

Potato Cost of Production for Idaho – 2016  
With Comparisons to 2015

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## **Cost of Potato Production in Idaho**

The overall goal of this project is to provide the Idaho potato industry with an unbiased and consistently calculated estimate of the cost of producing potatoes in three regions of Idaho and to track the change in production costs per acre and per hundredweight over time.

The following objectives are designed to meet the project goal:

1. To collect data from input suppliers, machinery and equipment dealers, and growers as appropriate.
2. To revise and update existing potato costs and returns estimates to reflect current input costs and production practices.
3. To develop cost of production estimates for new varieties and/or new or proposed production systems as needed or as requested.
4. To calculate changes in production costs per acre and per hundredweight and include both the detailed and summary cost changes in an annual report.
5. To make the annual report available to the Idaho potato industry and to present the information as requested.
6. To maintain a Cost of Production Advisory Committee representing the different segments of the Idaho potato industry and to meet with this group to review the CAR estimates and to obtain input on proposed revisions.

I would like to acknowledge the cooperation and support that I receive from all segments of the Idaho potato industry, including growers, processors, equipment dealers, and input suppliers. I would also like to thank the Idaho Potato Commission for the funding I receive to support this project. This project has been funded 23 of the past 25 years.

One major change for 2016 is that the project was contracted with Ben Eborn through the University of Idaho. Paul Patterson, who is the author of all previous reports, retired from the University of Idaho in 2015.

### **Cost of Production Background**

No procedural changes were made in terms of how the data was collected and processed. The cost of production estimates found in this report are done consistently with those produced by the University of Idaho. The cost of production estimates show the typical or representative production costs by region based on documented production practices. These are not area averages. To simplify comparisons with historical cost of production estimates, the publication code used by the University of Idaho was used for the six commercial

potato budgets found in this report. Crop cost of production estimates and earlier reports can still be found at <http://www.uidaho.edu/cals/idaho-agbiz>

The crop and livestock enterprise budgets and the annual input cost summary are located here. A database search routine has replaced the old listing of crop budgets by region. Simply fill in one or more of the search items (Year, Region, Commodity and Format) and then click Search. Copies of earlier reports on changes in potato production costs in Idaho can be found at the same web address. Click on Publications and then scroll down to the Potato Bulletins and Reports section.

## **2016 Crop Input Costs**

Prices used to value inputs in the 2016 potato CAR estimates came from data collected from input suppliers by the University of Idaho. Sources included irrigation districts and canal companies, agricultural lenders, crop insurance companies, trucking companies, aerial and other custom applicators, fuel suppliers, and chemical and fertilizer dealers. Information on seed potato prices and the cost to cut and treat potato seed was taken from a survey of Idaho seed potato growers and commercial growers. A charge for handling and transportation is added to the FOB seed farm-based seed potato prices to derive a seed potato cost for each region.

Machinery and equipment prices used in these cost of production estimates were mostly obtained from a survey of dealers conducted between August and December of 2010, and published in 2011 as PNW 346: *The Cost of Owning and Operating Farm Machinery in the Pacific Northwest: 2011*. These prices were increased by approximately 16% based on the annual change in USDA's Prices Paid Machinery Index from 2011 to 2016.

## **Potato Cost of Production Overview**

Cost of production estimates are influenced by assumptions made in depicting a representative or typical farm. Farm size and acreage planted to different crops will influence costs, particularly machinery ownership costs. It is important to recognize this when making comparisons between regions where assumptions differ or within a region over time as the underlying assumptions change. The University of Idaho currently publishes seven potato CAR estimates. Six CAR estimates are for commercial potato production and one is for seed production. Only the commercial potato cost of production estimates are included in this report. Prior to 2013, there was a separate non-storage (with transloading) and storage budgets for each of the three southern Idaho commercial production regions. The current format, adopted in 2013, shows the cost to grow, harvest and sort potatoes in the base budget. Basically all costs to the "end of the piler boom." Storage costs are shown in a separate table and begin with the base budget values. A list of CAR estimates by region and variety is found in Table 1.

