UNIVERSITY OF CALIFORNIA AGRICULTURE AND NATURAL RESOURCES
COOPERATIVE EXTENSION
AGRICULTURAL ISSUES CENTER
UC DAVIS DEPARTMENT OF AGRICULTURAL AND RESOURCE ECONOMICS

# SAMPLE COSTS TO PRODUCE WHEAT

## SACRAMENTO VALLEY-IRRIGATED
## 2016

Prepared by

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# SAMPLE COSTS TO PRODUCE WHEAT

Sacramento Valley-Irrigated 2016

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## INTRODUCTION

Sample costs to produce wheat under irrigation in the Sacramento Valley are presented in this study. This study is intended as a guide only. It can be used to help guide production decisions, estimate potential returns, prepare budgets and evaluate production loans. Sample costs given for labor, materials, equipment and contract services are based on August 2016 figures. Practices described are based on production practices considered typical for the crop and area, but will not apply to every situation. A blank column titled Your Costs is provided in Tables 1 and 2 to enter your estimated costs.

For an explanation of calculations used in the study refer to the section titled Assumptions. For more information contact Donald Stewart: University of California Agriculture and Natural Resources, Agricultural Issues Center, Department of Agricultural and Resource Economics, at 530-752-4651 or destewart@ucdavis.edu Or contact your local county extension office.

Sample Cost of Production Studies for many commodities can be downloaded at http://coststudies.ucdavis.edu Archived studies are also available on the website.


Acknowledgements. Appreciation is expressed to the UC Cooperative Extension, growers, input suppliers, and other industry representatives who provided information, assistance, and expertise for this study.

## ASSUMPTIONS

The following assumptions refer to tables 1 to 7 and pertain to sample costs for irrigated wheat production in the Sacramento Valley of northern California. The cultural practices described in this cost study represent production procedures considered typical for a well-managed farm in the region. Some of the costs and practices may not be applicable to your situation nor used during every production year and/or additional costs and practices not indicated may be needed. Cultural practices for the production of wheat vary by grower and region, and can be significant. The study is intended as a guide only. **The use of trade names and cultural practices in this report does not constitute an endorsement or recommendation by the University of California nor is any criticism implied by omission of other similar products.**

**Land**. This report is based on a 2,900-acre field and row crop farm. Wheat is planted on noncontiguous fields totaling 200 acres, therefore farming practices can vary among fields. The other 2,700 acres planted in rotation with wheat, may be processing tomatoes, alfalfa hay, safflower, sunflower, dry beans and/or corn. The rented land, 50 percent of the acreage (100 acres) includes developed wells and an irrigation system. The grower owns 50 percent of the acreage (100 acres), a shop, and an equipment yard. All costs associated with the land including the irrigation system is incurred by the landowner. Tables 1, 2 and 3 are based on an acre of production. The land rent and land ownership costs are reported at 50 percent of the acreage or in this study as .50 acres respectively in these three tables.

### Cultural Practices and Material Inputs

**Land Preparation**. Pre-plant groundwork operations, which include bed conditioning on 50 percent of the acreage, discing and border ridging on 50 percent of the acreage, and pre-plant fertilization are done from August through November. Operations are done on all of the acreage unless noted. A 3-row 60" bed conditioner is run twice across 50 percent of the acreage with existing 60" beds. The other 50 percent of the fields are stubble disced followed by two passes with a finish disc and border/checks are made with irrigation flow at 40 – 60 foot intervals (depending on the irrigation system). A 30' ring roller is run across all the acreage to smooth and firm the seed bed.

**Stand Establishment**. Wheat is planted on 60" raised beds (50% of this study) or flat with irrigation border/checks (50% of this study). Wheat is planted from late October to early-December in this region of California. For this study, Blanca Grande 515 at 125 pounds per acre is planted in November with a grain drill.

**Fertilization**. Because of field locations, soil types, and previous crops, fertilizer requirements will be different for individual fields. Pre-plant nitrogen (N) using aqua ammonia (20-0-0) at 80 pounds of N per acre, is applied in October. At planting 11-52-0 is drilled at 50 pounds per acre with the wheat seed on 50 percent of the acreage. In February 50 pounds of N (46-0-0) is top dressed on 50 percent of the acreage.

**Pest Management**. The pesticides and rates mentioned in this cost study are listed in *Integrated Pest Management for Small Grains* and *UC Pest Management Guidelines.* **Pesticides mentioned in this study are not recommendations, but those commonly used in the region**. For information and pesticide use permits, contact the local county Agricultural Commissioner's office. For information on other pesticides available, pest identification, monitoring, and management, visit the UC IPM website at www.ipm.ucdavis.edu. **Pest control costs can vary considerably each year depending upon local conditions and pest populations in any given year.** Adjuvants are recommended for many pesticides for effective control and are an added cost. Adjuvants are not included as a cost in this study.

Pest Control Adviser (PCA). Written recommendations are required for many pesticides and are available from licensed pest control or certified crop advisers. In addition the PCA or an independent consultant will monitor the field during the growing season for pest control and fertilizer recommendations. Growers may hire a private PCA or receive the service as part of a service agreement with an agricultural chemical and fertilizer company. Charges for a PCA are not included in this study.

*Disease.* Stripe rust is the major disease in this area requiring control on 25 percent of the acreage. Management of this disease is accomplished with a fungicide and is applied by air in late March or early April. Treatment for stripe rust begins at the first sign of the disease in the crop.

*Insects.* Aphids — General Considerations. Check fields periodically after seedling emergence. If aphids become numerous, increase frequency of sampling. Before tillering, sample whole plants. After tillering, sample individual tillers. Aphids are often concentrated in spots or near the field margin. Note the presence of such hot spots but avoid sampling only these areas. Also be sure to look for evidence of biological control, presence of predators, disease, and aphid mummies. Many pesticides are registered for aphid control in wheat if insect levels warrant treatment. No insect control is reported in this study.

*Weeds.* In January and February post-emergence herbicides are applied to control emerged winter weeds. The applications are made with ATV-4WD and pull-type boom sprayer. Some years weed pressure may be light and only a percentage of the acreage would be treated. For this study, two separate herbicide applications are reported. In late January, 50 percent of the wheat is treated with 2, 4-D Amine and Banvel. The other 50 percent of the acreage is treated in early February with Express and Axial XL. This shows the difference in costs between herbicides.

