
**UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION
AGRICULTURE AND NATURAL RESOURCES
AGRICULTURAL ISSUES CENTER**

2015

SAMPLE COSTS TO PRODUCE

POTATOES



Fresh Market

KLAMATH BASIN in the INTERMOUNTAIN REGION

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Sample Costs to Produce Fresh Market Potatoes
In the Tulelake-Klamath Basin of the Intermountain Region-2015

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INTRODUCTION

The sample costs to produce potatoes for fresh market in the Klamath Basin of the Intermountain Region 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. The practices described are based on production procedures considered typical for this crop and area but will not apply to every situation. Sample costs for labor, materials, equipment, and custom services are based on current figures. A “*Your Cost*” column in Tables 1 and 2 is provided for you to enter your costs.

The hypothetical farm operation, production practices, overhead, and calculations are described under the assumptions. For additional information or explanation of calculations used in the study call the Department of Agricultural and Resource Economics, Ag Issues Center, University of California, Davis, 530-752-4651 or destewart@ucdavis.edu. You may also contact your local extension office at 530-667-5117 or rgwilson@ucanr.edu, http://ucanr.edu/sites/Intermountain_REC/. An additional cost of production study for potatoes grown in this region is also available: *Sample Costs to Produce Potatoes-Chippers for Processing in the Klamath Basin of the Intermountain Region-2015*.

Sample Cost of Production studies for many commodities are available and can be down loaded from the Department website, <http://coststudies.ucdavis.edu>. Archived studies are also available on the website.

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ASSUMPTIONS

The following assumptions pertain to sample costs to produce potatoes for fresh market in the Klamath Basin of the Intermountain Region. Practices described should not be considered recommendations by the University of California, but represent production procedures considered typical for this crop and area. Some of the costs and practices may not be applicable to your situation or used during every production year. Other practices not indicated may be needed. Cultural practices and costs to produce potatoes will vary by grower and region, and differences can be significant. The practices and inputs used in this cost study serve as a sample or guide, only. The costs are presented 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 hypothetical 1,500 acre farm. Potatoes are grown on 250 acres of which the grower owns 30% of the potato acreage and rents the other 70%. The 1,500 acre farm has 50 acres (10 owned acres and 40 rented acres) consisting of roads, irrigation systems, farmstead, and unused or unusable land. Typically, a grower with this amount of potato acreage will have several non-adjacent fields and the cultural practices usually vary among fields. Extra costs may be involved for moving equipment between fields, but are not included in this study. Other crops that might be grown in rotation with the potatoes include onions, small grains, alfalfa, peppermint, and horseradish. In this report, practices completed on less than 100% of the potato acreage are denoted as a percentage of the total potato crop acreage. This report for fresh market potatoes and the chippers for processing potatoes report are based on the same hypothetical farm. Table 5 lists some of the business overhead costs at 500 acres due to this situation.

CULTURAL PRACTICES AND MATERIAL INPUTS

Land Preparation. It is assumed that the ground planted to the potato crop is coming out of rotation of another crop. It is also assumed that 80% of the acreage will need the preceding crop residue chopped to start ground preparations in the fall before planting the next spring. A heavy stubble disc and ring roller are used to incorporate the residue into the soil. Half of the acreage is deep ripped.

Fumigation. This study assumes 25% of the acreage will be fumigated in the fall and 75% of the acreage is fumigated in the spring. Fall-fumigated fields are irrigated with 2 acre-inches of water using wheel line sprinklers after fall tillage to bring soil moisture to the optimal level for fumigation. Fields are then rotospiked and soil fumigates are incorporated into the soil. Beginning in April the potato ground is opened with a chisel and ring roller. Fields are then rotospiked and soil fumigants are incorporated into the soil with rotospiking or shank-injection 5 weeks before planting. Rows are pulled shortly before planting and one cultivation/hilling operation is included to control small weeds and reduce tuber exposure to sunlight, which lessens tuber greening. Herbicides are incorporated on 25% of the acreage during this operation.

Fertilization. A mixed pre-plant fertilizer of nitrogen, phosphorus and potassium are custom applied prior to planting in May. During the growing season UAN 32 is applied through the sprinklers in June, July and August. Total nitrogen and potassium for the season is at 200 pounds each per acre.

Planting. Potato seeds are cut, treated with a fungicide, and hauled to the grower by custom service. An additional fungicide, such as Quadris, is often applied in the furrow at planting. Vydate or another nematocide is applied in the furrow at planting to suppress nematodes. Potatoes are planted in 36-inch beds

at a rate of 22 cwt per acre by the grower.

Irrigation. Potatoes are irrigated a total of 20.5 acre-inches which is applied with the sprinklers from June through August, during the growing season. Water costs are \$75 per acre-foot which equals \$6.25 per acre inch. A cost of \$12 per acre-inch is used for this study which includes booster pumping costs. Growers often apply either fertilizers or pesticides with water through the irrigation system, a process known as chemigation. Prior to harvest, all of the pipes are removed from the fields. Irrigation labor for the entire growing season is included with installation/removal costs for the irrigation pipe.

Pest Management. The pesticides and rates mentioned in this cost study are listed in Integrated Pest Management for potatoes and UC Pest Management Guidelines, Potatoes. 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.** For information and pesticide use permits, contact your local county Agricultural Commissioner's office. **Pesticides mentioned in this study are not recommendations, but those commonly used in the region**

Pesticide and fertilizer applications are made by either chemigation (pesticides and/or fertilizers applied through the irrigation water), by tractor-mounted ground sprayer, or foliar-broadcasting by airplane. Insecticides and fungicides can be tank-mixed and applied to the crop in the same operation. Check individual pesticide labels for compatibility, mixing and usage. Some pesticides are applied to a portion of the acreage. Pesticides with different modes of action and different active ingredients should be rotated to avoid resistance development by the targeted pests. See Tables 2 and 7 for a list of chemicals used for the applications. 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 pest control or certified crop advisers. In addition the PCA/CCA or an independent consultant will monitor the field for agronomic problems including irrigation and nutrition. They can also take weekly petiole samples during the growing season for fertilizer recommendations. Growers may hire a private PCA/CCA or receive the service as part of a service agreement with an agricultural chemical and fertilizer company.

