



Southwestern Idaho

Russet Burbank Potatoes with Fumigation: Production & Storage Costs

Ben Eborn and Paul E. Patterson

Southwestern
Idaho

Background and Assumptions

The University of Idaho's costs and returns estimates are based on economic costs, not accounting costs. All resources are valued at a market rate or "opportunity cost". Input prices are based on the data collected annually by the University of Idaho from agricultural supply companies. The selling price for the commodity is typically an historical average price, not a current year's projected price. The cost estimate shown here is typical for growing Russet Burbank potatoes with fumigation under irrigation in southwestern Idaho. The costs shown in Tables 1 – 6 include the costs to grow, harvest and sort potatoes. The total cost per cwt shown at the bottom of Table 1 is the cost to the end of the piler boom. Transportation costs to a processor or fresh pack facility are not included. Storage costs are shown in Table 7.

Production practices are based on data from potato growers in Canyon, Elmore, and Owyhee counties, crop consultants and extension personnel in western Idaho. Production practices depicted in this publication are not University of Idaho recommendations. Although production practices may be similar for individual farms, each farm has a unique set of resources with different levels of productivity, different production problems, and therefore different costs. Farm size, crop rotation, age and type of equipment, and the quality and intensity of management are all crucial factors that influence costs.

The Model Farm

This costs and returns estimate models a 1,600-acre farm with 500 acres in potatoes, 500 acres in corn, 250 acres in alfalfa, 250 acres in grain and 100 acres of dry beans or alfalfa seed.

The farm uses a center pivot irrigation system and surface water delivered to the farm from an irrigation district. The irrigation district charges a flat fee per acre for water. Irrigation power use is based only on pressurization (no lift). Power costs per acre-inch of water applied are calculated using 2015 Idaho Power Schedule 24 Agricultural Irrigation Service rates. Power

costs per acre-inch for water pumped from different depths and for different irrigation systems is included in Idaho's annual Input Crop Input Cost Summary located at: <http://www.uidaho.edu/idaho-agbiz>

Production Practices

Tillage practices assume the previous crop is corn. After corn harvest the potato ground is disked and ripped prior to fall fumigation and bedding. In March the ground is tilled, marked-out and planted using two 4-row planters with 36-inch row spacing. The seeding rate is 24 hundredweight (cwt) per acre. Potatoes are cultivated once in May with a basin tillage tool. In September potato vines are mechanically removed. Potatoes harvest begins three weeks later using a 4-row harvester and five 10-wheeler trucks. Potatoes are hauled from the field to a central location where they are sorted before being transferred to a semi-trailer for transport to a processor or fresh pack shed; or placed into on-farm grower owned storage. The costs associated with this second option are shown in Table 7. Prior to this year, there were separate storage and non-storage costs and returns estimates.

Most fertilizer is custom applied in one pre-plant broadcast application in the fall and a top dressing after planting in the spring. A starter fertilizer is applied at row mark-out and additional nitrogen is applied during the summer through the irrigation system. Mechanical (tillage and cultivation) and chemical methods are used for weed control. Three herbicides are applied to control annual grasses and broadleaf weeds. The first herbicide is applied by chemigation and the second two-way tank mix is applied at cultivation. For insect control, a systemic insecticide is banded at planting, and six foliar insecticides are applied by air or chemigation during the growing season. Eight fungicides are applied for disease control, including the seed treatment. One fungicide is soil applied at planting and six foliar applications are made either by air or by chemigation. Some insecticides and fungicides are tank mixed when applied by air. Potatoes receive 30 inches of water during the growing season: 3 inches in May, 8 inches in June, 11 inches in

July, 8 inches in August, and 1 inch in September. One additional inch of water is applied prior to harvest for a total of 32 inches of water.

Machinery

Table 4 lists the field equipment and their hourly operating costs, while Table 5 lists the equipment and their annual costs. Equipment used in sorting or storing potatoes is not included. Machinery ownership capital recovery cost is based on 75% of the replacement cost of a new piece of equipment, except for trucks. Truck prices are for a used vehicle with a new self-unloading bed. Capital recovery combines depreciation and interest into a single value. To keep machinery prices current between years when a comprehensive survey is conducted, machinery prices are adjusted using USDA's Farm Machinery Prices Paid Index. Equipment prices are collected approximately every five years.

The University of Idaho uses the budget generator program Budget Planner from the University of California-Davis to produce the various tables shown in this publication. Machinery operating and ownership costs are calculated based on engineering equations in this program. Machinery operating costs include fuel, lubricants and repairs.