### Farm Size and Potato Acreage

Table 2 shows the farm size and potato acreage for each region's model farm since 2009. For 2016 the model farm in southwestern Idaho is 1,600 acres with 500 acres in potatoes. The model farm for southcentral Idaho is 2,200 with 550 acres in potatoes. The model farm for eastern Idaho is 2,400 acres with 800 acres in potatoes. The size of the model farm and the number of potato acres were increased in 2013 for all three regions.

In general, operating costs are not influenced by farm size. However, ownership costs do change with farm size, primarily because of economies of size and scale with equipment. Equipment ownership costs per acre are strongly influenced by the number of acres over which these costs are spread. The more acres, the lower the cost. In setting the farm size and selecting the machinery complement, we attempt to achieve an economically efficient combination. Equipment that is under-utilized has high ownership costs, while equipment with too many hours of use results in unrealistically low ownership costs.

### Input Costs

Some input prices are region specific, while other input prices are standardized for the entire state since they don't vary consistently by region. Table 3 contains information on three such items: interest rates, labor wage and benefit rates, and power cost per acre-inch of water applied based on Idaho Power's Irrigation Service Schedule 24. Table 3 has values for 2015, the previous 3 years and the percentage changes from 2015 to 2016. In the costs and returns estimates, interest is charged from the time expenditures are made until the harvest month using the operating interest rate shown in Table 3. Operating interest is identified as a separate line item in the CAR estimates. The intermediate interest rate is used in calculating non-cash machinery costs. The labor used in crop production falls into one of the six classes shown in Table 3. Labor used to operate machinery, drive trucks, and manage pivot irrigation systems, including chemigation and fertigation, receive a higher wage than irrigation labor used on set-move systems (hand lines and wheel lines) and unskilled general farm labor used primarily during harvest to pick clods and rocks and to help with storage and trans-loading operations. Prior to 2012, irrigation labor was not differentiated between set-move and continuous move irrigation systems. The labor costs include the base wage rate plus payroll taxes and benefit costs. These are shown as a percentage. Additional labor information is included in the background and assumptions page that accompanies each CAR estimate.

While Idaho Power's service area does not extend to all irrigated areas of southern Idaho, it is by far the largest supplier of power to Idaho farms and ranches and that is why it is used in the CAR estimates. The power rates shown in Table 3 are used with a center pivot irrigation system to derive the cost per acre-inch of

water applied. The power demand used in the calculation is for pressurization only. The standard assumption for each region is that surface water is delivered to the farm from a canal. Cost per acre-inch of water applied by different irrigation systems and with different pumping lifts have traditionally been found in Table 3 of the University of Idaho's annual *Crop Input Cost Summary* referenced earlier.

Tables 4-a, 4-b and 4-c contain cost information on commonly used inputs where prices generally vary by region. These include fuel (gas, farm diesel and road diesel) and irrigation water assessments. Table 4-a shows these costs for southwestern Idaho, Table 4-b shows the costs for southcentral Idaho and Table 4-c shows the costs for eastern Idaho.

Prior to 2008, fuel prices were determined by a survey conducted at a single point in time, typically August. Since 2008, fuel prices found in the *Crop Input Cost Summary* and used in CAR estimates are the simple average of prices collected at four times during the year: February, April, June and August. This change was made at the request of the potato cost of production advisory committee.

Table 5 contains the fertilizer component prices from 2013 through 2016 used in the CAR estimates, and the percentage changes from 2015 to 2016. Prior to 2009 fertilizer prices were collected and summarized separately for the three southern Idaho regions.

### Potato Yields

The yield in a CAR estimate is used to calculate gross revenue and break-even prices needed to cover costs in different categories. Yield is also the basis for certain costs, such as promotion or inspection fees paid by growers. Yield also drives storage and sorting costs, which are calculated on a hundredweight basis. Table 6 shows the potato yields used in the University of Idaho's 2016 commercial potato CAR estimates, as well as the previous four years. Some values are shown only as a reference and indicate the value we would use if the University of Idaho published a CAR estimate for that area and with those production practices. Only those shown in bold type are used in CAR estimates.

