

Eastern Idaho Seed Counties: Caribou, Fremont, and Teton Russet Burbank G3 Seed Potatoes: On-Farm Storage

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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 under irrigation in eastern Idaho's lower yielding northern counties. The costs shown in Tables 1 – 6 include the costs to grow, harvest, sort and store potatoes. The total cost per cwt shown at the bottom of Table 1 is based on storage to the end of February.

Production practices are based on data from potato growers in Fremont, Teton and Caribou counties, crop consultants and extension personnel in eastern 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

The model farm for this costs and returns estimate is a 1,600-acre farm with 400 acres in seed potatoes. The crop rotation is one year of potatoes followed by three years with some combination of grain, alfalfa, dry peas, or an oil seed crop.

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/cals/idaho-agbiz/crop-enterprise-budgets>

Production Practices

After the straw from the preceding grain crop is removed, the potato ground is disked and ripped in the fall. In the spring the ground is disk-ripped and marked-out for planting. Potatoes are planted in late May using two 4-row planters with 36-inch row spacing. The seeding rate is 26 hundredweight (cwt). Hills are harrowed off several weeks after planting and potatoes are cultivated once in June with a basin tillage tool. In September, vines are rolled and sprayed with a chemical desiccant. Potato harvest begins three weeks later using a 2-row harvester, 4-row windrower, and four 10-wheeler trucks (300-cwt capacity). Potatoes are hauled from the field to a nearby storage facility where they are sorted before being placed into a grower owned storage. Seed tops are removed at this time and sold in the fresh or dehydration market. Potatoes are stored for approximately 5 months in a modern, above ground storage facility with air and humidification. Storage operating costs include sanitation chemicals, shrink, and interest and insurance based on the value of potatoes using the cost of production. Sorting costs, which includes labor and the power and repair costs of equipment used to sort and place potatoes into storage. Sorting labor at harvest and again in the spring when potatoes are removed from storage are shown separately in the Sorting cost category in Table 1.

Most fertilizer is applied by a custom applicator in spring. In addition, a liquid starter fertilizer with nitrogen, phosphate and micronutrients is applied at row mark-out. Additional nitrogen is applied during the growing season through the irrigation system. The weed control program uses cultural, mechanical (tillage and cultivation), and chemical control methods. One herbicide is applied and incorporated with the fertilizer in the spring and a second tank-mix herbicide is ground applied in June. Disease and insect pressure were both high during 2015, resulting in more foliar applications of fungicides and insecticides. A systemic insecticide is banded at planting and two foliar insecticides are applied by air during the growing season. Four fungicide applications are made for disease control by a custom aerial applicator, starting in July. The seed treatment also contains a fungicide. Potatoes are rogued in July and rogued again in August.

Potatoes receive 15 inches of water during the growing season, 2 inches in June, 6 inches in July, and 7 inches in August. One additional inch of water applied before harvest is also credited to potatoes, for a total of 16 inches.

Machinery

Machinery and equipment used to produce seed potatoes is shown in Tables 4 and 5. Equipment used in sorting or handling potatoes is not included. The repair and ownership costs for

sorting and handling equipment is, however, shown in Tables 1 and 2. Table 4 lists the field equipment and their hourly operating and ownership costs, while Table 5 lists the equipment and their annual ownership costs. 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.

Labor and Management

The cost of labor used in this study includes a base wage rate, 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%	\$14.40
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 wheelines

Continuous Move includes: center pivots and linear move

Payroll overhead for set move systems includes housing

Equipment operator labor is calculated at 1.2 times machinery use hours. Machinery hours are calculated for all field operations, except those performed by a custom operator. Custom operations are listed separately. Machinery hours are based on a standard engineering equation using: speed x width x overall field efficiency. General farm labor accounts for extra field labor used primarily during planting or harvest. Irrigation labor and labor to sort potatoes are shown separately.

A management fee based of approximately 5% of the total production costs is also included. Prior to 2013, 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 nominal 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. Since 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 six tables presenting a variety of cost and returns information. Production costs in Tables 1-6 include costs to grow, harvest, sort, and store potatoes.

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 tractors, field equipment, trucks and pickups used to produce this crop and the costs per hour to operate them. 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, respectively.

University of Idaho costs and returns estimates for both crops and livestock can be found at:

<http://www.uidaho.edu/cals/idaho-agbiz/crop-enterprise-budgets>

Authors

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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.