Labor and Management

The cost of labor used in this publication includes a base wage, plus a percentage to account for various payroll taxes (FICA, SUTA & FUTA), and workman's compensation, as well as benefits such as paid vacation/personal leave days, health insurance and bonuses. Labor is classified by the type of work performed. Labor classifications, labor rates and payroll overhead are shown below.

Labor Values

Labor Class	Base Rate	Payroll Overhead	Effective Rate
General Farm Labor	\$9.25	15%	\$10.65
Truck Drivers	\$12.50	15%	\$14.14
Equipment Operators	\$14.80	25%	\$18.50
Irrigation Labor			
Set Move: HL & WL	\$10.10	30%	\$13.15
Continuous Move: CP & L	\$14.80	25%	\$18.50

Set Move includes: handlines and wheellines

Continuous Move includes: center pivots and linear move

Payroll overhead for set move systems includes housing

Based on the speed, width and overall field efficiency, *Budget Planner* calculates equipment operator labor hours for all field operations except those performed on

a custom basis. Custom operations are listed separately. General farm labor accounts for extra field labor used during planting or harvest. A management fee based on approximately 5% of the total production costs is included. Prior to this year, the basis of the 5% charge was expected revenue.

Capital, Land and Overhead Costs

Interest on operating capital is charged from the time an input is applied until harvest and is calculated at a nominal rate of 5.75 percent. Interest on intermediate term capital, primarily equipment, is calculated using a rate of 5.5 percent. A general overhead charge, calculated at approximately 2.5 percent of operating expenses, is included to cover unallocated whole-farm costs such as office expenses, legal and accounting fees, cell phones, internet service and utilities. Irrigation power is shown as a separate cost item and is not included as part of general farm utilities. Fees paid by the grower, listed under other operating costs, include: promotion fees paid to the Idaho Potato Commission and the National Potato Board, inspection fees paid to the Idaho Department of Agriculture, and membership fees paid to grower organizations. The consultant fee, listed under custom operating costs, includes soil and petiole sampling and irrigation scheduling.

Land rent is based on a one-year cash lease for potatoes and covers the ownership costs (depreciation, interest, and insurance) of the irrigation system. Because the charge for water, irrigation system repairs and irrigation power costs are listed separately, the land rent may appear low because the land owner in many circumstances pays some or even all these expenses.

Budget Format

In addition to the Background and Assumption page, this publication has seven tables presenting a variety of cost and returns information. Production costs in Tables 1-6 include only the base cost to grow, harvest and sort potatoes. Table 7 shows the cost of production if the potatoes are placed in on-farm storage. Table 7 has two columns. The first column shows cost per hundredweight based on the field-run yield shown in Table 1, while the second column shows the cost per hundredweight based on an assumed paid yield of 95% of field-run. The paid yield percentage will vary by quality and grade, and whether the potatoes go to the fresh or process markets.

Table 1 shows both expected revenue, based a specified yield and price, and expenses. Expenses are broken into two main categories: operating and ownership.

Operating expenses are those that typically vary with the level of production and involve inputs that are used in a single production cycle. Ownership expenses include a systematic cost recovery over the useful life for inputs used in the production process that have a useful life of more than one year. Machinery and land costs fall into this category. Operating inputs are organized by category. In addition to the cost per unit and cost per acre for each input, a total cost is given for each category. Table 1 also gives a total of all operating, ownership and total costs per acre, as well as these same cost categories per cwt based on a field- run yield basis.

Table 2 has most of the same cost information presented in Table 1 but the data is organized by operation for both pre-harvest and harvest costs. Operations can define a single activity, such as seed hauling, or multiple activities as in the case of tillage. The quantity of labor is shown for each operation. The cash costs per acre for labor, machinery costs, materials and custom are also specified. Cash overhead expenses are listed separately as are the non-cash overhead.

Table 3 is a monthly cash flow of expenses based on when the operation occurs and when inputs are applied. Field operations are classified as pre-harvest, harvest and post-harvest. Cash flow also includes interest charge on operating costs.

Table 4 lists the field equipment used to produce this crop and the costs per hour to operate this equipment. Total annual hours of use for the current crop and for all crops on the farm is also shown.

Table 5 lists the purchase price and salvage value of equipment used to produce this crop, as well as annual capital recover and cash overhead expenses.

Table 6 provides a ranging analysis, sometime referred to as a sensitivity analysis. Table 6 shows how the costs and returns per acre will vary as the yield and/or price ranges above and below the base values from Table 1. There are four sections to Table 6. The first summarizes the costs per acre and per hundredweight and calculates a breakeven price needed to cover all costs as the yield varies above and below the base yield. The next three sections show the returns over operating, cash and total costs per acre.