**Irrigation**. In this study water is calculated to cost $90 per acre-foot ($7.50 per AcIn) and is a combination of 50 percent well water and 50 percent surface water from the local district. The irrigation cost shown in Tables 1, 2, and 3 include water, pumping, and labor charges. In April 6.0 acre-inches of water is applied to the crop.

**Harvest**. It is assumed the farm owns a combines and a bankout wagon to harvest the 200 acres. The wheat is dumped from the combine directly into the tractor-pulled bankout wagon that delivers the grain to grain trailers (roadside) for transport to the buyer. Transportation from the field to the buyer is paid by the grower.

Costs for harvest operations are shown in Tables 1 and 3, and the equipment is listed in Tables 5 and 6. If a grower has the wheat custom harvested, related costs should be subtracted from harvest costs in Tables 1 and 3, and the equipment should be subtracted from investment costs in Table 4. A custom harvest charge should be added to harvest costs in Tables 1 and 3.

A platform header is used with the combine to harvest the wheat. The combine is used to harvest other crops such as field corn, beans and safflower which may require a different header. Growers may choose to own harvesting equipment, purchased either new or used, or hire a custom harvester. Many factors are important in deciding which harvesting option a grower uses.

**Yields**. An analysis of wheat yields, from five counties (Butte, Glenn, Sutter, Tehama and Yolo) in the Sacramento Valley, from 2011 – 2015, was conducted. A consensus from the cooperators was to use 3.0 tons per acre for the analysis in this study.

**Returns**. An analysis of returns, from five counties (Butte, Glenn, Sutter, Tehama and Yolo) in the Sacramento Valley from 2011 – 2015, was conducted. In 2013, wheat prices rose substantially to an average of about $238.00 per ton, but prices moderated in 2015 to approximately $188.00 per ton and down to $130 per ton in mid-2016. In this study growers are paid $200.00 per ton.

*Straw Management*. In some instances the straw left from the grain harvest is baled and sold to different markets, mainly as bedding for animals. Wheat can yield from 20 to 70 bales of straw per acre depending on the grain yield, how the grain is removed, growing conditions, and various other factors. Prices paid to growers can vary from $0.00 to $1.25 per bale. If the straw is sold, the cost of harvesting (if charged) needs to be included as well as any revenue generated. In this study, the wheat straw is removed from the field by a custom operator for $35 per acre and shows additional revenue of $75 per acre (60 bales/ac @ $1.25 per bale).

Growers who have relatively weed-free wheat fields, bale and remove the straw. Some growers have an arrangement with a contractor who harvests the wheat grain and bales for the straw. The wheat growers do not pay anything for the custom harvest of the grain in exchange for the straw.

The straw bales from wheat that is harvested by a stripper header tends to go to the horse/racetrack market and generally receives a better price. Whereas, straw baled from fields that harvest grain with a conventional platform header are usually sold either to feed stores or used for erosion control. Weedy fields are normally not baled for straw.

**Government Payments**. The federal government provides payments to farm operators when specific commodity prices or revenues are below targets set in legislation.

The 2014 farm bill created two alternatives for wheat producers: the Agriculture Risk Coverage (ARC) program and Price Loss Coverage (PLC). A participating farm must choose between the ARC, which provides payments based on shortfalls in revenue (most commonly on a county-wide basis) and the PLC, which provides payments based on shortfalls in national average market price. For more information on these and other programs, or on meeting minimum requirements to comply with the programs please contact the USDA Farm Service Agency (FSA), or visit the websites:
http://www.usda.gov/wps/portal/usda/usdahome?navid=farmbill
https://www.fsa.usda.gov/programs-and-services/arcplc_program/arcplc-program-data/index

The U.S. Department of Agriculture's (USDA) Commodity Credit Corporation announces marketing assistance loan rates by county each year. The 2016 average National Loan Rate for wheat is $2.94 per bushel. Marketing assistance loans provide interim financing to producers so that commodities can be stored after harvest, when market prices are typically low, to be sold later, when price conditions are more favorable. The rates are posted on the FSA website at:
www.fsa.usda.gov/programs-and-services/price-support/commodity-loan-rates/index

For this study, no revenue is reported from these government programs. In the ranging analysis, (Table 4) some of the low prices would likely have triggered payments.

**Assessments**. The California Wheat Commission (CWC) was established in 1983, expressly to support research that improves California wheat quality and marketability and to develop and maintain domestic and international markets for California wheat. CWC collects an assessment of $.075 per cwt.

## Labor, Equipment and Interest

*Labor.* Labor rates of $23.33 per hour for machine operators and $17.52 for general labor includes payroll overhead of 46 percent. The basic hourly wages are $16.00 for machine operators and $12.00 for general labor. The overhead includes the employers' share of federal and California state payroll taxes, workers' compensation insurance for field crops (code 0171), and a percentage for other possible benefits. Workers' compensation insurance costs will vary among growers, but for this study the cost is based upon the average industry final rate as of March 2016. Labor for operations involving machinery are 20 percent higher than the operation time given in Tables 1 and 6 to account for the extra labor involved in equipment set up, moving, maintenance, work breaks, and field repair. This is not reflected in Equipment Time (hours/acre) for Tables 1 & 2. Table 7 shows the Equipment Operator Labor (rate/acre) with the 20 percent increase.

*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 and Biological Engineers (ASABE). Fuel and lubrication costs are also determined by ASABE equations based on maximum power takeoff (PTO) horsepower, and fuel type. Average prices for on-farm delivery of diesel and gasoline based on August 2016 data from the Energy Information Administration are $2.84 and $2.76 per gallon, respectively. The cost includes a 9.25 percent sales tax and $0.13/gal excise tax on diesel fuel, and an 8 percent sales tax and $0.30/gal excise tax on gasoline. It is noted that federal and state excise taxes are refundable for on-farm use when filing the farm income tax return.

*Fuel, Lube & Repair*. 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 percent 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 4.25 percent 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 August 2016.

**Risk**. The risks associated with crop production should not be minimized. While this study makes every effort to model a production system based on typical, real world practices, it cannot fully represent financial, agronomic and market risks, which affect profitability and economic viability of wheat production. Because of so many potential risk factors, effective risk management must combine specific tactics in a detailed manner, and in various combinations for a sustainable operation.