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TABLE 1. COSTS AND RETURNS PER ACRE TO PRODUCE POTATOES

	Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
GROSS RETURNS					
Seed Potatoes	275.00	cwt	10.50	2,887.50	
Seed Tops	25.00	cwt	5.25	131.25	
TOTAL GROSS RETURNS	300.00	cwt		3,018.75	
OPERATING COSTS					
Seed:				358.80	
G-2 Russet Burbank Potato Seed	26.00	cwt	12.10	314.60	
Potato Seed Cutting	26.00	cwt	1.70	44.20	
Fertilizer:				322.15	
Dry Nitrogen - Pre-plant	145.00	lb	0.55	79.75	
Dry P2O5	150.00	lb	0.53	79.50	
K2O	145.00	lb	0.44	63.80	
Sulfur	70.00	lb	0.27	18.90	
Liquid Nitrogen	60.00	lb	0.73	43.80	
Liquid P2O5	20.00	lb	0.72	14.40	
Micronutrients - SP	1.00	acre	22.00	22.00	
Pesticides/Chemicals:				180.47	
Eptam 7E	4.00	pint	6.25	25.00	
Potato Seed Treatment	26.00	cwt	0.50	13.00	
Admire Pro	8.00	fl oz	1.50	12.00	
Tri-Cor 75DF	0.75	lb	15.00	11.25	
Prowl 3.3EC	2.00	pint	4.90	9.80	
Quadris Flowable	8.00	fl oz	2.30	18.40	
Dithane F45 Rainshield	3.20	qt	8.70	27.84	
Dimethoate 4EC	1.00	pint	5.95	5.95	
Omega 500DF	8.00	fl oz	3.40	27.20	
Brigadier	5.50	fl oz	1.35	7.43	
Reglone	2.00	pint	11.30	22.60	
Custom:				97.75	
Custom Fertilize: 400 - 800 lbs	1.00	acre	7.75	7.75	
Consultants/Soil Testing - SP	1.00	acre	22.00	22.00	
Custom Air Spray - 5 gal. rate	4.00	acre	8.75	35.00	
Rogueing	2.00	acre	16.50	33.00	
Irrigation:				50.81	
Irrigation Water Assessment - N	1.00	acre	12.25	12.25	
Irrigation Repairs - CP	16.00	ac-in	0.51	8.16	
Irrigation Power - Center Pivot	16.00	ac-in	1.90	30.40	
Other:				182.60	
Crop Insurance	1.00	acre	65.00	65.00	
Seed Tagging Fee	1.00	acre	40.00	40.00	
Seed Potato Certification Fees	1.00	acre	32.00	32.00	
Potato Fees & Assessments - Seed	285.00	cwt	0.16	45.60	
Sorting:				95.20	
Harvest Sorting Labor - Seed	300.00	cwt	0.15	46.20	
Sorting Equip Rep. & Power-Seed	300.00	cwt	0.07	20.40	
Post Harvest Sorting Labor-Seed	275.00	cwt	0.10	28.60	
Storage:				269.50	
Seed Potato Storage Op. Costs	275.00	cwt	0.94	258.77	
Seed Potato Stor. System Repairs	275.00	cwt	0.04	10.73	
Labor				181.43	
Equipment Operator Labor	5.27	hrs	18.50	97.58	
Truck Driver Labor	1.60	hrs	14.40	23.04	
General Farm Labor	3.69	hrs	10.65	39.35	
Irrigation Labor - CP	0.64	hrs	18.50	11.84	
Irrigation Labor: Chem-Fert	0.52	hrs	18.50	9.62	
Machinery				150.52	
Fuel-Gas	5.87	gal	2.50	14.67	
Fuel-Diesel	22.55	gal	2.35	52.98	
Fuel-Road Diesel	1.36	gal	2.85	3.88	
Lube				10.73	
Machinery Repair				68.26	
Interest on Operating Capital @ 5.75%				39.63	
TOTAL OPERATING COSTS/ACRE				1,928.86	
NET RETURNS ABOVE OPERATING COSTS				1,089.89	

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TABLE 1. CONTINUED

	Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
CASH OVERHEAD COSTS					
General Overhead				50.00	
Land Rent				390.00	
Management Fee				135.00	
Seed Potato Sorting Equipment				57.00	
Seed Potato Storage System D&I				95.00	
Property Taxes				0.00	
Property Insurance				6.03	
Investment Repairs				0.00	
TOTAL CASH OVERHEAD COSTS/ACRE				733.03	
TOTAL CASH COSTS/ACRE				2,661.89	
NET RETURNS ABOVE CASH COSTS				356.86	
NON-CASH OVERHEAD COSTS (Capital Recovery)					
Equipment				204.09	
TOTAL NON-CASH OVERHEAD COSTS/ACRE				204.09	
TOTAL COST/ACRE				2,865.98	
NET RETURNS ABOVE TOTAL COST				152.02	