Weeds. Pre-emergence herbicides are applied prior to planting with a tractor and incorporated into the soil with a bed shaper on 25% of the acreage. Pre-emergence herbicides are broadcast applied and incorporated with irrigation after planting but before potato emergence on the remaining 75% of acres. Post-emergence herbicides such as rimsulfuron are applied to 100% of the acreage when potatoes are 3 to 5 inches tall.

Insects and Nematodes. Treatment for insects and nematodes begins with soil fumigation. An insecticide/nematicide is applied to the soil to suppress nematodes at planting. Insecticide treatment for worm and aphid control is applied broadcast-foliar applied with an airplane. Monitoring of pest populations during the growing season will determine how often control is needed.

Diseases. The most problematic pests of potatoes are diseases. Control begins with soil fumigation in the fall or spring. A fungicide is applied to the potato seeds and soil at planting. In June and July, a fungicide is often applied through the irrigation system to control foliar diseases. In August another disease application is made by aircraft for control of foliar diseases.

Growth Regulator and Desiccant. A growth regulator, Royal MH-30, is used to prevent sprouting in storage and is applied in August by aircraft over 50% of the acreage. Later in September a desiccant is used to dry out the remaining plant tops. Much of the above-ground vegetative matter dries out with crop maturity or killing fall frosts, but Reglone is applied by aircraft on 50% of the acreage to aid in harvesting by drying out remaining growth.

Harvest. After sprinkler pipe removal, the beds and vines are flattened by a roller and vines are cut. The potatoes are dug, harvested, and field cleaned in one pass with a tractor pulling a PTO driven four-row digger, and deposited directly into a 15-22 ton bottom-conveyor belt truck for transport to storage. The truck follows alongside the harvester in the field.

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.

Transportation and Storage. Once the trucks are loaded in the field they are driven to the storage shed. Hauling potatoes from the field to the storage sheds is assumed to be a 10 mile roundtrip.

Once at the sheds trucks are unloaded by the conveyer belt, which runs the length of the truck bed and discharges potatoes into a large holding tub. These special tubs allow for faster unloading of the trucks and movement into the storage shed. In this study, it is assumed that the grower hauls his potatoes to a custom storage facility. Most potatoes are stored in the sheds for six months. During storage, 50% of the potatoes are treated to prevent sprouting.

Yields. This study assumes a yield of 485 cwt per acre for fresh market potatoes, which is the 2014 average yield for Modoc and Siskiyou counties. Yields from 410 to 560 cwt per acre are used to calculate grower returns, the yields have varied over the years in the Tulelake Basin of the Intermountain Region.

Returns. For this study, \$6.50 per cwt is paid to the grower. A unit price range of \$3.50 to \$9.50 per cwt is used to calculate grower returns. This price reflects the actual price paid to the grower by the packing shed after storage and run costs are subtracted, not the wholesale or retail price of the potatoes. This price information is taken from Modoc and Siskiyou counties crop reports and from grower consensus. See Table 5, for the range of prices over yields.

Assessments. Under a state marketing order a mandatory assessment fee is collected and administered by the California Potato Research Advisory Board (CPRAB). This assessment of \$0.02 per cwt pays for potato research in California.

LABOR, EQUIPMENT AND INTEREST

Labor. Labor rates of \$20.00 per hour for machine operators and \$14.00 for general labor includes payroll overhead of 37%. The basic hourly wages are \$14.60 for machine operators and \$10.25 for general labor. The overhead includes the employers' share of federal and California state payroll taxes, workers' compensation insurance for field crops 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 2015.

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 takeoff (PTO) horsepower, and fuel type. Prices for on-farm delivery of diesel and gasoline are \$3.17 and \$3.41 per gallon, respectively. The costs are based on June 2015 prices from the Energy Information Administration, Department of Energy (DOE) weekly data.

Fuel Lube & Repair. The fuel, lube, and repair costs per acre for each operation in Table 1 are determined by multiplying the total hourly operating cost in Table 6 for each piece of equipment used for the selected operation by the hours per acre. Tractor time is 10% higher than implement time for a given operation to account for setup, travel and down time.

Interest on Operating Capital. Interest on operating capital is based on cash operating costs and is calculated monthly until harvest at a nominal rate of 5.75% per year. It is assumed that all cash operations are financed. A nominal interest rate is the typical market cost of borrowed funds. Any post-harvest costs of operations are discounted back to the 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 January 2015.

Risk. Risks associated with potato production are not assigned a production cost. 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 fresh market potato 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. Any returns above total costs are considered returns on risk and investment to management, (or owners).

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, rents, and investment repairs. Cash overhead costs are included in Tables 1, 2, 3 and 4.

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.

Insurance. Insurance for farm investments varies depending on the assets included and the amount of coverage.

Property Insurance. 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. A standard farm liability insurance policy will help cover the expenses for which you become legally obligated to pay for bodily injury claims on your property and damages to another person's property as a result of a covered accident. Common liability expenses covered under your policy include attorney fees and court costs, medical expenses for people injured on your property, injury or

damage to another's property. In this study, liability insurance costs \$1,543 for the entire farm.

Crop Insurance. This is available to 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% of the approved average yield as established by verifiable production records. Actual insurance coverage is by unit, not by acre. Due to variability in coverages no level is specified in this study.

Field Sanitation. Sanitation services includes double portable bathrooms and hand wash area. A shaded lunching table is also provided. This service is contracted annually.