## Cash Overhead Costs

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, field sanitation, liability and property insurance, supervisor's salary, share rent, and investment repairs.

**Property Taxes**. Counties charge a base property tax rate of 1 percent 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 percent

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*. This provides coverage for property loss and is charged at 0.843 percent of the average value of the assets over their useful life.

*Liability Insurance.* A standard farm liability insurance policy will help cover the expenses for which an employer becomes legally obligated to pay for bodily injury claims on property and damages to another person's property as a result of a covered accident. Common liability expenses covered under the policy include attorney fees and court costs, medical expenses for people injured on property, injury or damage to another's property. In this study, liability insurance costs $1,643 per year for the entire farm.

*Crop Insurance*. This is available to wheat growers for any unavoidable loss of production, damage or poor quality resulting from adverse weather conditions such as cool wet weather, freeze, frost, hail, heat, rain, wind and damage from birds, drought, earthquakes and fire. Coverage levels are from 50-85 percent of the approved average yield as established by verifiable production records from the farm. Actual insurance coverage is by unit, not by acre. A significant number of growers purchase crop insurance in this region. Due to variability in coverages no level is specified in this study. A wheat insurance program is administered by the USDA Risk Management Agency: (http://www.rma.usda.gov/policies/2016policy.html).

**Office Expense**. Office and business expenses are estimated at $50 per acre. These expenses include office supplies, telephones, bookkeeping, accounting, office utilities, and miscellaneous administrative charges.

**Sanitation Services**. Sanitation services provide portable toilets for the farm and costs $.56 per acre or $1,624 for the entire farm. The cost includes two double toilet units with wash basins, shade structure, delivery and pickup, and five months of weekly servicing. Costs also include soap or other suitable cleansing agent, and single use towels. Separate potable water and single-use drinking cups are also supplied.

**Land/Share Rent**. Leasing practices and rental rates for agricultural property are continually being adjusted due to production changes, market economics, land values, and relative bargaining positions of the landlord and tenant. Land used for wheat production in the Sacramento Valley is commonly rented on a tenant-landowner basis with the landowner receiving 15-25 percent of the gross income from wheat. In this study, the grower owns 50 percent of the wheat acreage (100 acre). The other 50 percent of the wheat acreage (100 acres) is rented at 20 percent of the gross revenue of the grain only. This study, 20 percent at .50 acreage equates to $60 per acre.

**Farm Management Costs**. Farm management wages and/or costs vary based on how the owner chooses to operate the farm. A farm management salary indicates a cash cost for professional supervision of the farms operations. In this study. The farm manager's salary is $124,000 per year for a single supervisor and is allocated amongst the farm's other crops on a gross acreage basis. This includes 39 percent for payroll overhead and insurance benefits. Wheat accounts for approximately 7.0 percent (6.89%) of the farm's gross acreage. Therefore, the supervisors' salary for wheat is $8,552 per year or $42.76 per acre. Any returns above total costs are considered returns to investment.

## Non-Cash Overhead Costs

Non-cash overhead costs, shown on an annual per acre basis, are calculated as the capital recovery cost for equipment and other farm investments.

**Capital Recovery Costs.** Capital recovery cost is the annual depreciation and interest costs for a capital investment. It is the amount of money required each year to recover the difference between the purchase prices and salvage value (unrecovered capital). Put another way, 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. The calculation for 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 (e.g., 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 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 equal to 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.* An interest rate of 3.75 percent is used to calculate capital recovery. Note this long term interest rate is lower than the interest rate used for capital invested in annual production operations. The rate will vary depending upon loan amount and other lending agency conditions, but is the basic suggested rate by a farm lending agency as of April 2016.

**Irrigation System.** This study assumes that an irrigation well is established and in place. Ground water is pumped with a 75 horsepower pump and supplies water to the 200 acres. Another 75 horsepower pump and irrigation set-up could irrigate this 200 acres in case of pump failure or other situation, but costs are not included. The irrigation system is considered an improvement to the property and has a 30-year life. District water is available to this farm and the water delivery costs are included in this study. An annual pump test and water analysis is performed in December or January to monitor pumping level and efficiency (gallons/minute) at a cost of $200 per pump for the test. The cost is spread out over the total acreage. The water analysis (a separate charge) should be done annually to determine nitrate availability and to maintain regulatory records such as for a nitrogen management plan. Costs for both operations are included in this study.

*Irrigation Mainline.* A main irrigation pipeline is needed to get the water from the source (well or district) to the irrigation ditch where the syphon tubes are set.

*Syphon Tubes.* The grower uses 500 - 2” syphon tubes to irrigate this crop.

**Land.** In this region row crop ground with irrigation availability is valued between $7,000 and $20,000. This study assumes that the grower owns 50 percent of the planted wheat acreage and is purchased at $14,000 per acre. In the tables this value is reported at $7,000 which is .50 acres.

**Fuel Tanks.** Two 1,000-gallon fuel tanks using gravity feed are on metal stands. The tanks are setup in a cement containment pad that meets federal, state, and county regulations.

**Equipment Costs**. 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 percent 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 WHEAT**