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TABLE 2. COSTS PER ACRE TO PRODUCE 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	0.30	10.11	8.35	6.98	0.00	0.00	25.45	
Crop Insurance	0.00	0.00	0.00	0.00	65.00	0.00	65.00	
Irrigation Water Assessment	0.00	0.00	0.00	0.00	12.25	0.00	12.25	
Irrigation Repairs	0.00	0.00	0.00	0.00	8.16	0.00	8.16	
Applying Fertilizer	0.00	0.00	0.00	0.00	266.95	7.75	274.70	
Mark Out	0.11	4.27	2.92	2.00	51.00	0.00	60.18	
Seed Hauling	0.13	2.96	0.22	2.21	0.00	0.00	5.39	
Plant	0.40	21.66	10.21	10.55	383.80	0.00	426.21	
Harrow Off	0.11	3.77	2.20	1.05	0.00	0.00	7.02	
Applying Pesticides	0.07	2.77	1.44	0.79	93.95	26.25	125.19	
Consultant	0.00	0.00	0.00	0.00	0.00	22.00	22.00	
Hilling-Cultivation	0.17	5.83	4.25	3.10	0.00	0.00	13.18	
Irrigation	0.00	11.10	0.00	0.00	28.50	0.00	39.60	
Seed Certification Assessments	0.00	0.00	0.00	0.00	72.00	0.00	72.00	
Chemigation-Fertigation	0.00	9.62	0.00	0.00	29.20	0.00	38.82	
Applying Pesticide	0.00	0.00	0.00	0.00	13.92	8.75	22.67	
Rogueing	0.00	0.00	0.00	0.00	0.00	33.00	33.00	
Irrigate	0.00	0.74	0.00	0.00	1.90	0.00	2.64	
General Pickup Use	1.75	38.85	14.57	5.74	0.00	0.00	59.16	
4-Wheeler Use	0.17	3.70	0.10	0.09	0.00	0.00	3.90	
Service Truck Use	0.10	2.22	0.71	0.29	0.00	0.00	3.22	
Fuel Truck Use	0.10	2.22	0.71	0.33	0.00	0.00	3.26	
TOTAL PREHARVEST COSTS	3.40	119.82	45.69	33.13	1,026.63	97.75	1,323.01	
Harvest:								
Vine Roll	0.11	3.77	2.20	1.04	0.00	0.00	7.02	
Vine Kill	0.07	2.77	1.44	0.79	22.60	0.00	27.60	
Dig	0.67	27.58	17.01	19.90	0.00	0.00	64.49	
Crop Hauling	1.33	23.04	2.18	22.07	0.00	0.00	47.29	
Potato Sorting	0.00	0.00	0.00	0.00	66.60	0.00	66.60	
Dump Truck Use	0.05	1.11	0.57	0.13	0.00	0.00	1.81	
TOTAL HARVEST COSTS	2.23	58.27	23.40	43.94	89.20	0.00	214.81	
Storage:								
Storage	0.00	0.00	0.00	0.00	269.50	0.00	269.50	
TOTAL STORAGE COSTS	0.00	0.00	0.00	0.00	269.50	0.00	269.50	
Post Harvest:								
Disk	0.10	3.34	2.44	1.93	0.00	0.00	7.70	
Assessments	0.00	0.00	0.00	0.00	45.60	0.00	45.60	
Post Harvest Sorting Labor	0.00	0.00	0.00	0.00	28.60	0.00	28.60	
TOTAL POST HARVEST COSTS	0.10	3.34	2.44	1.93	74.20	0.00	81.90	
Interest on Operating Capital at 5.75%							39.63	
TOTAL OPERATING COSTS/ACRE	5.73	181.43	71.53	78.99	1,459.53	97.75	1,928.86	