Irrigation System. The irrigation delivery system from the district to the field is already in place. The two wheel lines and two booster pumps are owned by the grower. This includes lay flat main lines, valves and connectors.

Supervisor Salary. One supervisor salary is charged at 50% time, or \$55 per acre for this study.

Office Expense. Office and business expenses are estimated at \$50.00 per acre. These expenses include office supplies, telephones, bookkeeping, accounting and legal fees, road maintenance, and miscellaneous business expenses.

Land Rent. In this region land rent ranges from \$100 to \$450 per acre are with surface water attached to the land, but the water is not paid for by the landowner. The cost of the water is paid by the grower renting the land. Cash rent at \$350 per acre is used for this study. The grower in this study rents 175 acres of which 169 are producing or planted acres and the grower pays \$350 per rented producing acre to the landlord. The non-producing acres consist of roads, irrigation system, and equipment yard. The other 75 acres is owned by the grower and shown under non-cash overhead.

GPS Auto-Trac. An annual activation fee is charged for Auto-trac service that controls the GPS systems mounted in tractors.

Investment Repairs. Annual cash maintenance or repair costs are associated with investments under non-cash overhead. Repairs to the fuel tanks and pumps, shop building, shop tools, irrigations system and tool carrier are calculated at 10% of the new purchase price distributed over the life of the investment.

NON-CASH OVERHEAD

Non-cash overhead is calculated as the capital recovery cost for equipment and other farm investments. Annual ownership costs for equipment and investments are shown in Tables 1, 2, 5, and 6 as the capital recovery cost on an annual per acre basis.

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). 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 (Boehlje and Eidman). The calculation for the annual capital recovery costs is as follows:

$((\text{Purchase Price} - \text{Salvage Value}) \times \text{Capital Recovery Factor}) + (\text{Salvage Value} \times \text{Interest Rate})$.

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 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.

Interest Rate. The interest rate of 4.75% used to calculate capital recovery cost is the effective long term interest rate as of January 2015. The interest rate is provided by a local farm lending agency and will vary according to risk and amount of loan.

Land. Potato-producing land normally ranges from \$3000 to \$5,000 per acre in this region. This study uses a value of \$4,000 per acre.

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 Tables 6 and 7. 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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UC COOPERATIVE EXTENSION
TABLE 1. COSTS PER ACRE TO PRODUCE POTATOES-FRESH MARKET
 Klamath Basin-Tulelake-2015

Operation	Operation Time (Hrs/A)	Cash and Labor Costs per Acre					Total Cost	Your Cost
		Labor Cost	Fuel	Lube &Repairs	Material Cost	Custom/ Rent		
Pre-Plant:								
Chop Residue 80% Ac	0.12	3	3	2	0	0	8	
Stubble Disc & Roll	0.13	3	6	3	0	0	13	
Sub-Soil 50% Ac	0.15	4	7	4	0	0	14	
Pre-Irrigate/Sprinklers 25% Ac	0.00	0	0	0	6	0	6	
Roto-Spike/Fall-Fumigate 25% Ac	0.05	1	2	1	53	0	57	
Gypsum 25% Ac	0.00	0	0	0	0	23	23	
Chisel & Roll	0.12	3	6	2	0	0	11	
Roto-Spike/Spring-Fumigate 75% Ac	0.16	4	6	3	138	0	151	
Fertilize-Pre-Plant (Mixture)	0.00	0	0	0	254	25	279	
Pull Beds/(Pre-Plant Herbicide)-25% Ac	0.20	5	7	2	9	0	23	
TOTAL PRE-PLANT COSTS	0.94	23	36	18	460	48	584	
Cultural:								
Plant Potatoes (cut/treated/haul)	0.25	6	11	7	440	0	464	
At Planting-Fungicide/Nematicide	0.00	0	0	0	47	0	47	
Irrigation Labor	0.00	140	0	0	0	0	140	
Irrigate/Sprinklers	0.00	0	0	0	240	0	240	
Chemigation-Fertilizer-UAN 32	0.00	0	0	0	84	0	84	
Cultivate/Hilling-Herbicide 75% Ac	0.15	4	5	2	42	0	52	
Chemigation-Disease 2X	0.00	0	0	0	62	0	62	
Herbicides-Post Emergence	0.10	2	4	1	48	0	55	
Chemigation-Insects	0.00	0	0	0	14	0	14	
Insects-Broadcast/Air	0.00	0	0	0	14	20	33	
Disease-Broadcast/Air	0.00	0	0	0	19	20	39	
Growth Regulator-Broadcast/Air 50%Ac	0.00	0	0	0	4	10	14	
Petiole Samples-Nutrients	0.00	0	0	0	0	10	10	
1/2 Ton Pickup Trucks (4)	0.20	19	5	1	0	0	26	
3/4 Ton Pickup Trucks (2)	0.20	10	3	1	0	0	13	
ATV4WD (2)	0.20	10	1	0	0	0	11	
Service Truck	0.17	4	2	2	0	0	8	
TOTAL CULTURAL COSTS	1.27	195	32	15	1,012	59	1,312	
Pre-Harvest:								
Desiccant Application/Air 50% Ac	0.00	0	0	0	18	10	27	
Cut Vines/Roll Beds	0.15	4	4	1	0	0	9	
TOTAL PRE-HARVEST COSTS	0.15	4	4	1	18	10	36	
Harvest:								
Dig/Harvest Potatoes-4 Rows	0.67	16	30	22	0	0	68	
Bulk Potatoes	0.00	28	0	0	0	0	28	
Haul Potatoes to Storage	0.50	48	18	4	0	0	70	
Assessments/Fees	0.00	0	0	0	10	0	10	
TOTAL HARVEST COSTS	1.17	92	48	25	10	0	175	
Post-Harvest:								
Elevate/Holding Tub/Remove Dirt	0.40	24	10	10	0	0	44	
Shed-Store Potatoes	0.00	0	0	0	0	300	300	
Treat for Sprouts (50%)	0.00	0	0	0	19	0	19	
TOTAL POST-HARVEST COSTS	0.40	24	10	10	19	300	363	
Interest on Operating Capital at 5.75%							58	
TOTAL OPERATING COSTS/ACRE	4	336	130	69	1,519	416	2,529	