Table 7 begins with the base production cost per hundredweight from Table 1. This includes the cost to grow, harvest and sort potatoes. It's the cost of potatoes

to the end of the piler boom. Table 7 shows the base cost of potato production on both a field- run basis from Table 1 and a paid-yield basis, assuming a 95% paid yield.

Storage ownership and repair costs per hundredweight are added to the base cost of growing, harvesting and sorting potatoes. Storage ownership costs are based on annual ownership costs (depreciation and interest) divided by the storage capacity of the storage facility, assuming 90% utilization. Ownership costs do not change based on the length of storage.

Potato storage operating costs increase based on the length of storage. Storage operating costs are calculated on a monthly basis and include: interest, shrink, sanitation chemicals, sprout inhibitor and electricity. Sorting labor is included in the base budget. Table 7 shows the cumulative storage costs per month from October through June. Storage costs are calculated to the end of the month. The cumulative cost is added to the base production cost, storage ownership cost and repair costs to give a total cost per hundredweight by month for the entire storage season.

Potatoes stored beyond June would likely need refrigeration. The cost of refrigeration was not included in the cost of the storage system used to calculate the annual storage ownership and repair costs.

University of Idaho costs and returns estimates for both crops and livestock can be found at:
<http://www.uidaho.edu/idaho-agbiz>

Authors

Ben Eborn is an Extension agricultural economist with the University of Idaho located in Montpelier. Paul Patterson is a retired Extension agricultural economist with the University of Idaho located in Idaho Falls.



Disclaimer

The practices and chemicals specified in the publication are not recommendations. Always read and follow the directions printed on the pesticide label. Due to constantly changing pesticide laws and labels, some pesticides may have been cancelled or had certain uses prohibited. The use of trade names for various products simplifies presentation of this material and should not be considered an endorsement, nor is any criticism implied of similar products not mentioned.

Issued in furtherance of cooperative extension work in agriculture and home economics, Acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, Barbara Petty, Interim-Director University of Idaho Extension, University of Idaho, Moscow, Idaho 83843.

The University of Idaho provides equal opportunity in education and employment on the basis of race, color, national origin, religion, sex, sexual orientation, age, disability, or status as a disabled veteran, Vietnam-era veteran, as required by state and federal laws.