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TABLE 3. CONTINUED

	SEP 14	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
Interest on Operating Capital @5.75%	0.09	0.17	0.19	0.22	0.24	0.26	0.29	0.72	4.42	5.14	5.65	6.28	6.90	9.05	39.63
TOTAL OPERATING COSTS/ACRE	19.82	15.83	5.16	5.18	5.21	5.23	5.26	91.10	775.87	155.64	111.82	138.00	137.32	457.42	1,928.86
CASH OVERHEAD															
General Overhead	3.57	3.57	3.57	3.57	3.57	3.57	3.57	3.57	3.57	3.57	3.57	3.57	3.57	3.57	50.00
Land Rent							390.00								390.00
Management Fee	9.64	9.64	9.64	9.64	9.64	9.64	9.64	9.64	9.64	9.64	9.64	9.64	9.64	9.64	135.00
Seed Potato Sorting Equipment														57.00	57.00
Seed Potato Storage System D&I														95.00	95.00
Property Taxes															0.00
Property Insurance								6.03							6.03
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
TOTAL CASH OVERHEAD COSTS	13.21	13.21	13.21	13.21	13.21	13.21	403.21	19.25	13.21	13.21	13.21	13.21	13.21	165.21	733.03
TOTAL CASH COSTS/ACRE	33.04	29.04	18.37	18.40	18.42	18.45	408.47	110.35	789.08	168.86	125.03	151.22	150.53	622.64	2,661.89

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TABLE 4. HOURLY EQUIPMENT COSTS

Yr	Description	Potatoes	Total	Cash Overhead			Operating			Total Costs/Hr.
		Hours Used	Hours Used	Capital Recovery	Insur- ance	Taxes	Lube& Repairs	Fuel	Total Oper.	
15	4-wheeler	33	90	6.79	0.19	0.00	0.57	0.63	1.19	8.18
15	Disk Ripper 13'	66	175	27.52	0.68	0.00	16.99	0.00	16.99	45.19
15	Planter Filler	80	90	7.63	0.22	0.00	3.66	0.00	3.66	11.51
15	Spike Harrow - 18'	43	50	3.60	0.10	0.00	0.42	0.00	0.42	4.13
15	Tank/injector -18'	46	100	6.44	0.18	0.00	2.07	0.00	2.07	8.69
15	Tractor - 160hp	157	350	24.56	0.91	0.00	8.44	18.57	27.01	52.48
15	Tractor - 200hp	358	500	22.61	0.80	0.00	11.64	23.19	34.84	58.24
15	Tractor - 250hp	57	500	30.96	1.09	0.00	9.14	28.98	38.11	70.16
15	Tractor 2 - 200hp	350	500	22.61	0.80	0.00	11.64	23.19	34.84	58.24
15	Vine Roller	43	65	3.70	0.11	0.00	0.38	0.00	0.38	4.18
15	Truck SP1 10-Wheeler	147	300	20.95	0.75	0.00	16.57	1.71	18.28	39.98
15	Truck SP2 10-Wheeler	147	300	20.95	0.75	0.00	16.57	1.71	18.28	39.98
15	Truck SP3 10-Wheeler	147	300	20.95	0.75	0.00	16.57	1.71	18.28	39.98
15	Truck SP4 10-Wheeler	147	300	20.95	0.75	0.00	16.52	1.41	17.93	39.63
15	Potato Planter 4-Row SP	80	80	58.09	1.54	0.00	11.73	0.00	11.73	71.36
15	Potato Planter#2 4-Row SP	80	80	58.09	1.54	0.00	11.73	0.00	11.73	71.36
15	Basin Tillage Tool - 18' CP	67	105	21.08	0.61	0.00	5.81	0.00	5.81	27.50
15	Markout Bar - 18'	46	100	10.30	0.30	0.00	2.55	0.00	2.55	13.14
15	Sprayer - 30' 150 gal.	56	115	4.21	0.11	0.00	1.95	0.00	1.95	6.27
15	Potato Windrower 4-Row SP	133	135	55.50	1.37	0.00	12.90	0.00	12.90	69.77
15	Potato Harvester 2-Row SP	133	135	91.18	2.26	0.00	21.19	0.00	21.19	114.62
15	V-Ripper - 15'	52	125	21.33	0.49	0.00	5.73	0.00	5.73	27.54
15	Pickup 1SP - 3/4 ton	300	750	9.37	0.15	0.00	3.28	8.32	11.60	21.13
15	Pickup 2SP - 3/4 ton	300	750	9.37	0.15	0.00	3.28	8.32	11.60	21.13
15	Tandem Disk - 18'	38	175	20.18	0.50	0.00	7.37	0.00	7.37	28.05
15	4-Wheeler 2	33	90	6.79	0.19	0.00	0.57	0.63	1.19	8.18
15	Service Truck	40	80	36.69	1.21	0.00	2.87	7.13	9.99	47.89
15	Fuel Truck	40	80	46.10	1.49	0.00	3.32	7.13	10.44	58.04
15	Dump Truck	20	25	58.18	1.98	0.00	2.61	11.40	14.01	74.17
15	Pickup 3SP - 3/4ton	100	300	12.81	0.37	0.00	3.28	8.32	11.60	24.78