UC COOPERATIVE EXTENSION
TABLE 1. CONTINUED
 Klamath Basin-Tulelake-2015

Operation	Operation Time (Hrs/A)	Cash and Labor Costs per Acre					Total Cost	Your Cost
		Labor Cost	Fuel	Lube &Repairs	Material Cost	Custom/ Rent		
CASH OVERHEAD:								
Field Sanitation						2		
Field Supervisor Salary						57		
Land Rent - Potato						175		
Liability Insurance						1		
Office Expense						52		
GPS Auto-Trac Activation Fee						7		
Property Taxes						14		
Property Insurance						1		
Investment Repairs						4		
TOTAL CASH OVERHEAD COSTS/ACRE						313		
TOTAL CASH COSTS/ACRE						2,842		
NON-CASH OVERHEAD:								
		Per Producing Acre		Annual Cost Capital Recovery				
Fuel Tanks & Pumps 5000 Gal (2)		15		1		1		
Land - Potato		1,240		59		59		
Pipe Trailer (10)		24		3		3		
125 HP Booster Pumps (2)		27		3		3		
Semi-Truck & Lowbed		64		6		6		
Shop Building		17		1		1		
Shop Tools		13		1		1		
Implement Carrier		11		1		1		
GPS Guidance System		6		1		1		
1/4 Mile Wheel lines (2)		49		4		4		
Equipment		842		105		105		
TOTAL NON-CASH OVERHEAD COSTS		2,307		184		184		
TOTAL COSTS/ACRE						3,026		

UC COOPERATIVE EXTENSION
TABLE 2. COSTS AND RETURNS PER ACRE TO PRODUCE POTATOES-FRESH MARKET
 Klamath Basin-Tulelake-2015

	Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
GROSS RETURNS					
Potatoes	485	Cwt	6.50	3,153	
TOTAL GROSS RETURNS					
	485	Cwt		3,153	
OPERATING COSTS					
Fertilizer:					338
16-20-0-24% S	100.00	Lb N	1.65	165	
10-34-0	20.00	Gal	2.23	45	
Potash	200.00	Lb	0.22	45	
UAN 32	100.00	Lb N	0.84	84	
Custom:					116
Gypsum Hauled-Spread	0.25	Ton	90.00	23	
Apply Fertilizer	1.00	Acre	25.00	25	
Air App Spray 20g	3.00	Acre	19.50	59	
Petiole Samples	1.00	Acre	10.00	10	
Seed:					440
Seed Potatoes-Treated/Cut/Hauled	22.00	Cwt	20.00	440	
Contract:					300
Store Potatoes-Fresh Market	485.00	Cwt	0.62	300	
Insecticide:					52
Vydate L	2.00	Pint	12.22	24	
Movento	4.00	FLOz	6.88	28	
Fungicide:					123
Quadris	10.00	FLOz	2.22	22	
Ridomil Gold Bravo	2.00	Lb	16.15	32	
Luna Tranquility	10.00	FLOz	2.96	30	
Tanos	10.00	Oz	1.93	19	
StorOx	4.00	Pint	4.80	19	
Herbicide:					98
Eptam 7E	1.75	Pint	5.13	9	
Prowl H2O	2.00	Pint	8.01	16	
Sencor 4	4.00	Oz	6.37	25	
Matrix SG	2.00	Oz	23.83	48	
Growth Regulator:					4
Royal MH-30	1.00	Pint	3.75	4	
Desiccant:					18
Reglone Desiccant	1.00	Pint	17.73	18	
Assessment:					10
CPRAB Assessment	485.00	Cwt	0.02	10	
Irrigation:					246
Water-Pumped (TID)	20.50	AcIn	12.00	246	
Fumigant:					191
Vapam HL	22.50	Gal	8.50	191	
Labor					276
Equipment Operator Labor	4.72	hrs	20.00	94	
Irrigation Labor	10.00	hrs	14.00	140	
Non-Machine Labor	3.00	hrs	14.00	42	
Machinery					240
Fuel-Gas	2.76	gal	3.41	9	
Fuel-Diesel	48.10	gal	3.17	152	
Lube				24	
Machinery Repair				54	
Interest on Operating Capital @ 5.75%				58	
TOTAL OPERATING COSTS/ACRE				2,529	
TOTAL OPERATING COSTS/CWT				5	
NET RETURNS ABOVE OPERATING COSTS				623	

UC COOPERATIVE EXTENSION
TABLE 2. CONTINUED
 Klamath Basin-Tulelake-2015

	Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
CASH OVERHEAD COSTS					
Field Sanitation				2	
Field Supervisor Salary				57	
Land Rent - Potato				175	
Liability Insurance				1	
Office Expense				52	
GPS Auto-Trac Activation Fee				7	
Property Taxes				14	
Property Insurance				1	
Investment Repairs				4	
TOTAL CASH OVERHEAD COSTS/ACRE				313	
TOTAL CASH OVERHEAD COSTS/CWT				1	
TOTAL CASH COSTS/ACRE				2,842	
TOTAL CASH COSTS/CWT				6	
NET RETURNS ABOVE CASH COSTS				310	
NON-CASH OVERHEAD COSTS (Capital Recovery)					
Fuel Tanks & Pumps 5000 Gal (2)				1	
Land - Potato				59	
Pipe Trailer (10)				3	
125 HP Booster Pumps (2)				3	
Semi-Truck & Lowbed				6	
Shop Building				1	
Shop Tools				1	
Implement Carrier				1	
GPS Guidance System				1	
1/4 Mile Wheel lines (2)				4	
Equipment				105	
TOTAL NON-CASH OVERHEAD COSTS/ACRE				184	
TOTAL NON-CASH OVERHEAD COSTS/CWT				0	
TOTAL COST/ACRE				3,026	
TOTAL COST/CWT				6	
NET RETURNS ABOVE TOTAL COST				126	