UNIVERSITY OF IDAHO
SOUTHWESTERN IDAHO
EBB2-Po2-15

TABLE 1. COSTS AND RETURNS PER ACRE TO PRODUCE RUSSET BURBANK POTATOES

	Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
GROSS RETURNS					
Potatoes	530.00	cwt	7.25	3,842.50	
TOTAL GROSS RETURNS				3,842.50	
OPERATING COSTS					
Seed:				331.20	
G-3 Russet Burbank Potato Seed	24.00	cwt	12.10	290.40	
Potato Seed Cutting	24.00	cwt	1.70	40.80	
Fertilizer:				572.70	
Dry Nitrogen	175.00	lb	0.55	96.25	
Dry P2O5	230.00	lb	0.53	121.90	
K2O	265.00	lb	0.44	116.60	
Sulfur	115.00	lb	0.27	31.05	
Liquid Nitrogen	150.00	lb	0.73	109.50	
Liquid P2O5	65.00	lb	0.76	49.40	
Micronutrients & Foliars - Po	2.00	acre	24.00	48.00	
Pesticide:				595.33	
Vapam HL 42%	42.00	gal	5.55	233.10	
Potato Seed Treatment	24.00	cwt	0.50	12.00	
Moncut 70DF	0.80	lb	32.60	26.08	
Admire Pro	8.00	fl oz	1.50	12.00	
Eptam 7E	4.00	pint	6.25	25.00	
Metibuzin 75DF	0.75	lb	12.75	9.56	
Prowl 3.3EC	2.00	pint	4.90	9.80	
Ridomil Gold MZ	2.50	lb	16.40	41.00	
Fulfill WDG	5.50	oz	7.15	39.33	
Movento	10.00	fl oz	7.50	75.00	
Endura	6.00	oz	4.70	28.20	
Revus Top	5.50	fl oz	2.42	13.31	
Agri-Mek 0.15EC	24.00	fl oz	0.75	18.00	
Bravo Weather Stik	3.00	pint	4.55	13.65	
Gavel 75DF	2.00	lb	7.75	15.50	
Athena	17.00	fl oz	1.40	23.80	
Custom:				130.20	
Custom Fumigate - Deep Injection	1.00	acre	44.00	44.00	
Custom Fertilize: 400 - 800 lbs	1.00	acre	7.75	7.75	
Custom Fertilize: 0 - 400 lbs	1.00	acre	7.25	7.25	
Custom Air Spray - 5 gal.	2.00	acre	9.15	18.30	
Custom Air Spray - 8 gal.	3.00	acre	10.30	30.90	
Consultant & Soil Test Potatoes	1.00	acre	22.00	22.00	
Irrigation:				121.76	
Water Assessment	1.00	acre	45.60	45.60	
Irrig. Repairs - Center Pivot	32.00	ac-in	0.48	15.36	
Irrig. Power - Center Pivot	32.00	acin	1.90	60.80	
Other:				160.54	
Crop Insurance	1.00	acre	70.00	70.00	
Potato Fees & Assessments	503.00	cwt	0.18	90.54	
Potato Sorting:				75.05	
Sorting Labor	530.00	cwt	0.11	57.03	
Sorting Equip. Repairs & Power	530.00	cwt	0.03	18.02	
Labor				220.04	
Equipment Operator Labor	4.77	hrs	18.50	88.25	
Truck Driver Labor	3.60	hrs	14.40	51.84	
General Farm Labor	3.44	hrs	10.65	35.80	
Irrigation Labor: CP	1.28	hrs	17.80	22.78	
Irrigation Labor: Chem-Fert	1.20	hrs	17.80	21.36	
Machinery				148.38	
Fuel-Gas	5.37	gal	2.50	13.42	
Fuel-Diesel	22.26	gal	2.30	51.20	
Fuel-Road Diesel	2.32	gal	2.85	6.60	
Lube				10.68	
Machinery Repair				66.47	
Interest on Operating Capital @ 5.75%				81.74	
TOTAL OPERATING COSTS/ACRE				2,436.93	
TOTAL OPERATING COSTS/CWT				4.60	

UNIVERSITY OF IDAHO
SOUTHWESTERN IDAHO
EBB2-Po2-15

TABLE 1. CONTINUED

	Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
NET RETURNS ABOVE OPERATING COSTS				1,405.57	
CASH OVERHEAD COSTS					
General Overhead				62.00	
Land Rent				700.00	
Management Fee				175.00	
Potato Handling Equip. D & I				83.00	
Property Taxes				0.00	
Property Insurance				6.51	
Investment Repairs				0.00	
TOTAL CASH OVERHEAD COSTS/ACRE				1,026.51	
TOTAL CASH OVERHEAD COSTS/CWT				1.94	
TOTAL CASH COSTS/ACRE				3,463.44	
TOTAL CASH COSTS/CWT				6.53	
NET RETURNS ABOVE CASH COSTS				379.06	
NON-CASH OVERHEAD COSTS (Capital Recovery)					
Equipment				217.09	
TOTAL NON-CASH OVERHEAD COSTS/ACRE				217.09	
TOTAL NON-CASH OVERHEAD COSTS/CWT				0.41	
TOTAL COST/ACRE				3,680.54	
TOTAL COST/CWT				6.94	
NET RETURNS ABOVE TOTAL COST				161.46	