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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	Planter Filler	8,000.00	15	768.05	762.73	21.92	0.00	784.65
15	Spike Harrow - 18'	2,100.00	15	201.61	200.22	5.75	0.00	205.97
15	Tank/injector -18'	7,500.00	15	720.05	715.06	20.55	0.00	735.61
15	Tractor - 160hp	131,000.00	25	11,078.38	9,549.39	355.20	0.00	9,904.59
15	Tractor - 200hp	157,000.00	20	20,144.91	12,559.91	442.86	0.00	13,002.77
15	Tractor - 250hp	215,000.00	20	27,586.97	17,199.88	606.47	0.00	17,806.35
15	Tractor 2 - 200hp	157,000.00	20	20,144.91	12,559.91	442.86	0.00	13,002.77
15	Vine Roller	2,800.00	15	268.82	266.96	7.67	0.00	274.63
15	Truck SP1 10-Wheeler	95,000.00	25	5,000.00	6,984.44	250.00	0.00	7,234.44
15	Truck SP2 10-Wheeler	95,000.00	25	5,000.00	6,984.44	250.00	0.00	7,234.44
15	Truck SP3 10-Wheeler	95,000.00	25	5,000.00	6,984.44	250.00	0.00	7,234.44
15	Truck SP4 10-Wheeler	95,000.00	25	5,000.00	6,984.44	250.00	0.00	7,234.44
15	Potato Planter 4-Row SP	48,000.00	12	6,648.32	5,163.66	136.62	0.00	5,300.28
15	Potato Planter#2 4-Row SP	48,000.00	12	6,648.32	5,163.66	136.62	0.00	5,300.28
15	Basin Tillage Tool - 18' CP	25,800.00	15	2,476.97	2,459.80	70.69	0.00	2,530.50
15	Markout Bar - 18'	12,000.00	15	1,152.08	1,144.10	32.88	0.00	1,176.98
15	Sprayer - 30' 150 gal.	5,000.00	12	692.53	537.88	14.23	0.00	552.11
15	Potato Windrower 4-Row SP	70,000.00	10	12,378.90	8,325.30	205.95	0.00	8,531.25
15	Potato Harvester 2-Row SP	115,000.00	10	20,336.76	13,677.28	338.34	0.00	14,015.62
15	V-Ripper - 15'	22,000.00	8	4,967.30	2,962.05	67.42	0.00	3,029.47
15	Pickup 1SP - 3/4 ton	41,000.00	5	10,000.00	7,809.47	127.50	0.00	7,936.97
15	Pickup 2SP - 3/4 ton	41,000.00	5	10,000.00	7,809.47	127.50	0.00	7,936.97
15	Tandem Disk - 18'	33,000.00	10	5,835.77	3,924.79	97.09	0.00	4,021.87
15	4-Wheeler 2	6,000.00	10	1,500.00	679.50	18.75	0.00	698.25
15	Service Truck	40,000.00	20	3,000.00	3,261.14	107.50	0.00	3,368.64
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	Pickup 3SP - 3/4ton	41,000.00	12	8,000.00	4,268.96	122.50	0.00	4,391.46
	TOTAL	1,729,200.00	-	209,008.48	160,684.54	4,845.52	0.00	165,530.06
	90% of New Cost*	1,556,280.00	-	188,107.64	144,616.08	4,360.97	0.00	148,977.05

*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	400.00	acre	50.00	20,000.00
Land Rent	400.00	acre	390	156,000.00
Management Fee	400.00	acre	135	54,000.00
Seed Potato Sorting Equipment	400	acre	57	22,800.00
Seed Potato Storage System D&I	400.00	acre	95	38,000.00

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TABLE 6. RANGING ANALYSIS - POTATOES