Prior to 1991 there was not a consistent method used to determine potato yields in CAR estimates for all three regions. Starting in 1991, yields in all three regions were based on USDA-NASS county or regional-level yield data. From 1991 to 1995, the yield was calculated using a 5-year rolling average. From 1995 through 2003 the yields used were based on a projected yield using exponential smoothing with an alpha value of .20. This procedure eliminated the negative bias that resulted from using historical data to calculate averages when yields were increasing rapidly. Unfortunately, exponential smoothing also produced projected yields that varied widely from actual yield when potato yield variation from one year to the



next was substantial. To avoid this problem, the yield calculation for CAR estimates was switched to a projected 3-year average starting in 2005. For 2006, the 3-year average consisted of two years of historical data and the third year was projected, based on the November USDA crop production report. Starting in 2007, the 3-year average was switched to the three most recent years of published USDA data. For the 2016 CAR estimates, yield data for the 2013, 2014 and 2015 crops were used. The 2016 county-level data for Idaho will not be published until October 2017, so the yields used in calculating the average will always be lagged by one year. Yields used in the CAR estimates are rounded to the nearest 5 hundredweight. These base area yields are then adjusted to account for fumigation, a procedure described later in the report.

For crop reporting purposes, the Idaho NASS Field Office breaks Idaho into regions. The USDA calculates potato yields both for individual counties within a region and for the region itself. The yield estimates used in southwestern and southcentral Idaho CAR estimates are based on the USDA-NASS regions and includes all the counties in that region. Prior to 2001, yields in eastern Idaho CAR estimates were based on four major commercial potato counties: Bannock, Bingham, Bonneville and Power. Starting in 2001, separate CAR estimates were made for commercial potato production in the southern counties, Bannock, Bingham and Power, and the northern counties: Bonneville, Jefferson and Madison. Starting in 2012, Jefferson County was removed from the northern county's average. (See Tables 6-8.)

Because of changes in how yields were calculated and other procedural changes, it can be difficult to make historical comparisons going back more than one year. In this report when procedural changes occur in cost calculations, the previous year's CAR estimate is re-calculated using the new procedure so that the year-to-year change is based on the price and quantity change of inputs, not based on procedural changes. Because of this, the resulting costs for the previous year can be different than those published the previous year.

The potato yields for the non-fumigated 2016 CAR estimates are 10 cwt lower than 2015 for southwestern, 5 cwt higher for southcentral Idaho, and 5 cwt lower for eastern-South Idaho. The potato yields for the fumigated 2016 CAR estimates are 10 cwt lower than 2015 for southwestern, 5 cwt higher for southcentral Idaho, and 5 cwt lower for eastern-South, and eastern-North was unchanged. (See Table 6.) Note that for the sixth year, the yield for Southwestern Idaho uses the Russet Burbank Adjusted Yield, which is 97% of the region's average yield. The increasing use of higher yielding varieties, such as Rangers, made this adjustment necessary.

The following section explains how the yield values used in the fumigation and non-fumigation CAR estimates are derived.

## **Fumigation Yield and Cost Allocation Dilemma**

Fumigation can have a significant impact on per acre production costs and can also have a large impact on potato yield and quality. For an individual grower, this does not pose a problem because the cost and yield increases correspond. In budgeting procedures used to generate potato CAR estimates, the cost increase is not a problem when fumigation is included. There are, however, two yield questions that must be considered. The first question: how much of a yield increase should be attributed to fumigation? The second question: what should the base yield in the non-fumigation CAR estimate be? Since the county and regional yields published by USDA contain both fumigated and non-fumigated potato acreage, USDA values are not appropriate for either a CAR estimate with fumigation or one without fumigation unless some attempt is made to identify and separate the fumigation yield impact in the data.