UNIVERSITY OF IDAHO
SOUTHWESTERN IDAHO
EBB2-Po2-15

TABLE 2. COSTS PER ACRE TO PRODUCE RUSSET BURBANK POTATOES

Operation	Operation	Cash and Labor Costs per Acre					Total Cost	Your Cost
	Time (Hrs/A)	Labor Cost	Fuel	Lube & Repairs	Material Cost	Custom/Rent		
Preharvest:								
Tillage	0.38	13.47	10.40	9.73	0.00	0.00	33.60	
Fumigation	0.00	0.00	0.00	0.00	233.10	44.00	277.10	
Applying Fertilizer	0.00	0.00	0.00	0.00	365.80	15.00	380.80	
Markout	0.13	4.71	3.11	2.28	0.00	0.00	10.11	
Markout and Fertilize	0.13	4.71	4.20	3.18	102.60	0.00	114.69	
Crop Insurance	0.00	0.00	0.00	0.00	70.00	0.00	70.00	
Irrigation Water Assessment	0.00	0.00	0.00	0.00	45.60	0.00	45.60	
Irrigation System Repairs	0.00	0.00	0.00	0.00	15.36	0.00	15.36	
Seed Hauling	0.11	2.46	0.19	0.50	0.00	0.00	3.15	
Planting	0.36	17.36	8.74	9.44	381.28	0.00	416.82	
Irrigation	0.00	22.78	0.00	0.00	60.80	0.00	83.58	
Chemigation-Fertigation	0.00	21.36	0.00	0.00	204.70	0.00	226.06	
Cultivate & Apply Herbicides	0.14	4.94	3.31	2.81	19.36	0.00	30.43	
Applying Pesticides	0.00	0.00	0.00	0.00	192.39	49.20	241.58	
Crop Consultant	0.00	0.00	0.00	0.00	0.00	22.00	22.00	
General Pickup Use	1.60	35.52	13.32	5.25	0.00	0.00	54.09	
4-Wheeler Use	0.13	2.78	0.10	0.08	0.00	0.00	2.96	
Service Truck Use	0.05	1.11	0.36	0.14	0.00	0.00	1.61	
Fuel Truck Use	0.05	1.11	0.36	0.17	0.00	0.00	1.63	
TOTAL PREHARVEST COSTS	3.10	132.32	44.09	33.58	1,690.99	130.20	2,031.18	
Harvest:								
Beat Vines	0.16	5.65	3.78	2.52	0.00	0.00	11.94	
Digging	0.50	23.40	12.49	22.13	0.00	0.00	58.01	
Crop Hauling	3.00	51.84	5.13	13.59	0.00	0.00	70.56	
Potato Sorting	0.00	0.00	0.00	0.00	75.05	0.00	75.05	
Dump Truck Use	0.05	1.11	0.57	0.13	0.00	0.00	1.81	
TOTAL HARVEST COSTS	3.71	82.00	21.97	38.37	75.05	0.00	217.38	
Post Harvest:								
Fees & Assessments	0.00	0.00	0.00	0.00	90.54	0.00	90.54	
Tillage	0.17	5.72	5.17	5.20	0.00	0.00	16.10	
TOTAL POST HARVEST COSTS	0.17	5.72	5.17	5.20	90.54	0.00	106.64	
Interest on Operating Capital at 5.75%							81.74	
TOTAL OPERATING COSTS/ACRE	6.98	220.04	71.23	77.15	1,856.58	130.20	2,436.93	

UNIVERSITY OF IDAHO
 SOUTHWESTERN IDAHO
 EBB2-Po2-15

TABLE 2. CONTINUED

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:								
General Overhead							62.00	
Land Rent							700.00	
Management Fee							175.00	
Potato Handling Equip. D & I							83.00	
Property Taxes							0.00	
Property Insurance							6.51	
Investment Repairs							0.00	
TOTAL CASH OVERHEAD COSTS/ACRE							1,026.51	
TOTAL CASH COSTS/ACRE							3,463.44	
NON-CASH OVERHEAD:								
		Per Producing Acre		Annual Cost Capital Recovery				
Equipment		2,317.08		217.09			217.09	
TOTAL NON-CASH OVERHEAD COSTS							217.09	
TOTAL COSTS/ACRE							3,680.54	

UNIVERSITY OF IDAHO

SOUTHWESTERN IDAHO

EBB2-Po2-15

TABLE 3. CONTINUED

	MAR 12	APR 12	MAY 12	JUN 12	JUL 12	AUG 12	SEP 12	OCT 12	NOV 12	DEC 12	JAN 13	FEB 13	MAR 13	APR 13	MAY 13	JUN 13	JUL 13	AUG 13	SEP 13	OCT 13	Total	
Property Insurance		6.51												6.51								6.51
Investment Repairs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL CASH OVERHEAD COSTS	11.85	18.36	11.85	11.85	11.85	11.85	11.85	11.85	11.85	11.85	11.85	11.85	711.85	18.36	11.85	11.85	11.85	11.85	11.85	11.85	94.85	1,026.51
TOTAL CASH COSTS/ACRE	23.96	21.47	14.99	15.02	15.04	15.07	15.10	15.13	648.50	18.20	18.23	18.26	833.53	578.94	149.79	232.69	233.80	138.69	42.05	421.48	4,463.44	