COSTS PER ACRE AT VARYING YIELDS TO PRODUCE POTATOES

	YIELD(CWT)						
	279.00	286.00	293.00	300.00	307.00	314.00	321.00
OPERATING COSTS/ACRE:							
Preharvest	1,323.01	1,323.01	1,323.01	1,323.01	1,323.01	1,323.01	1,323.01
Harvest	211.37	212.52	213.66	214.81	215.95	217.10	218.25
Storage	269.50	269.50	269.50	269.50	269.50	269.50	269.50
Post Harvest	81.90	81.90	81.90	81.90	81.90	81.90	81.90
Interest on Operating Capital @ 5.75%	39.63	39.63	39.63	39.63	39.63	39.63	39.63
TOTAL OPERATING COSTS/ACRE	1,925.42	1,926.57	1,927.71	1,928.86	1,930.00	1,931.15	1,932.30
TOTAL OPERATING COSTS/CWT	6.90	6.74	6.58	6.43	6.29	6.15	6.02
CASH OVERHEAD COSTS/ACRE	733.03	733.03	733.03	733.03	733.03	733.03	733.03
TOTAL CASH COSTS/ACRE	2,658.45	2,659.60	2,660.74	2,661.89	2,663.04	2,664.18	2,665.33
TOTAL CASH COSTS/CWT	9.53	9.30	9.08	8.87	8.67	8.48	8.30
NON-CASH OVERHEAD COSTS/ACRE	204.09	204.09	204.09	204.09	204.09	204.09	204.09
TOTAL COSTS/ACRE	2,862.55	2,863.69	2,864.84	2,865.98	2,867.13	2,868.27	2,869.42
TOTAL COSTS/CWT	10.26	10.01	9.78	9.55	9.34	9.13	8.94

Net Return Per Acre Above Operating Costs For Potatoes

PRICE (\$/cwt)		YIELD (cwt/acre)						
Seed Potatoes	Seed Tops	260.00	265.00	270.00	275.00	280.00	285.00	290.00
		19.00	21.00	23.00	25.00	27.00	29.00	31.00
9.75	3.75	680.83	735.93	791.04	846.14	901.25	956.35	1,011.45
10.00	4.00	750.58	807.43	864.29	921.14	978.00	1,034.85	1,091.70
10.25	4.25	820.33	878.93	937.54	996.14	1,054.75	1,113.35	1,171.95
10.50	4.50	890.08	950.43	1,010.79	1,071.14	1,131.50	1,191.85	1,252.20
10.75	4.75	959.83	1,021.93	1,084.04	1,146.14	1,208.25	1,270.35	1,332.45
11.00	5.00	1,029.58	1,093.43	1,157.29	1,221.14	1,285.00	1,348.85	1,412.70
11.25	5.25	1,099.33	1,164.93	1,230.54	1,296.14	1,361.75	1,427.35	1,492.95

Net Return Per Acre Above Cash Costs For Potatoes

PRICE (\$/cwt)		YIELD (cwt/acre)						
Seed Potatoes	Seed Tops	260.00	265.00	270.00	275.00	280.00	285.00	290.00
		19.00	21.00	23.00	25.00	27.00	29.00	31.00
9.75	3.75	-52.20	2.90	58.01	113.11	168.21	223.32	278.42
10.00	4.00	17.55	74.40	131.26	188.11	244.96	301.82	358.67
10.25	4.25	87.30	145.90	204.51	263.11	321.71	380.32	438.92
10.50	4.50	157.05	217.40	277.76	338.11	398.46	458.82	519.17
10.75	4.75	226.80	288.90	351.01	413.11	475.21	537.32	599.42
11.00	5.00	296.55	360.40	424.26	488.11	551.96	615.82	679.67
11.25	5.25	366.30	431.90	497.51	563.11	628.71	694.32	759.92

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TABLE 6. RANGING ANALYSIS CONTINUED

Net Return Per Acre Above Total Costs For Potatoes

PRICE (\$/cwt)		YIELD (cwt/acre)						
Seed Potatoes		260.00	265.00	270.00	275.00	280.00	285.00	290.00
	Seed Tops	19.00	21.00	23.00	25.00	27.00	29.00	31.00
9.75	3.75	-256.30	-201.19	-146.09	-90.98	-35.88	19.23	74.33
10.00	4.00	-186.55	-129.69	-72.84	-15.98	40.87	97.73	154.58
10.25	4.25	-116.80	-58.19	0.41	59.02	117.62	176.23	234.83
10.50	4.50	-47.05	13.31	73.66	134.02	194.37	254.73	315.08
10.75	4.75	22.70	84.81	146.91	209.02	271.12	333.23	395.33
11.00	5.00	92.45	156.31	220.16	284.02	347.87	411.73	475.58
11.25	5.25	162.20	227.81	293.41	359.02	424.62	490.23	555.83