UC COOPERATIVE EXTENSION
TABLE 3. MONTHLY COSTS PER ACRE TO PRODUCE POTATOES-FRESH MARKET
 Klamath Basin-Tulelake-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
Pre-Plant:														
Chop Residue 80% Ac	8													8
Stubble Disc & Roll	13													13
Sub-Soil 50% Ac	14													14
Pre-Irrigate/Sprinklers 25% Ac	6													6
Roto-Spike/Fall-Fumigate 25% Ac	57													57
Gypsum 25% Ac	23													23
Chisel & Roll							11							11
Roto-Spike/Spring-Fumigate 75% Ac							151							151
Fertilize-Pre-Plant (Mixture)								279						279
Pull Beds/(Pre-Plant Herbicide)-25% Ac								23						23
TOTAL PRE-PLANT COSTS	120						162	302						584
Cultural:														
Plant Potatoes (cut/treated/haul)								464						464
At Planting-Fungicide/Nematicide								47						47
Irrigation Labor								140						140
Irrigate/Sprinklers								42	48	72	54	24		240
Chemigation-Fertilizer-UAN32								84						84
Cultivate/Hilling-Herb 75% Ac								52						52
Chemigation-Disease 2X									32	30				62
Herbicides-Post Emergence									55					55
Chemigation-Insects										14				14
Insects-Broadcast/Air											33			33
Disease-Broadcast/Air											39			39
Growth Regulator-Broadcast/Air 50% Ac											14			14
Petiole Samples-Nutrients												10		10
1/2 Ton Pickup Trucks (4)	2	2	2	2	2	2	2	2	2	2	2	2	2	26
3/4 Ton Pickup Trucks (2)	1	1	1	1	1	1	1	1	1	1	1	1	1	13
ATV4WD (2)	1	1	1	1	1	1	1	1	1	1	1	1	1	11
Service Truck	1	1	1	1	1	1	1	1	1	1	1	1	1	8
TOTAL CULTURAL COSTS	4	4	4	4	4	4	4	834	140	120	144	38	4	1,312
Pre-Harvest:														
Desiccant Application/Air 50% Ac													27	27
Cut Vines/Roll Beds													9	9
TOTAL PRE-HARVEST COSTS	0	0	0	0	0	0	0	0	0	0	0	36	0	36
Harvest:														
Dig/Harvest Potatoes-4 Rows													68	68
Bulk Potatoes													28	28
Haul Potatoes to Storage													70	70
Assessments/Fees													10	10
TOTAL HARVEST COSTS	0	0	0	0	0	0	0	0	0	0	0	0	175	175
Post-Harvest:														
Elevate/Holding Tub/Remove Dirt													44	44
Shed-Store Potatoes													300	300

UC COOPERATIVE EXTENSION
TABLE 3. CONTINUED
 Klamath Basin-Tulelake-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
Treat for Sprouts (50%)													19	19
TOTAL POST-HARVEST COSTS	0	0	0	0	0	0	0	0	0	0	0	0	363	363
Interest on Operating Capital @ 5.75%	1	1	1	1	1	1	2	7	8	8	9	9	12	58
TOTAL OPERATING COSTS/ACRE	125	5	5	5	5	5	168	1,143	147	128	153	84	554	2,529
CASH OVERHEAD														
Field Sanitation	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Field Supervisor Salary	4	4	4	4	4	4	4	4	4	4	4	4	4	57
Land Rent - Potato												175		175
Liability Insurance												1		1
Office Expense												52		52
GPS Auto-Trac Activation Fee												7		7
Property Taxes				7						7				14
Property Insurance				1						1				1
Investment Repairs	0	0	0	0	0	0	0	0	0	0	0	0	0	4
TOTAL CASH OVERHEAD COSTS	5	5	5	13	5	5	5	5	5	13	5	240	5	313
TOTAL CASH COSTS/ACRE	130	10	10	18	10	10	172	1,148	152	141	158	324	559	2,842

UC COOPERATIVE EXTENSION
TABLE 4. RANGING ANALYSIS - POTATOES-FRESH MARKET
 Klamath Basin-Tulelake-2015

COSTS PER ACRE AND PER CWT AT VARYING YIELDS TO PRODUCE POTATOES-FRESH MARKET-2015

	YIELD (CWT)						
	410.00	435.00	460.00	485.00	510.00	535.00	560.00
OPERATING COSTS/ACRE:							
Pre-Plant	584	584	584	584	584	584	584
Cultural	1,312	1,312	1,312	1,312	1,312	1,312	1,312
Pre-Harvest	36	36	36	36	36	36	36
Harvest	170	171	173	175	177	179	181
Post-Harvest	311	328	346	363	380	397	414
Interest on Operating Capital @ 5.75%	58	58	58	58	58	58	58
TOTAL OPERATING COSTS/ACRE	2,471	2,491	2,510	2,529	2,548	2,567	2,587
TOTAL OPERATING COSTS/CWT	6.03	5.73	5.46	5.21	5.00	4.80	4.62
CASH OVERHEAD COSTS/ACRE	313	313	313	313	313	313	313
TOTAL CASH COSTS/ACRE	2,784	2,804	2,823	2,842	2,861	2,880	2,900
TOTAL CASH COSTS/CWT	6.79	6.44	6.14	5.86	5.61	5.38	5.18
NON-CASH OVERHEAD COSTS/ACRE	184	184	184	184	184	184	184
TOTAL COSTS/ACRE	2,969	2,988	3,007	3,026	3,045	3,065	3,084
TOTAL COSTS/CWT	7.00	7.00	7.00	6.00	6.00	6.00	6.00