UNIVERSITY OF IDAHO

SOUTHWESTERN IDAHO

EBB2-Po2-15

TABLE 4. HOURLY EQUIPMENT COSTS

Yr	Description	RUSSET BURBANK POTATOES		Total	Cash Overhead		Operating		Total Oper.	Total Costs/Hr.
		Hours Used	Hours Used	Capital Recovery	Insur- ance	Taxes	Lube& Repairs	Fuel		
15	4-wheeler	63	120	5.10	0.14	0.00	0.66	0.83	1.48	6.72
15	Disk-Ripper - 13'	166	175	27.52	0.68	0.00	16.99	0.00	16.99	45.19
15	Markout Bar - 18'	135	135	17.21	0.46	0.00	6.69	0.00	6.69	24.36
15	Pickup 1 - 3/4 ton	300	750	8.57	0.16	0.00	3.28	8.32	11.60	20.33
15	Pickup 2 - 3/4 ton	300	750	8.57	0.16	0.00	3.28	8.32	11.60	20.33
15	Tank/injector	139	150	5.33	0.14	0.00	2.49	0.00	2.49	7.95
15	Tractor - 200hp	432	500	22.61	0.80	0.00	11.57	22.70	34.27	57.67
15	Tractor - 250 hp	257	500	35.19	1.16	0.00	13.07	28.36	41.43	77.78
15	Truck 1-O&P 10-Wheeler	311	555	11.36	0.40	0.00	4.53	1.71	6.24	18.00
15	Truck 2-O&P 10-Wheeler	311	555	11.36	0.40	0.00	4.53	1.71	6.24	18.00
15	Truck 3-O&P 10-Wheeler	311	555	11.36	0.40	0.00	4.53	1.71	6.24	18.00
15	Truck 4-O&P 10-Wheeler	311	555	11.36	0.40	0.00	4.53	1.71	6.24	18.00
15	Tractor - 185hp	405	405	26.29	0.93	0.00	9.22	21.00	30.22	57.44
15	Potato Harvester 4-Row	250	250	59.64	1.58	0.00	18.92	0.00	18.92	80.13
15	Tandem Disk - 18'	52	150	21.30	0.56	0.00	7.40	0.00	7.40	29.26
15	Basin Tillage Tool 6-Row, 36"	72	75	34.02	1.09	0.00	6.91	0.00	6.91	42.02
15	Service Truck	25	80	36.69	1.21	0.00	2.87	7.13	9.99	47.89
15	Truck 5-O&P 10-Wheeler	311	555	11.36	0.40	0.00	4.53	1.71	6.24	18.00
15	Planter 1 - 4R Po	91	95	49.94	1.32	0.00	14.47	0.00	14.47	65.73
15	Planter 2 - 4R Po	91	95	49.94	1.32	0.00	14.47	0.00	14.47	65.73
15	Pickup 3 - 3/4 ton	100	325	11.91	0.34	0.00	3.28	8.32	11.60	23.85
15	Fuel Truck	25	80	46.10	1.49	0.00	3.32	7.13	10.44	58.04
15	Dump Truck	25	25	58.18	1.98	0.00	2.61	11.40	14.01	74.17
15	Mulch Tiller	57	100	40.67	1.01	0.00	11.23	0.00	11.23	52.91
15	Vine Beater/Roller	82	85	30.65	0.74	0.00	5.13	0.00	5.13	36.52
15	Pickup 4 - 3/4 ton	100	325	11.91	0.34	0.00	3.28	8.32	11.60	23.85