SACRAMENTO VALLEY- 2016

| Operation | Equipment Time (Hrs/Ac) | Cash and Labor Costs per Acre | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Labor Cost | Fuel | Lube & Repairs | Material Cost | Custom/ Rent | Total Cost | Your Cost |
| Pre-Plant: | | | | | | | | |
| Stubble Disc 50% Ac | 0.07 | 2 | 5 | 2 | 0 | 0 | 9 | |
| Finish Disc 50% Ac 2x | 0.07 | 2 | 5 | 2 | 0 | 0 | 10 | |
| Condition Beds 50% Ac 2x | 0.14 | 4 | 11 | 4 | 0 | 0 | 19 | |
| Fertilize/Pre-Plant | 0.17 | 5 | 4 | 2 | 65 | 3 | 78 | |
| Ridge Borders 50% Ac | 0.08 | 2 | 2 | 1 | 0 | 0 | 5 | |
| Roll/Firm Soil | 0.07 | 2 | 1 | 1 | 0 | 0 | 3 | |
| TOTAL PRE-PLANT COSTS | 0.60 | 17 | 29 | 11 | 65 | 3 | 124 | |
| Plant: | | | | | | | | |
| Wheat Seed-125lbs./Ac, Starter Fertilizer-50% Ac | 0.12 | 3 | 3 | 3 | 100 | 0 | 109 | |
| TOTAL PLANT COSTS | 0.12 | 3 | 3 | 3 | 100 | 0 | 109 | |
| Cultural: | | | | | | | | |
| Well Test/Water Analysis | 0.00 | 0 | 0 | 0 | 0 | 3 | 3 | |
| Pests-Weeds ATV Sprayer 50% Ac 2x | 0.05 | 1 | 0 | 0 | 18 | 0 | 19 | |
| Fertilize-Top Dress 50% Ac | 0.00 | 0 | 0 | 0 | 13 | 3 | 17 | |
| Pests-Disease Rust 25% Ac | 0.00 | 0 | 0 | 0 | 4 | 2 | 6 | |
| Open Ditch | 0.03 | 1 | 1 | 0 | 0 | 0 | 2 | |
| Irrigate | 0.00 | 22 | 0 | 0 | 45 | 0 | 67 | |
| Close Ditch | 0.03 | 1 | 1 | 0 | 0 | 0 | 2 | |
| Pickup Truck 3/4 Ton | 0.42 | 12 | 4 | 2 | 0 | 0 | 18 | |
| Pickup Truck 1/2 Ton | 0.33 | 9 | 2 | 1 | 0 | 0 | 12 | |
| ATV-4WD | 0.30 | 8 | 1 | 0 | 0 | 0 | 10 | |
| TOTAL CULTURAL COSTS | 1.16 | 54 | 8 | 5 | 80 | 8 | 155 | |
| Harvest: | | | | | | | | |
| Harvest Grain | 0.20 | 6 | 8 | 9 | 0 | 0 | 22 | |
| Bank Out Grain | 0.13 | 4 | 3 | 2 | 0 | 0 | 9 | |
| Haul Grain To Storage | 0.00 | 0 | 0 | 0 | 0 | 5 | 5 | |
| Land/Share Rent-20% of Revenue on 1/2 Ac | 0.00 | 0 | 0 | 0 | 0 | 60 | 60 | |
| TOTAL HARVEST COSTS | 0.33 | 9 | 11 | 11 | 0 | 65 | 96 | |
| Assessment: | | | | | | | | |
| Assessment (CWC) | 0.00 | 0 | 0 | 0 | 5 | 0 | 5 | |
| TOTAL ASSESSMENT COSTS | 0.00 | 0 | 0 | 0 | 5 | 0 | 5 | |
| Post-Harvest: | | | | | | | | |
| Stubble Management | 0.00 | 0 | 0 | 0 | 0 | 35 | 35 | |
| TOTAL POST-HARVEST COSTS | 0.00 | 0 | 0 | 0 | 0 | 35 | 35 | |
| Interest on Operating Capital at 4.25% | | | | | | | 10 | |
| TOTAL OPERATING COSTS/ACRE | 2.21 | 84 | 51 | 29 | 249 | 111 | 534 | |

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**TABLE 1. CONTINUED**
SACRAMENTO VALLEY- 2016

| Operation | Equipment Time (Hrs/Ac) | Cash and Labor Costs per Acre: Labor Cost | Fuel | Lube & Repairs | Material Cost | Custom/ Rent | Total Cost | Your Cost |
|---|---|---|---|---|---|---|---|---|
| CASH OVERHEAD: | | | | | | | | |
| Field Sanitation-Sac Valley | | | | | | | 1 | |
| Liability Insurance | | | | | | | 1 | |
| Office Expense | | | | | | | 50 | |
| Supervisor Salary | | | | | | | 43 | |
| Property Taxes | | | | | | | 71 | |
| Property Insurance | | | | | | | 6 | |
| Investment Repairs | | | | | | | 3 | |
| TOTAL CASH OVERHEAD COSTS/ACRE | | | | | | | 174 | |
| TOTAL CASH COSTS/ACRE | | | | | | | 707 | |
| NON-CASH OVERHEAD: | | Per Producing Acre | | Annual Cost Capital Recovery | | | | |
| Fuel Tanks & Pumps | | 10 | | 1 | | | 1 | |
| Mainline Pipe 10" 1/4 Mile | | 67 | | 4 | | | 4 | |
| Syphon Tubes (500) | | 33 | | 2 | | | 2 | |
| Service Trailer | | 16 | | 1 | | | 1 | |
| Land-Sac Valley-50% Ac | | 7,000 | | 263 | | | 263 | |
| Equipment | | 629 | | 56 | | | 56 | |
| TOTAL NON-CASH OVERHEAD COSTS | | 7,755 | | 327 | | | 327 | |
| TOTAL COSTS/ACRE | | | | | | | 1,034 | |

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**TABLE 2. COSTS AND RETURNS PER ACRE TO PRODUCE WHEAT**
SACRAMENTO VALLEY- 2016