Net Return per Acre above Operating Costs for Potatoes-Fresh Market

PRICE (\$/cwt)	YIELD (cwt/acre)						
Potatoes	410.00	435.00	460.00	485.00	510.00	535.00	560.00
3.50	-1,036	-968	-900	-831	-763	-695	-627
4.50	-626	-533	-440	-346	-253	-160	-67
5.50	-216	-98	20	139	257	375	493
6.50	194	337	480	624	767	910	1,053
7.50	604	772	940	1,109	1,277	1,445	1,613
8.50	1,014	1,207	1,400	1,594	1,787	1,980	2,173
9.50	1,424	1,642	1,860	2,079	2,297	2,515	2,733

Net Return per Acre above Cash Costs for Potatoes-Fresh Market

PRICE (\$/cwt)	YIELD (cwt/acre)						
Potatoes	410.00	435.00	460.00	485.00	510.00	535.00	560.00
3.50	-1,349	-1,281	-1,213	-1,144	-1,076	-1,008	-940
4.50	-939	-846	-753	-659	-566	-473	-380
5.50	-529	-411	-293	-174	-56	62	180
6.50	-119	24	167	311	454	597	740
7.50	291	459	627	796	964	1,132	1,300
8.50	701	894	1,087	1,281	1,474	1,667	1,860
9.50	1,111	1,329	1,547	1,766	1,984	2,202	2,420

Net Return per Acre above Total Costs for Potatoes-Fresh Market

PRICE (\$/cwt)	YIELD (cwt/acre)						
Potatoes	410.00	435.00	460.00	485.00	510.00	535.00	560.00
3.50	-1,534	-1,465	-1,397	-1,329	-1,260	-1,192	-1,124
4.50	-1,124	-1,030	-937	-844	-750	-657	-564
5.50	-714	-595	-477	-359	-240	-122	-4
6.50	-304	-160	-17	126	270	413	556
7.50	106	275	443	611	780	948	1,116
8.50	516	710	903	1,096	1,290	1,483	1,676
9.50	926	1,145	1,363	1,581	1,800	2,018	2,236

UC COOPERATIVE EXTENSION
TABLE 5. WHOLE FARM ANNUAL EQUIPMENT, INVESTMENT, AND BUSINESS OVERHEAD COSTS
 Klamath Basin-Tulelake-2015

ANNUAL EQUIPMENT COSTS

Yr	Description	Price	Yrs Life	Salvage Value	Capital Recovery	Cash Overhead		Total
						Insur-ance	Taxes	
15	125 HP 4WD Tractor	115,412	15	22,469	9,871	58	689	10,618
15	175 HP 4WD Tractor	175,833	15	34,232	15,039	89	1,050	16,178
15	225 HP 4WD Tractor	245,388	15	47,773	20,988	124	1,466	22,577
15	Elevator	55,000	5	17,916	9,357	31	365	9,753
15	Rotospike - 15"	29,000	10	5,128	3,298	14	171	3,483
15	Flail Mower 15'	13,203	10	2,335	1,501	7	78	1,586
15	Stubble Disc 16'	45,000	5	14,658	7,656	25	298	7,980
15	Subsoiler 16' 9 Shank	42,400	5	13,811	7,214	24	281	7,518
15	Chisel - 21'	20,000	10	3,537	2,274	10	118	2,402
15	Planter 5 Row 15'	53,000	10	9,373	6,027	26	312	6,365
15	Bed Shaper - 15' 5 Row	10,500	10	1,857	1,194	5	62	1,261
15	Cultivator Sled 5 Row	9,500	8	2,145	1,228	5	58	1,292
15	Pickup 1/2 Ton #1	28,000	5	12,549	4,140	17	203	4,360
15	Pickup 1/2 Ton #2	28,000	5	12,549	4,140	17	203	4,360
15	Pickup 1/2 Ton #3	28,000	5	12,549	4,140	17	203	4,360
15	Pickup 1/2 Ton #4	28,000	5	12,549	4,140	17	203	4,360
15	Pickup 3/4 Ton #1	32,000	5	14,342	4,732	20	232	4,983
15	Holding Tub	70,000	5	22,802	11,909	39	464	12,413
15	Service Truck	120,000	10	35,446	12,501	66	777	13,344
15	Potato Digger-Harvester 4 Row	120,000	6	4,946	22,722	53	625	23,399
15	Pickup 3/4 Ton #2	32,000	5	14,342	4,732	20	232	4,983
15	#1 ATV	8,500	5	3,809	1,257	5	62	1,324
15	#2 ATV	8,500	5	3,809	1,257	5	62	1,324
15	Potato Truck 15 Ton #1	20,000	5	8,964	2,957	12	145	3,114
15	Potato Truck 15 Ton #2	20,000	5	8,964	2,957	12	145	3,114
15	Potato Truck 15 Ton #3	20,000	5	8,964	2,957	12	145	3,114
15	Potato Truck 15 Ton #4	20,000	5	8,964	2,957	12	145	3,114
15	Spray Boom - 25'	3,630	5	1,182	618	2	24	644
15	Cultivator-Sled Close 5 Row	11,000	10	1,945	1,251	5	65	1,321
15	Ring Roller 16'	18,000	10	3,183	2,047	9	106	2,162
15	Saddle Tanks 300 Gallons	1,000	10	189	113	1	6	119
TOTAL		1,430,866	-	367,277	177,175	758	8,991	186,923
60% of New Cost*		858,520	-	220,366	106,305	455	5,394	112,154