UNIVERSITY OF IDAHO

SOUTHWESTERN IDAHO

EBB2-Po2-15

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

ANNUAL EQUIPMENT COSTS

Yr	Description	Price	Yrs Life	Salvage Value	Capital Recovery	Cash Overhead		Total
						Insur- ance	Taxes	
15	4-wheeler	6,000.00	10	1,500.00	679.50	18.75	0.00	698.25
15	Disk-Ripper - 13'	45,000.00	10	7,957.86	5,351.98	132.39	0.00	5,484.37
15	Markout Bar - 18'	24,000.00	12	3,324.16	2,581.83	68.31	0.00	2,650.14
15	Pickup 1 - 3/4 ton	41,000.00	5	13,750.00	7,137.56	136.88	0.00	7,274.43
15	Pickup 2 - 3/4 ton	41,000.00	5	13,750.00	7,137.56	136.88	0.00	7,274.43
15	Tank/injector	8,250.00	12	1,142.68	887.50	23.48	0.00	910.99
15	Tractor - 200hp	157,000.00	20	20,144.91	12,559.91	442.86	0.00	13,002.77
15	Tractor - 250 hp	215,000.00	15	41,856.69	19,551.62	642.14	0.00	20,193.77
15	Truck 1-O&P 10-Wheeler	95,000.00	25	4,000.00	7,003.99	247.50	0.00	7,251.49
15	Truck 2-O&P 10-Wheeler	95,000.00	25	4,000.00	7,003.99	247.50	0.00	7,251.49
15	Truck 3-O&P 10-Wheeler	95,000.00	25	4,000.00	7,003.99	247.50	0.00	7,251.49
15	Truck 4-O&P 10-Wheeler	95,000.00	25	4,000.00	7,003.99	247.50	0.00	7,251.49
15	Tractor - 185hp	148,000.00	20	18,990.10	11,839.92	417.48	0.00	12,257.39
15	Potato Harvester 4-Row	154,000.00	12	21,330.02	16,566.75	438.33	0.00	17,005.07
15	Tandem Disk - 18'	33,000.00	12	4,570.72	3,550.02	93.93	0.00	3,643.94
15	Basin Tillage Tool 6-Row, 36"	34,500.00	20	1,798.19	2,835.37	90.75	0.00	2,926.11
15	Service Truck	40,000.00	20	3,000.00	3,261.14	107.50	0.00	3,368.64
15	Truck 5-O&P 10-Wheeler	95,000.00	25	4,000.00	7,003.99	247.50	0.00	7,251.49
15	Planter 1 - 4R Po	49,000.00	12	6,786.82	5,271.24	139.47	0.00	5,410.70
15	Planter 2 - 4R Po	49,000.00	12	6,786.82	5,271.24	139.47	0.00	5,410.70
15	Pickup 3 - 3/4 ton	41,000.00	12	7,500.00	4,299.48	121.25	0.00	4,420.73
15	Fuel Truck	50,000.00	20	3,000.00	4,097.93	132.50	0.00	4,230.43
15	Dump Truck	20,000.00	20	2,000.00	1,616.23	55.00	0.00	1,671.23
15	Mulch Tiller	38,000.00	10	6,719.97	4,519.45	111.80	0.00	4,631.25
15	Vine Beater/Roller	26,000.00	12	2,000.00	2,894.70	70.00	0.00	2,964.70
15	Pickup 4 - 3/4 ton	41,000.00	12	7,500.00	4,299.48	121.25	0.00	4,420.73
TOTAL		1,735,750.00	-	215,408.94	161,230.35	4,877.90	0.00	166,108.25
90% of New Cost*		1,562,175.00	-	193,868.05	145,107.32	4,390.11	0.00	149,497.42

*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								
TOTAL INVESTMENT								
	0.00	-	0.00	0.00	0.00	0.00	0.00	0.00

ANNUAL BUSINESS OVERHEAD COSTS

Description	Units/ Farm	Unit	Price/ Unit	Total Cost
General Overhead	500	acre	62	31,000.00
Land Rent	500	acre	700	350,000.00
Management Fee	500	acre	175	87,500.00
Potato Handling Equip. D & I	500	acre	83	41,500.00

UNIVERSITY OF IDAHO

SOUTHWESTERN IDAHO

EBB2-Po2-15

TABLE 6. RANGING ANALYSIS - RUSSET BURBANK POTATOES

COSTS PER ACRE AND PER CWT AT VARYING YIELDS TO PRODUCE RUSSET BURBANK POTATOES

	YIELD(CWT)						
	500.00	510.00	520.00	530.00	540.00	550.00	560.00
OPERATING COSTS/ACRE:							
Preharvest	2,031.18	2,031.18	2,031.18	2,031.18	2,031.18	2,031.18	2,031.18
Harvest	191.87	193.88	195.90	217.38	199.93	201.94	203.95
Post Harvest	106.64	106.64	106.64	106.64	106.64	106.64	106.64
Interest on Operating Capital @ 5.75%	81.74	81.74	81.74	81.74	81.74	81.74	81.74
TOTAL OPERATING COSTS/ACRE	2,411.43	2,413.44	2,415.46	2,436.93	2,419.48	2,421.50	2,423.51
TOTAL OPERATING COSTS/CWT	4.82	4.73	4.65	4.60	4.48	4.40	4.33
CASH OVERHEAD COSTS/ACRE							
TOTAL CASH COSTS/ACRE	3,437.94	3,439.95	3,441.97	3,463.44	3,445.99	3,448.01	3,450.02
TOTAL CASH COSTS/CWT	6.88	6.75	6.62	6.53	6.38	6.27	6.16
NON-CASH OVERHEAD COSTS/ACRE							
TOTAL COSTS/ACRE	3,655.03	3,657.05	3,659.06	3,680.54	3,663.09	3,665.10	3,667.12
TOTAL COSTS/CWT	7.31	7.17	7.04	6.94	6.78	6.66	6.55