| | Quantity/ Acre | Unit | Price or Cost/Unit | Value or Cost/Acre | Your Cost |
|---|---|---|---|---|---|
| GROSS RETURNS | | | | | |
| Wheat | 3.00 | Ton | 200.00 | 600 | |
| Straw Bales | 60 | Bale | 1.25 | 75 | |
| TOTAL GROSS RETURNS | | | | 675 | |
| OPERATING COSTS | | | | | |
| **Fertilizer:** | | | | **84** | |
| 20-0-0 (Aqua) | 80.00 | Lb N | 0.81 | 65 | |
| 11-52-0 | 25.00 | Lb | 0.25 | 6 | |
| 46-0-0 | 25.00 | Lb N | 0.53 | 13 | |
| **Custom:** | | | | **13** | |
| Irrigation Pump Test | 0.01 | Each | 200.00 | 2 | |
| Irrigation Water Analysis | 0.01 | Each | 50.00 | 1 | |
| Air Application - Fertilizer | 0.50 | Cwt | 6.60 | 3 | |
| Air Application | 0.25 | Acre | 9.00 | 2 | |
| Hauling Grain to Storage | 3.00 | Ton | 1.60 | 5 | |
| **Rent:** | | | | **63** | |
| Rig to Inject Aqua | 1.00 | Acre | 3.00 | 3 | |
| Land/Share Rent-20% of Revenue on ½ Ac | .50 | Acre | 120.00 | 60 | |
| **Irrigation:** | | | | **45** | |
| Water SacVal | 6.00 | AcIn | 7.50 | 45 | |
| **Herbicide:** | | | | **18** | |
| 2,4-D Amine | 0.50 | Pint | 1.61 | 1 | |
| Banvel | 2.00 | FlOz | 0.52 | 1 | |
| Express | 0.13 | FlOz | 27.00 | 3 | |
| Axial XL | 8.00 | FlOz | 1.55 | 12 | |
| **Fungicide:** | | | | **4** | |
| Quadris | 1.50 | FlOz | 2.72 | 4 | |
| **Contract:** | | | | **35** | |
| Stubble Mgmt-Swath/Bale/Haul | 1.00 | Acre | 35.00 | 35 | |
| **Seed:** | | | | **94** | |
| Seed-Blanca Grande 515 | 125.00 | Lb | 0.75 | 94 | |
| **Assessment:** | | | | **5** | |
| CWC | 60.00 | Cwt | 0.08 | 5 | |
| **Labor** | | | | **84** | |
| Equipment Operator Labor | 2.65 | hrs | 23.33 | 62 | |
| Irrigation Labor | 1.25 | hrs | 17.52 | 22 | |
| **Machinery** | | | | **80** | |
| Fuel-Gas | 2.36 | gal | 2.76 | 7 | |
| Fuel-Diesel | 15.50 | gal | 2.84 | 44 | |
| Lube | | | | 8 | |
| Machinery Repair | | | | 22 | |
| Interest on Operating Capital @ 4.25% | | | | 10 | |
| TOTAL OPERATING COSTS/ACRE | | | | 534 | |
| NET RETURNS ABOVE OPERATING COSTS | | | | 141 | |
| CASH OVERHEAD COSTS | | | | | |
| Field Sanitation-Sac Valley | | | | 1 | |
| Liability Insurance | | | | 1 | |
| Office Expense | | | | 50 | |
| Supervisor Salary | | | | 43 | |
| Property Taxes | | | | 71 | |
| Property Insurance | | | | 6 | |
| Investment Repairs | | | | 3 | |
| TOTAL CASH OVERHEAD COSTS/ACRE | | | | 174 | |
| TOTAL CASH COSTS/ACRE | | | | 707 | |
| NET RETURNS ABOVE CASH COSTS | | | | -32 | |
| NON-CASH OVERHEAD COSTS (Capital Recovery) | | | | | |
| Fuel Tanks & Pumps | | | | 1 | |
| Mainline Pipe 10" 1/4 Mile | | | | 4 | |
| Syphon Tubes (500) | | | | 2 | |
| Service Trailer | | | | 1 | |
| Land-Sac Valley-50% Ac | | | | 263 | |
| Equipment | | | | 56 | |
| TOTAL NON-CASH OVERHEAD COSTS/ACRE | | | | 327 | |
| TOTAL COST/ACRE | | | | 1,034 | |
| NET RETURNS ABOVE TOTAL COST | | | | -359 | |

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**TABLE 3.MONTHLY CASH COSTS PER ACRE TO PRODUCE WHEAT**

SACRAMENTO VALLEY – 2016

| | SEP 15 | OCT 15 | NOV 15 | DEC 15 | JAN 16 | FEB 16 | MAR 16 | APR 16 | MAY 16 | JUN 16 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Pre-Plant: | | | | | | | | | | | |
| Stubble Disc 50% Ac | 9 | | | | | | | | | | 9 |
| Finish Disc 50% Ac 2x | 10 | | | | | | | | | | 10 |
| Condition Beds 50% Ac 2x | | 19 | | | | | | | | | 19 |
| Fertilize/Pre-Plant | | 78 | | | | | | | | | 78 |
| Ridge Borders 50% Ac | | 5 | | | | | | | | | 5 |
| Roll/Firm Soil | | 3 | | | | | | | | | 3 |
| TOTAL PRE-PLANT COSTS | 19 | 106 | | | | | | | | | 124 |
| Plant: | | | | | | | | | | | |
| Wheat Seed/Starter Fertilizer | | | 109 | | | | | | | | 109 |
| TOTAL PLANT COSTS | 0 | 0 | 109 | | | | | | | | 109 |
| Cultural: | | | | | | | | | | | |
| Well Test/Water Analysis | | | | | 3 | | | | | | 3 |
| Pests-Weeds ATV Sprayer 50% Ac 2x | | | | | 3 | 17 | | | | | 19 |
| Fertilize-Top Dress 50% Ac | | | | | | 17 | | | | | 17 |
| Pests-Disease Rust 25% Ac | | | | | | | | 6 | | | 6 |
| Open Ditch | | | | | | | | 2 | | | 2 |
| Irrigate | | | | | | | | 67 | | | 67 |
| Close Ditch | | | | | | | | 2 | | | 2 |
| Pickup Truck 3/4 Ton | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 18 |
| Pickup Truck 1/2 Ton | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 12 |
| ATV-4WD | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 10 |
| TOTAL CULTURAL COSTS | 4 | 4 | 4 | 4 | 9 | 37 | 4 | 81 | 4 | 4 | 155 |
| Harvest: | | | | | | | | | | | |
| Harvest Grain | | | | | | | | | | 22 | 22 |
| Bank Out Grain | | | | | | | | | | 9 | 9 |
| Haul Grain To Storage | | | | | | | | | | 5 | 5 |
| Land/Share Rent-20% of Revenue on 1/2 Ac | | | | | | | | | | 60 | 60 |
| TOTAL HARVEST COSTS | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 96 | 96 |
| Assessment: | | | | | | | | | | | |
| Assessment (CWC) | | | | | | | | | | 5 | 5 |
| TOTAL ASSESSMENT COSTS | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 5 |
| Post-Harvest: | | | | | | | | | | | |
| Stubble Management | | | | | | | | | | 35 | 35 |
| TOTAL POST-HARVEST COSTS | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 35 | 35 |
| Interest on Operating Capital @4.25% | 0.08 | 0.47 | 0.87 | 0.88 | 0.91 | 1.05 | 1.06 | 1.35 | 1.36 | 1.86 | 9.88 |
| TOTAL OPERATING COSTS/ACRE | 23 | 110 | 114 | 5 | 10 | 38 | 5 | 82 | 5 | 141 | 534 |