*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	
INVESTMENT								
Fuel Tanks & Pumps 5000 Gal (2)	21,950	20	2,195	1,656	10	121	439	2,226
Land - Potato	600,000	20	600,000	28,500	506	6,000	0	35,006
Pipe Trailer (10)	35,000	10	3,500	4,196	16	193	700	5,105
125 HP Booster Pumps (2)	39,838	10	3,984	4,776	18	219	797	5,811
Semi-Truck & Lowbed	95,000	15	3,617	8,828	42	493	531	9,893
Shop Building	25,000	25	0	1,730	11	125	500	2,365
Shop Tools	20,000	20	2,000	1,509	9	110	400	2,028
Implement Carrier	16,700	15	1,670	1,503	8	92	334	1,937
GPS Guidance System	8,500	10	850	1,019	4	47	170	1,240
1/4 Mile Wheel lines (2)	72,404	20	7,240	5,463	34	398	1,448	7,342
TOTAL INVESTMENT	934,392	-	625,056	59,179	657	7,797	5,319	72,953

ANNUAL BUSINESS OVERHEAD COSTS

Description	Units/ Farm	Unit	Price/ Unit	Total Cost
Field Sanitation	484	Acre	2.00	968
Field Supervisor Salary	500	Acre	55.00	27,500
Land Rent - Potato	242	Acre	350.00	84,700
Liability Insurance	500	Acre	1.03	515
Office Expense	500	Acre	50.00	25,000
GPS Auto-Trac Activation Fee	1.0	Farm	3500	3,500

UC COOPERATIVE EXTENSION
TABLE 6. HOURLY EQUIPMENT COSTS
 Klamath Basin-Tulelake-2015

Yr	Description	Potatoes-Fresh Market-2015	Total	Cash Overhead			Operating			Total Costs/Hr.
		Hours Used	Hours Used	Capital Recovery	Insur- ance	Taxes	Lube& Repairs	Fuel	Total Oper.	
15	125 HP 4WD Tractor	180	1066	5.56	0.03	0.39	6.39	23.00	29.39	35.36
15	175 HP 4WD Tractor	177	1066	8.46	0.05	0.59	9.31	32.20	41.51	50.61
15	225 HP 4WD Tractor	353	1066	11.81	0.07	0.83	12.46	41.39	53.86	66.56
15	Elevator	97	400	14.04	0.05	0.55	7.79	0.00	7.79	22.42
15	Rotospike - 15"	52	150	13.19	0.06	0.68	8.68	0.00	8.68	22.61
15	Flail Mower 15'	30	200	4.50	0.02	0.23	5.57	0.00	5.57	10.32
15	Stubble Disc 16'	33	400	11.48	0.04	0.45	7.67	0.00	7.67	19.64
15	Subsoiler16'9 Shank	37	400	10.82	0.04	0.42	9.88	0.00	9.88	21.16
15	Chisel - 21'	29	200	6.82	0.03	0.35	4.26	0.00	4.26	11.47
15	Planter 5 Row 15'	61	150	24.11	0.11	1.25	14.61	0.00	14.61	40.07
15	Bed Shaper - 15' 5 Row	48	200	3.58	0.02	0.19	2.25	0.00	2.25	6.03
15	Cultivator Sled 5 Row	37	250	2.95	0.01	0.14	2.07	0.00	2.07	5.17
15	Pickup 1/2 Ton #1	48	400	6.21	0.03	0.30	3.05	6.39	9.44	15.98
15	Pickup 1/2 Ton #2	48	400	6.21	0.03	0.30	3.05	6.39	9.44	15.98
15	Pickup 1/2 Ton #3	48	400	6.21	0.03	0.30	3.05	6.39	9.44	15.98
15	Pickup 1/2 Ton #4	48	400	6.21	0.03	0.30	3.05	6.39	9.44	15.98
15	Pickup 3/4 Ton #1	48	400	7.10	0.03	0.35	3.48	7.31	10.79	18.26
15	Holding Tub	97	400	17.86	0.06	0.70	9.91	0.00	9.91	28.53
15	Service Truck	40	200	37.50	0.20	2.33	13.38	11.89	25.27	65.30
15	Potato Digger-Harvester 4 Row	161	400	34.08	0.08	0.94	26.11	47.55	73.66	108.76
15	Pickup 3/4 Ton #2	48	400	7.10	0.03	0.35	3.48	7.31	10.79	18.26
15	#1 ATV	48	400	1.89	0.01	0.09	0.51	3.41	3.92	5.91
15	#2 ATV	48	400	1.89	0.01	0.09	0.51	3.41	3.92	5.91
15	Potato Truck 15 Ton #1	121	400	4.44	0.02	0.22	3.76	11.89	15.64	20.32
15	Potato Truck 15 Ton #2	121	400	4.44	0.02	0.22	3.76	11.89	15.64	20.32
15	Potato Truck 15 Ton #3	121	400	4.44	0.02	0.22	3.76	11.89	15.64	20.32
15	Potato Truck 15 Ton #4	121	400	4.44	0.02	0.22	1.97	0.00	1.97	6.65
15	Spray Boom - 25'	25	300	1.24	0.00	0.05	0.99	0.00	0.99	2.28
15	Cultivator-Sled Close 5 Row	37	200	3.75	0.02	0.19	2.36	0.00	2.36	6.32
15	Ring Roller 16'	99	200	6.14	0.03	0.32	2.06	0.00	2.06	8.55
15	Saddle Tanks 300 Gallons	222	500	0.14	0.00	0.01	0.02	0.00	0.02	0.17

UC COOPERATIVE EXTENSION
TABLE 7. OPERATIONS WITH EQUIPMENT & MATERIALS
 Klamath Basin-Tulelake-2015

