1.25	hours
	May			Water-Corn-SV	5.00	AcIn
	May			Irrigation Labor	1.25	hours
	May			Water-Corn-SV	5.00	AcIn
	June			Irrigation Labor	1.25	hours
	June			Water-Corn-SV	5.00	AcIn
	June			Irrigation Labor	1.25	hours
	June			Water-Corn-SV	5.00	AcIn
	July			Irrigation Labor	1.25	hours
	July			Water-Corn-SV	5.00	AcIn
	July			Irrigation Labor	1.25	hours
	July			Water-Corn-SV	5.00	AcIn
Close Ditch 2X	May	95 HP4WD Tractor	Rear Blade - 8'	Equipment Operator Labor	0.10	hour
	Aug	95 HP4WD Tractor	Rear Blade - 8'	Equipment Operator Labor	0.10	hour
Insects-Cutworm 20% of Ac	May	95 HP4WD Tractor	Bait Applicator 8-Row	Equipment Operator Labor	0.03	hour
				Sevin 5 Bait (Pellets)	2.00	Lb
Cultivate-Sidedress	May	140 HP2WD Tractor	300 Gallon Saddle Tank (Pair)	Equipment Operator Labor	0.12	hour
				20-0-0 Aqua Ammonium	250.00	Lb N
			Cultivator 8-Row	Aqua Injection Implement	1.00	Acre
Weeds-Post Plant Herbicides	May	140 HP2WD Tractor	300 Gallon Saddle Tank (Pair)	Equipment Operator Labor	0.15	hour
				Roundup PowerMax	2.00	Pint
			Spray Boom - 20'			
Weeds-Post Plant-Broadleaf	May	140 HP2WD Tractor	300 Gallon Saddle Tank (Pair)	Equipment Operator Labor	0.04	hour
				Clarity	0.50	Pint
			Spray Boom - 20'			
Insects-Mites 60% of Ac	June			Oberon 2SC	3.60	FLOz
				Aerial Application	0.60	Acre
Service Truck	Sept		Service Truck	Equipment Operator Labor	0.20	hour
Pickup Trucks	Sept		Pickup 1/2 Ton	Equipment Operator Labor	1.00	hour
			Pickup 3/4 Ton			
Harvest-Combine	Sept		Corn Harvester-Header 8-Row	Equipment Operator Labor	0.30	hour
Bank Out Grain	Sept	140 HP2WD Tractor	Bank Out Wagon 30 Ton	Equipment Operator Labor	0.27	hour
Chop Stubble 50% of Ac	Oct	95 HP4WD Tractor	Flail Mower 16'	Equipment Operator Labor	0.08	hour
Disc Stubble 50% of Ac	Oct	248HP4WD Tractor	Disc - Stubble 18' Ring Roller 18'	Equipment Operator Labor	0.09	hour