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**TABLE 3. CONTINUED**
SACRAMENTO VALLEY – 2016

| | SEP 15 | OCT 15 | NOV 15 | DEC 15 | JAN 16 | FEB 16 | MAR 16 | APR 16 | MAY 16 | JUN 16 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CASH OVERHEAD | | | | | | | | | | | |
| Field Sanitation-Sac Valley | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Liability Insurance | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Office Expense | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 50 |
| Supervisor Salary | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 43 |
| Property Taxes | | | | | 36 | | | | | 36 | 71 |
| Property Insurance | | | | | 6 | | | | | 6 | 6 |
| Investment Repairs | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| TOTAL CASH OVERHEAD COSTS | 10 | 10 | 10 | 10 | 48 | 10 | 10 | 10 | 10 | 48 | 174 |
| TOTAL CASH COSTS/ACRE | 32 | 120 | 123 | 15 | 58 | 48 | 15 | 92 | 15 | 190 | 707 |

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**TABLE 4. RANGING ANALYSIS**

SACRAMENTO VALLEY - 2016

COSTS PER ACRE AT VARYING YIELDS TO PRODUCE WHEAT

| | YIELD | | | | | | |
|---|---|---|---|---|---|---|---|
| Wheat (tons/acre) | 2.25 | 2.50 | 2.75 | 3.00 | 3.25 | 3.50 | 3.75 |
| Straw (bales/acre) | 45.00 | 50.00 | 55.00 | 60.00 | 65.00 | 70.00 | 75.00 |
| OPERATING COSTS/ACRE: | | | | | | | |
| Pre-Plant | 124 | 124 | 124 | 124 | 124 | 124 | 124 |
| Plant | 108 | 109 | 110 | 109 | 112 | 113 | 113 |
| Cultural | 155 | 155 | 155 | 155 | 155 | 155 | 155 |
| Harvest | 80 | 86 | 91 | 96 | 101 | 106 | 113 |
| Assessment | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Post-Harvest | 26 | 29 | 32 | 35 | 38 | 41 | 44 |
| Interest on Operating Capital @ 4.25% | 9.79 | 9.82 | 9.85 | 9.88 | 9.91 | 9.94 | 9.97 |
| TOTAL OPERATING COSTS/ACRE | 509 | 517 | 527 | 534 | 545 | 554 | 564 |
| TOTAL OPERATING COSTS/TON | 10.76 | 9.86 | 9.12 | 8.47 | 7.98 | 7.54 | 7.16 |
| CASH OVERHEAD COSTS/ACRE | 174 | 174 | 174 | 174 | 174 | 174 | 174 |
| TOTAL CASH COSTS/ACRE | 682 | 691 | 700 | 707 | 718 | 727 | 738 |
| TOTAL CASH COSTS/TON | 14.44 | 13.16 | 12.13 | 11.23 | 10.52 | 9.90 | 9.37 |
| NON-CASH OVERHEAD COSTS/ACRE | 327 | 327 | 327 | 327 | 327 | 327 | 327 |
| TOTAL COSTS/ACRE | 1,009 | 1,018 | 1,027 | 1,034 | 1,045 | 1,054 | 1,064 |
| TOTAL COSTS/TON | 21.00 | 19.00 | 18.00 | 16.00 | 15.00 | 14.00 | 14.00 |

Net Return per Acre above Operating Costs for Wheat

| PRICE ($/ton) | ($/bale) | YIELD (tons/acre) (bales/acre) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Wheat | | 2.25 | 2.50 | 2.75 | 3.00 | 3.25 | 3.50 | 3.75 |
| | Straw | 45.00 | 50.00 | 55.00 | 60.00 | 65.00 | 70.00 | 75.00 |
| 125.00 | 0.50 | -205 | -180 | -155 | -129 | -106 | -81 | -58 |
| 150.00 | 0.75 | -137 | -105 | -73 | -39 | -8 | 24 | 55 |
| 175.00 | 1.00 | -70 | -30 | 10 | 51 | 89 | 129 | 167 |
| 200.00 | 1.25 | -2 | 45 | 92 | 141 | 187 | 234 | 280 |
| 225.00 | 1.50 | 65 | 120 | 175 | 231 | 284 | 339 | 392 |
| 250.00 | 1.75 | 133 | 195 | 257 | 321 | 382 | 444 | 505 |
| 275.00 | 2.00 | 200 | 270 | 340 | 411 | 479 | 549 | 617 |

Net Return per Acre above Cash Costs for Wheat

| PRICE ($/ton) | ($/bale) | YIELD (tons/acre) (bales/acre) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Wheat | | 2.25 | 2.50 | 2.75 | 3.00 | 3.25 | 3.50 | 3.75 |
| | Straw | 45.00 | 50.00 | 55.00 | 60.00 | 65.00 | 70.00 | 75.00 |
| 125.00 | 0.50 | -378 | -354 | -329 | -302 | -279 | -255 | -231 |
| 150.00 | 0.75 | -311 | -279 | -247 | -212 | -182 | -150 | -119 |
| 175.00 | 1.00 | -243 | -204 | -164 | -122 | -84 | -45 | -6 |
| 200.00 | 1.25 | -176 | -129 | -82 | -32 | 13 | 60 | 106 |
| 225.00 | 1.50 | -108 | -54 | 1 | 58 | 111 | 165 | 219 |
| 250.00 | 1.75 | -41 | 21 | 83 | 148 | 208 | 270 | 331 |
| 275.00 | 2.00 | 27 | 96 | 166 | 238 | 306 | 375 | 444 |

Net Return per Acre above Total Costs for Wheat

| PRICE ($/ton) | ($/bale) | YIELD (tons/acre) (bales/acre) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Wheat | | 2.25 | 2.50 | 2.75 | 3.00 | 3.25 | 3.50 | 3.75 |
| | Straw | 45.00 | 50.00 | 55.00 | 60.00 | 65.00 | 70.00 | 75.00 |
| 125.00 | 0.50 | -705 | -680 | -656 | -629 | -606 | -582 | -558 |
| 150.00 | 0.75 | -638 | -605 | -573 | -539 | -509 | -477 | -446 |
| 175.00 | 1.00 | -570 | -530 | -491 | -449 | -411 | -372 | -333 |
| 200.00 | 1.25 | -503 | -455 | -408 | -359 | -314 | -267 | -221 |
| 225.00 | 1.50 | -435 | -380 | -326 | -269 | -216 | -162 | -108 |
| 250.00 | 1.75 | -368 | -305 | -243 | -179 | -119 | -57 | 4 |
| 275.00 | 2.00 | -300 | -230 | -161 | -89 | -21 | 48 | 117 |