Net Return Per Acre Above Operating Costs For Russet Burbank Potatoes

PRICE (\$/cwt)	YIELD (cwt/acre)						
	Potatoes	500.00	510.00	520.00	530.00	540.00	550.00
6.75	963.57	1,029.06	1,094.54	1,140.57	1,225.52	1,291.00	1,356.49
7.00	1,088.57	1,156.56	1,224.54	1,273.07	1,360.52	1,428.50	1,496.49
7.25	1,213.57	1,284.06	1,354.54	1,405.57	1,495.52	1,566.00	1,636.49
7.50	1,338.57	1,411.56	1,484.54	1,538.07	1,630.52	1,703.50	1,776.49
7.75	1,463.57	1,539.06	1,614.54	1,670.57	1,765.52	1,841.00	1,916.49
8.00	1,588.57	1,666.56	1,744.54	1,803.07	1,900.52	1,978.50	2,056.49
8.25	1,713.57	1,794.06	1,874.54	1,935.57	2,035.52	2,116.00	2,196.49

Net Return Per Acre Above Cash Costs For Russet Burbank Potatoes

PRICE (\$/cwt)	YIELD (cwt/acre)						
	Potatoes	500.00	510.00	520.00	530.00	540.00	550.00
6.75	-62.94	2.55	68.03	114.06	199.01	264.49	329.98
7.00	62.06	130.05	198.03	246.56	334.01	401.99	469.98
7.25	187.06	257.55	328.03	379.06	469.01	539.49	609.98
7.50	312.06	385.05	458.03	511.56	604.01	676.99	749.98
7.75	437.06	512.55	588.03	644.06	739.01	814.49	889.98
8.00	562.06	640.05	718.03	776.56	874.01	951.99	1,029.98
8.25	687.06	767.55	848.03	909.06	1,009.01	1,089.49	1,169.98

UNIVERSITY OF IDAHO

SOUTHWESTERN IDAHO

EBB2-Po2-15

TABLE 6. RANGING ANALYSIS CONTINUED

Net Return Per Acre Above Total Costs For Russet Burbank Potatoes

PRICE (\$/cwt)	YIELD (cwt/acre)							
	Potatoes	500.00	510.00	520.00	530.00	540.00	550.00	560.00
6.75		-280.03	-214.55	-149.06	-103.04	-18.09	47.40	112.88
7.00		-155.03	-87.05	-19.06	29.46	116.91	184.90	252.88
7.25		-30.03	40.45	110.94	161.96	251.91	322.40	392.88
7.50		94.97	167.95	240.94	294.46	386.91	459.90	532.88
7.75		219.97	295.45	370.94	426.96	521.91	597.40	672.88
8.00		344.97	422.95	500.94	559.46	656.91	734.90	812.88
8.25		469.97	550.45	630.94	691.96	791.91	872.40	952.88

UNIVERSITY OF IDAHO
SOUTHWESTERN IDAHO
EBB2-Po2-15

TABLE 7. 2015 cost per hundredweight to grow, harvest, sort and store Southwestern Idaho Irrigated Russet Burbank potato based on both field-run and paid yield.

	Ownership Costs	Operating Costs	Field Run Cost per CWT	Paid Yield Cost per CWT
Field-Run Yield			530	
Paid Yield %		95%		503.5
Base Cost to Grow, Harvest and Sort			\$6.95	\$7.32
Storage System Annual Ownership Costs		\$0.509	\$0.509	\$0.54
Base Cost + Storage Ownership Cost			\$7.46	\$7.86
Storage System Annual Repairs		\$0.038	\$0.038	\$0.04
Base + Storage System Ownership & Repairs			\$7.50	\$7.90
		Cumulative Storage Op Costs	Cumulative Base + All Storage Costs	Cumulative Base + All Storage Costs
October		\$0.204	\$7.70	\$8.10
November*		\$0.372	\$7.87	\$8.27
December		\$0.457	\$7.95	\$8.35
January		\$0.514	\$8.01	\$8.41
February		\$0.625	\$8.12	\$8.52
March		\$0.709	\$8.21	\$8.60
April*		\$0.894	\$8.39	\$8.79
May		\$0.997	\$8.49	\$8.89
June		\$1.117	\$8.61	\$9.01

Base cost of production includes cost to grow, harvest & sort potatoes, both operating and ownership.

Ownership costs for potato handling equipment are included in the base cost of production.

Storage system includes: storage facility and air system.

Storage operating costs include: repairs (shown separately), plus monthly operating costs: power, chemicals, interest, shrink & insurance.

Storage costs do not include the cost of removing the potatoes from storage.

* Indicates month when sprout inhibitor applied.

Cumulative storage operating expenses are calculated to the end of the month.