Historic yields based on USDA data are too low if used in a CAR estimate with the full cost of fumigation included. Historic yields are too high if used in a CAR estimate when no fumigation cost is included. Including only a partial cost for fumigation would be appropriate in calculating average production costs, but not for calculating typical costs where fumigation is either used or it is not. In addition, the methods used by the University of Idaho to obtain farmer production practice data is not consistent with calculating average production costs for a region. Using the USDA yield data and including a partial fumigation cost in a typical budget is not appropriate as it gives the appearance that fumigation is less expensive than it actually is.

The USDA county-level or regional potato yield data are used to calculate a 3-year average yield for a given area. These procedures were discussed in the previous section. This base area yield value is set equal to the weighted average of the fumigated yield and the non-fumigated yield as shown in the following formula. The weights are estimated percentages of potato acres in that region that are fumigated and not fumigated, respectively. The yield adjustment attributable to fumigation as well as the estimated percentage of acres fumigated in each region is shown in Table 9.

### Fumigation Yield Adjustment Factor

$(\% \text{ of acres not fumigated} \times \mathbf{Y}) + (\% \text{ acres fumigated} \times \mathbf{FY}) = \text{Area Average Yield},$

Where  $\mathbf{Y}$  = non-fumigation yield,

$\mathbf{FY}$  = fumigation yield, and

$\mathbf{FY} = \mathbf{Y} + \text{fumigation yield adjustment}$

The following example illustrates how the fumigation adjustment factor was used, given an area yield of 400 cwt, with 60 percent of the potato acreage fumigated and a fumigation yield adjustment of 50 hundredweight per acre. Set up the equation as shown below and solve for Y.

$$\begin{array}{rclcl}
 .4Y & + & .6(Y+50) & = & 400 \\
 .4Y & + & .6Y + 30 & = & 400 \\
 1.0 Y & + & 30 & = & 400 \\
 & & Y & = & 370 \\
 \text{And} & & FY & = & 420 \\
 \text{Check:} & & .4 \times 370 & + & .6 \times 420 & = & 400
 \end{array}$$

Fumigation yield in this example is 420 and non-fumigation yield is 370, while the area average is 400. The fumigation CAR estimate would include the full cost of fumigation and the non-fumigation would have no fumigation costs. Thus, the costs and yields would correspond.

Note: There are limitations to this type of adjustment and there is a lack of publicly available data on which to base fumigation estimates. While not perfect, using this methodology does reduce the previous negative bias that occurred when calculating costs per hundredweight when the benefit of fumigation on yield was included in the region or county yields, but the cost of fumigation was not. Using the percentages of acres fumigated from Table 9 and the number of potato acres grown in each region produces a statewide weighted-average of approximately 50 percent of the potato acreage being fumigated. This falls within the ranges of values of 50-60 percent given by knowledgeable people in the industry.

### **Unresolved Yield Issue: Field-Run vs. Paid**

Regardless of how the area potato yields are calculated, how does this yield compare to the grower's paid yield? The answer will vary depending on whether the potatoes are sold in the fresh or in the process market. The yield data from USDA includes all tubers greater than 1-1/2 inches. Since the University of Idaho CAR estimates do not segment yield into size and grade components that would sell for different prices, the breakeven prices shown in the CAR estimates are what the grower would have to average if paid on a field-run yield in order to cover costs. The issue of paid yield is dealt with in the storage tables for each crop budget found in the Appendix: Tables A-2, B-2, C-2, D-2, E-2 and F-2. One column in each table shows the field-run breakeven prices and an adjacent column shows paid-yield breakeven prices for an assumed paid yield of 95%.

## 2016 Cost of Potato Production Overview and Comparison

Direct comparisons with previously published estimates should not be made without accounting for differences in procedures and assumptions. There are no longer separate storage and non-storage potato budgets as had been published for many years. The base budget contains the operating cost of sorting potatoes, including labor, electricity and repair costs, as well as the ownership costs associated with the equipment used in this operation. Costs in the base budget are to “the end of the piler boom”. If potatoes are being transloaded and hauled to a processor or fresh pack shed, the cost of hauling would need to be added. Storage costs are added to the base cost in a separate table, including the storage ownership costs, annual repairs, and monthly storage operating costs. This is done on both a field-run and paid-yield basis.