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**TABLE 5. WHOLE FARM ANNUAL EQUIPMENT, INVESTMENT, AND BUSINESS OVERHEAD COSTS**

SACRAMENTO VALLEY – 2016

ANNUAL EQUIPMENT COSTS

| Yr. | Description | Price | Yrs. Life | Salvage Value | Capital Recovery | Cash Overhead Insurance | Cash Overhead Taxes | Total |
|---|---|---|---|---|---|---|---|---|
| 16 | Grain Combine-New | 476,827 | 15 | 48,830 | 39,656 | 222 | 2,628 | 42,506 |
| 16 | 425 HP Crawler | 268,073 | 15 | 52,189 | 21,036 | 135 | 1,601 | 22,772 |
| 16 | 135 HP 2WD Tractor | 105,868 | 15 | 20,611 | 8,308 | 53 | 632 | 8,993 |
| 16 | 90HP4WD Tractor | 77,374 | 15 | 15,063 | 6,072 | 39 | 462 | 6,573 |
| 16 | Grain Header-New 30' | 57,662 | 15 | 5,905 | 4,796 | 27 | 318 | 5,140 |
| 16 | Grain Drill - 20' | 50,388 | 15 | 4,838 | 4,207 | 23 | 276 | 4,506 |
| 16 | Bankout Wagon-Pull Type 20 Ton | 38,000 | 15 | 3,648 | 3,173 | 18 | 208 | 3,398 |
| 16 | Ringroller - 30' | 35,000 | 15 | 3,360 | 2,922 | 16 | 192 | 3,130 |
| 16 | Border Ridger | 19,625 | 15 | 1,884 | 1,639 | 9 | 108 | 1,755 |
| 16 | Rear Blade | 8,900 | 15 | 854 | 743 | 4 | 49 | 796 |
| 16 | Ditcher - V | 6,630 | 15 | 637 | 554 | 3 | 36 | 593 |
| 16 | Finish Disc 28' | 65,000 | 10 | 11,495 | 6,946 | 32 | 382 | 7,361 |
| 16 | Stubble Disc 16' | 45,000 | 10 | 7,958 | 4,809 | 22 | 265 | 5,096 |
| 16 | Bed Conditioner-Heavy 3-Row | 33,000 | 10 | 5,836 | 3,526 | 16 | 194 | 3,737 |
| 16 | ATV-Sprayer 200Gal | 9,700 | 10 | 1,715 | 1,037 | 5 | 57 | 1,098 |
| 16 | Saddle Tank 300Gal | 2,877 | 10 | 509 | 307 | 1 | 17 | 326 |
| 16 | ATV-4WD | 8,350 | 6 | 3,443 | 1,058 | 5 | 59 | 1,122 |
| 16 | Pickup Truck 3/4 Ton | 45,000 | 5 | 20,168 | 6,295 | 27 | 326 | 6,648 |
| 16 | Pickup 1/2 Ton | 38,000 | 5 | 17,031 | 5,316 | 23 | 275 | 5,614 |
| | TOTAL | 1,391,274 | - | 225,973 | 122,397 | 682 | 8,086 | 131,165 |
| | 60% of New Cost* | 834,764 | - | 135,584 | 73,438 | 409 | 4,852 | 78,699 |

*Used to reflect a mix of new and used equipment

ANNUAL INVESTMENT COSTS

| Description | Price | Yrs. Life | Salvage Value | Capital Recovery | Cash Overhead Insurance | Cash Overhead Taxes | Cash Overhead Repairs | Total |
|---|---|---|---|---|---|---|---|---|
| INVESTMENT | | | | | | | | |
| Fuel Tanks & Pumps | 28,165 | 20 | 2,817 | 1,930 | 13 | 155 | 775 | 2,873 |
| Mainline Pipe 10" 1/4 Mile | 13,446 | 15 | 6,723 | 846 | 9 | 101 | 269 | 1,225 |
| Syphon Tubes (500) | 6,640 | 15 | 3,320 | 418 | 4 | 50 | 133 | 605 |
| Service Trailer | 47,000 | 15 | 3,290 | 3,986 | 21 | 251 | 940 | 5,199 |
| Land-Sac Valley-50% Ac | 700,000 | 30 | 700,000 | 26,250 | 590 | 7,000 | 0 | 33,840 |
| TOTAL INVESTMENT | 795,251 | - | 716,150 | 33,430 | 637 | 7,557 | 2,117 | 43,741 |

ANNUAL BUSINESS OVERHEAD COSTS

| Description | Units/ Farm | Unit | Price/ Unit | Total Cost |
|---|---|---|---|---|
| Field Sanitation-Sac Valley | 2900.00 | Acre | .56 | 1,624 |
| Liability Insurance | 2900.00 | Acre | .5665 | 1,643 |
| Office Expense | 200.00 | Acre | 50.00 | 10,000 |
| Supervisor Salary | 200.00 | Acre | 42.76 | 8,552 |

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**TABLE 6. HOURLY EQUIPMENT COSTS**