Operation	Operation Month	Tractor	Implement	Labor Type/ Material	Rate/ acre	Unit
Chop Residue 80% Ac	Oct	125 HP 4WD Tractor	Flail Mower 15'	Equipment Operator Labor	0.15	hour
Stubble Disc & Roll	Oct	225 HP 4WD Tractor	Stubble Disc 16' Ring Roller 16'	Equipment Operator Labor	0.16	hour
Sub-Soil 50% Ac	Oct	225 HP 4WD Tractor	Subsoiler 16' 9" Shank Ring Roller 16'	Equipment Operator Labor	0.18	hour
Pre-Irrigate/Sprinklers	Oct			Water-Pumped (TID)	0.50	AcIn
Roto-Spike/Fall-Fumigate	Oct	175 HP 4WD Tractor	Rotospike - 15"	Equipment Operator Labor	0.06	hour
			Saddle Tanks 300 Gallons	Vapam HL	6.25	Gal
Gypsum 25% Ac	Oct			Gypsum Hauled-Spread	0.25	Ton
Chisel & Roll	Apr	225 HP 4WD Tractor	Chisel - 21' Ring Roller 16'	Equipment Operator Labor	0.15	hour
Roto-Spike/Spring	Apr	175 HP 4WD Tractor	Rotospike - 15"	Equipment Operator Labor	0.19	hour
			Saddle Tanks 300 Gallons	Vapam HL	16.25	Gal
Fertilize-Pre-Plant	May			Apply Fertilizer	1.00	Acre
				16-20-0-24% S	100.00	Lb N
				10-34-0	20.00	Gal
				Potash	200.00	Lb
Pull Beds/(Pre-Plant)	May	175 HP 4WD Tractor	Bed Shaper - 15' 5 Row	Equipment Operator Labor	0.24	hour
			Saddle Tanks 300 Gallons	Eptam 7E	1.75	Pint
Plant Potatoes	May	225 HP 4WD Tractor	Planter 5 Row 15'	Equipment Operator Labor	0.30	hour
			Saddle Tanks 300 Gallons	Seed Potatoes-Treated/Cut/Hauled	22.00	Cwt
At Planting-Fungicide	May			Quadris	10.00	FLOz
				Vydate L	2.00	Pint
Irrigation Labor	May			Irrigation Labor	10.00	hours
Irrigate/Sprinklers	May			Water-Pumped (TID)	3.50	AcIn
	June			Water-Pumped (TID)	4.00	AcIn
	July			Water-Pumped (TID)	6.00	AcIn
	Aug			Water-Pumped (TID)	4.50	AcIn
	Sept			Water-Pumped (TID)	2.00	AcIn
Chemigation-Fertilize	May			UAN 32	100.00	Lb N
Cultivate/Hilling	May	175 HP 4WD Tractor	Cultivator-Sled Close 5 Row	Equipment Operator Labor	0.18	hour
			Saddle Tanks 300 Gallons	Prowl H2O	2.00	Pint
				Sencor 4	4.00	Oz
Chemigation-Disease	June			Ridomil Gold Bravo	2.00	Lb
	July			Luna Tranquility	10.00	FLOz
Herbicides-Post Emergence	June	175 HP 4WD Tractor	Saddle Tanks 300 Gallons	Equipment Operator Labor	0.12	hour
			Spray Boom - 25'	Matrix SG	2.00	Oz
Chemigation-Insects	July			Movento	2.00	FLOz
Insects-Broadcast	Aug			Air App Spray 20g	1.00	Acre
				Movento	2.00	FLOz
Disease-Broadcast	Aug			Tanos	10.00	Oz
				Air App Spray 20g	1.00	Acre
Growth Regulator	Aug			Royal MH-30	1.00	Pint
				Air App Spray 20g	0.50	Acre
Petiole Samples	Sept			Petiole Samples	1.00	Acre
1/2 Ton Pickup Truck	Sept		Pickup 1/2 Ton #1	Equipment Operator Labor	0.24	hour
			Pickup 1/2 Ton #2			
			Pickup 1/2 Ton #3			
			Pickup 1/2 Ton #4			
3/4 Ton Pickup Truck	Sept		Pickup 3/4 Ton #1	Equipment Operator Labor	0.24	hour
			Pickup 3/4 Ton #2			
ATV4WD	Sept		#1 ATV	Equipment Operator Labor	0.24	hour
			#2 ATV			
Service Truck	Sept		Service Truck	Equipment Operator Labor	0.20	hour
Desiccant Application	Sept			Reglone Desiccant	1.00	Pint
				Air App Spray 20g	0.50	Acre
Cut Vines/Roll Beds	Sept	125 HP 4WD Tractor	Cultivator Sled 5 Row	Equipment Operator Labor	0.18	hour
Dig/Harvest Potatoes	Oct	225 HP 4WD Tractor	Potato Digger-Harvester 4 Row	Equipment Operator Labor	0.80	hour
Bulk Potatoes	Oct			Non-Machine Labor	2.00	hours
Haul Potatoes	Oct		Potato Truck 15 Ton #1	Equipment Operator Labor	2.40	hours
			Potato Truck 15 Ton #2			
			Potato Truck 15 Ton #3			
			Potato Truck 15 Ton #4			
Assessments/Fees	Oct			CPRAB Assessment	485.00	Cwt
Elevate/Holding Tub	Oct	125 HP 4WD Tractor	Elevator	Non-Machine Labor	1.00	hour

UC COOPERATIVE EXTENSION
TABLE 7. OPERATIONS WITH EQUIPMENT & MATERIALS
 Klamath Basin-Tulelake-2015

Operation	Operation Month	Tractor	Implement	Labor Type/ Material	Rate/ acre	Unit
Shed-Store Potatoes	Oct		Holding Tub	Store Potatoes-Fresh Market	485.00	Cwt
Treat for Sprouts	Oct			StorOx	4.00	Pint