Table 10-A summarizes the dollar cost per acre and percentage changes from 2015 to 2016 for major input cost categories, total operating, total ownership, and total costs for the Idaho fumigated cost of production estimates. Table 10-B contains the same information for Idaho’s non-fumigated cost of potato production estimates.

Detailed cost of production estimates for 2015 and 2016 from which the data in Tables 10-A and 10-B were taken are found in the appendix. Appendix A, B, and C containing the fumigated cost of production estimates for southwestern, southcentral and the eastern south region, respectively. While Appendix D, E, and F contain the non-fumigated cost of production estimates for southcentral, eastern south, and eastern north regions, respectively.

In general, the cost of seed and cutting was higher, and the cost of hauling seed was lower. Fertilizer, pesticides and chemicals, custom and consultants were all lower. The lower cost of pesticides and chemicals includes lower prices of some products and a consistent or decreased number of foliar applications of insecticides and fungicides. The cost of power was up in 2016, because of the increased PCA rate (See Table 3 for more detail.). No adjustment was made to the quantity of water applied and irrigation repair costs increased. Fuel costs were lower (See Table 4 for more detail.), and provided substantial cost savings. Higher repair costs on machinery offset only a small portion of the lower fuel costs, keeping overall machinery operating expenses substantially lower in 2016. Labor costs were up approximately 3.5% across the board. Interest rates on borrowed capital were up slightly.

Overall, operating costs per acre and per hundredweight were lower in 2016. Operating costs per acre decreased between \$135 and \$260 per acre, or 38 to 53 cents per hundredweight. Ownership costs per acre were up in some regions and down in some regions, reflecting both higher equipment costs, which pushes up depreciation and interest (capital recovery), as well as higher land costs. Ownership costs varied from up 2 cents to down 6 cents per hundredweight.

Total costs per acre and per hundredweight were down in all three regions. With a yield decrease in southwestern and southeastern Idaho, the percentage change in total costs per hundredweight were the greatest of any region. Total costs per acre decreases ranged from \$143 to \$276, while total cost per hundredweight decreased by 38 to 59 cents.

### Cost of Production Summaries and Comparisons by Region

Table 11-A and 11-B summarizes production costs for 2015 and 2016 for operating, ownership and total costs per acre, as well as per acre dollar and percentage changes between these years. Table 11-A has the fumigated and 11-B contains the non-fumigated budgets. Table 12-A and 12-B summarizes production costs for 2015 and 2016 for operating, ownership and total costs per hundredweight, and the change per hundredweight and percentage between years. Because the yields used in budgets for 2016 were different than those used in 2015, the percentage changes per hundredweight were different than the percentage changes per acre.

The total cost to raise, harvest and sort potatoes in the three regions of southern Idaho for 2016 presented in this report ranged from a low of \$2,236 per acre in eastern Idaho-north (nonfumigation) up to \$3,466 in southwestern Idaho (with fumigation). (See Tables 11-A and 11-B.) There is a 55% difference from low to high. The range in values per hundredweight is not so extreme, only a 10% difference. The 2016 total cost to raise, harvest and sort potatoes ranged from \$6.21 per hundredweight in eastern Idaho-north up to \$6.86 in southwestern Idaho. (See Tables 12-A and 12-B.)

### Adjustments for 2016

There were a number product changes in the potato cost of production estimates shown in this report, as well as quantity changes on some inputs. These changes were primarily associated with foliar fungicides and foliar insecticides. Changes in products or quantities shown in the detailed cost estimates found in the appendix are shown in green.