SACRAMENTO VALLEY – 2016

| Yr. | Description | Wheat Hours Used | Capital Recovery | Cash Overhead Insurance | Cash Overhead Taxes | Operating Lube & Repairs | Operating Fuel | Operating Total Oper. | Total Costs/Hr. |
|---|---|---|---|---|---|---|---|---|---|
| 16 | 425 HP Crawler | 62 | 11.84 | 0.08 | 0.90 | 17.52 | 70.05 | 87.57 | 100.39 |
| 16 | 135 HP 2WD Tractor | 123 | 6.23 | 0.04 | 0.47 | 8.19 | 22.25 | 30.44 | 37.18 |
| 16 | 90HP4WD Tractor | 15 | 4.55 | 0.03 | 0.35 | 3.30 | 11.85 | 15.15 | 20.08 |
| 16 | Pickup Truck 3/4 Ton | 83 | 9.44 | 0.04 | 0.49 | 5.79 | 8.87 | 14.66 | 24.63 |
| 16 | Pickup 1/2 Ton | 67 | 7.97 | 0.03 | 0.41 | 3.67 | 5.52 | 9.19 | 17.62 |
| 16 | ATV-4WD | 71 | 1.91 | 0.01 | 0.11 | 1.04 | 2.76 | 3.80 | 5.82 |
| 16 | Grain Combine-New | 44 | 118.97 | 0.66 | 7.88 | 39.92 | 35.44 | 75.36 | 202.88 |
| 16 | Grain Header-New 30' | 40 | 14.39 | 0.08 | 0.95 | 1.02 | 0.00 | 1.02 | 16.44 |
| 16 | Bed Conditioner-Heavy 3-Row | 29 | 10.58 | 0.05 | 0.58 | 7.09 | 0.00 | 7.09 | 18.30 |
| 16 | Finish Disc 28' | 14 | 20.84 | 0.10 | 1.15 | 10.86 | 0.00 | 10.86 | 32.95 |
| 16 | Stubble Disc 16' | 13 | 14.43 | 0.07 | 0.79 | 7.52 | 0.00 | 7.52 | 22.81 |
| 16 | Rear Blade | 6 | 2.23 | 0.01 | 0.15 | 1.36 | 0.00 | 1.36 | 3.75 |
| 16 | Saddle Tank 300Gal | 33 | 1.23 | 0.01 | 0.07 | 0.78 | 0.00 | 0.78 | 2.08 |
| 16 | ATV-Sprayer 200Gal | 11 | 4.15 | 0.02 | 0.23 | 2.63 | 0.00 | 2.63 | 7.02 |
| 16 | Ringroller - 30' | 27 | 13.18 | 0.07 | 0.87 | 3.98 | 0.00 | 3.98 | 18.10 |
| 16 | Bankout Wagon-Pull Type 20 Ton | 27 | 14.31 | 0.08 | 0.94 | 5.17 | 0.00 | 5.17 | 20.50 |
| 16 | Border Ridger | 17 | 7.39 | 0.04 | 0.49 | 3.19 | 0.00 | 3.19 | 11.11 |
| 16 | Ditcher - V | 6 | 2.50 | 0.01 | 0.16 | 1.85 | 0.00 | 1.85 | 4.52 |
| 16 | Grain Drill - 20' | 24 | 25.24 | 0.14 | 1.66 | 13.65 | 0.00 | 13.65 | 40.69 |

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**TABLE 7. OPERATIONS WITH EQUIPMENT & MATERIALS**
SACRAMENTO VALLEY-2016

| Operation | Operation Month | Tractor | Implement | Labor Type/ Material | Rate/ acre | Unit |
|---|---|---|---|---|---|---|
| Stubble Disc 50% Ac | Sept | 425 HP Crawler | Stubble Disc 16' | Equipment Operator Labor | 0.08 | hour |
| Finish Disc 50% Ac | Sept | 425 HP Crawler | Finish Disc 28' Ringroller - 30' | Equipment Operator Labor | 0.08 | hour |
| Condition Beds 50% Ac | Oct | 425 HP Crawler | Bed Conditioner-Heavy 3-Row | Equipment Operator Labor | 0.17 | hour |
| Fertilize/Pre-Plant | Oct | 135 HP 2WD Tractor | Saddle Tank 300Gal | Equipment Operator Labor | 0.20 | hour |
| | | | | 20-0-0 (Aqua) | 80.00 | Lb N |
| | | | | Rig to Inject Aqua | 1.00 | Acre |
| Ridge Borders 50% Ac | Oct | 135 HP 2WD Tractor | Border Ridger | Equipment Operator Labor | 0.10 | hour |
| Roll/Firm Soil | Oct | 90HP4WD Tractor | Ringroller - 30' | Equipment Operator Labor | 0.08 | hour |
| Wheat Seed, Starter Fert | Nov | 135 HP 2WD Tractor | Grain Drill - 20' | Equipment Operator Labor | 0.14 | hour |
| | | | | Seed-Blanca Grande | 125.00 | Lb |
| | | | | 11-52-0 | 25.00 | Lb |
| Well Test/Water Analysis | Jan | | | Irrigation Pump Test | 0.01 | Each |
| | | | | Irrigation Water Analysis | 0.01 | Each |
| Pests-Weeds | Jan | | ATV-4WD | Equipment Operator Labor | 0.03 | hour |
| | | | | 2,4-D Amine | 0.50 | Pint |
| | | | ATV-Sprayer 200Gal | Banvel | 2.00 | FlOz |
| | Feb | | ATV-4WD | Equipment Operator Labor | 0.03 | hour |
| | | | | Express | 0.13 | FlOz |
| | | | ATV-Sprayer 200Gal | Axial-XL | 8.00 | FlOz |
| Fertilize-Top Dress | Feb | | | 46-0-0 | 25.00 | Lb N |
| | | | | Air Appl - Fertilizer | 0.50 | Cwt |
| Pests-Disease Rust 25% Ac | Apr | | | Air Application | 0.25 | Acre |
| | | | | Quadris | 1.50 | FlOz |
| Open Ditch | Apr | 135 HP 2WD Tractor | Ditcher - V | Equipment Operator Labor | 0.04 | hour |
| Irrigate | Apr | | | Irrigation Labor | 1.25 | hours |
| | | | | Water SacVal | 6.00 | AcIn |
| Close Ditch | Apr | 135 HP 2WD Tractor | Rear Blade | Equipment Operator Labor | 0.04 | hour |
| Pickup Truck 3/4 Ton | Apr | | Pickup Truck 3/4 Ton | Equipment Operator Labor | 0.50 | hour |
| Pickup Truck 1/2 Ton | Apr | | Pickup 1/2 Ton | Equipment Operator Labor | 0.40 | hour |
| ATV-4WD | Apr | | ATV-4WD | Equipment Operator Labor | 0.36 | hour |
| Harvest Grain | June | | Grain Combine-New Grain Header-New 30' | Equipment Operator Labor | 0.24 | hour |
| Bank Out Grain | June | 135 HP 2WD Tractor | Bankout Wagon-Pull Type 20 Ton | Equipment Operator Labor | 0.16 | hour |
| Haul Grain To Storage | June | | | Hauling | 3.00 | Ton |
| Land/Share Rent-20% | June | | | Land/Share Rent-20% | 0.50 | Acre |
| Assessment (CWC) | June | | | CWC | 60.00 | Cwt |
| Stubble Management | June | | | Stubble Mgmt-Swath/Bale/Haul | 1.00 | Acre |