**Table 1. Idaho potato costs and returns estimates by region for 2016.**

Region/Publication No.	Variety	Fumigation	Storage Costs
<b>Commercial Potatoes</b>			
<u>Southwestern:</u>			
EBB2-Po2-16	Russet Burbank	Yes	Yes
<u>Southcentral:</u>			
EBB3-Po2-16	Russet Burbank	No	Yes
EBB3-Po3-16	Russet Burbank	Yes	Yes
<u>Eastern - South Counties:</u>			
EBB4-Po5-16	Russet Burbank	No	Yes
EBB4-Po6-16	Russet Burbank	Yes	Yes
<u>Eastern - North Counties:</u>			
EBB4-Po2-16	Russet Burbank	No	Yes

Eastern - South Counties: Bannock, Bingham and Power.

Eastern - North Counties: Bonneville and Madison, Jefferson County was dropped in 2012.

Note: the potato publication codes (EBB2-Po1-16 for example) are used in this report to simplify historical comparisons.

**Table 2. Model farm size and potato acreage by region.**

	2009 - 2012		2013 - 2016	
	Farm	Potato	Farm	Potato
Southwestern	1200	300	1600	500
Southcentral	1800	450	2200	550
Eastern	1800	600	2400	800

**Table 3. Interest rates, labor charges and power rates used in CAR estimates: 2013 - 2016 and percentage changes from 2015 to 2016.**

	2013	2014	2015	2016	Change
Operating Interest Rate	5.75%	6.00%	5.75%	6.00%	4.3%
Intermediate Interest Rate	6.00%	5.75%	5.50%	5.75%	4.5%
<u>Labor Class (overhead)</u>					
Equipment Operator Labor (25%)	\$17.80	\$18.10	\$18.50	\$19.15	3.5%
Truck Driver Labor	\$13.80	\$14.05	\$14.40	\$14.90	3.5%
Irrigation Labor: HL & WL (30%)	\$12.60	\$12.85	\$13.15	\$13.60	3.4%
Irrigation Labor: CP (25%)	\$17.80	\$18.10	\$18.50	\$19.15	3.5%
Irrigation Labor: Chem-Fert (25%)	\$17.80	\$18.10	\$18.50	\$19.15	3.5%
General Farm Labor (15%)	\$10.25	\$10.40	\$10.65	\$11.00	3.3%
Power Rate: Idaho Power Irrigation Service Schedule 24					
Monthly Service Charge	\$22.00	\$22.00	\$22.00	\$22.00	0.0%
Demand Charge: irrigation season	\$7.01	\$7.01	\$7.01	\$7.01	0.0%
Base Rate: per kWh	\$0.04913	\$0.05645	\$0.05645	\$0.05645	0.0%
First 164 kWh per kW of Demand	\$0.05060	\$0.05792	\$0.05792	\$0.05792	0.0%
All Other kWh per kW of Demand	\$0.04767	\$0.05499	\$0.05499	\$0.05499	0.0%
Power Cost Adjustment per kWh	\$0.01176	\$0.00526	\$0.00444	\$0.00567	27.9%
Effective Rate: per kWh	\$0.06090	\$0.06172	\$0.06089	\$0.06212	2.0%
Pumping Cost per Acre Inch	\$1.90	\$1.91	\$1.90	\$1.94	2.1%

Pumping cost is calculated using Idaho Power Company rates for a 160-acre center pivot with a corner system: 69% pumping plant efficiency and with zero lift.

**Table 4-a. Current and historical fuel and water assessment prices for Southwestern Idaho: 2013 - 2016 and percentage change from 2015 to 2016.**

	2013	2014	2015	2016	Change
Gasoline	\$3.70	\$3.60	\$2.65	\$2.35	-11.3%
Off-Road Diesel	\$3.60	\$3.55	\$2.45	\$2.10	-14.3%
Road Diesel	\$4.10	\$4.05	\$2.95	\$2.55	-13.6%
Water Assessment	\$48.85	\$50.60	\$50.60	\$53.50	5.7%

**Table 4-b. Current and historical fuel and water assessment prices for Southcentral Idaho: 2013 - 2016 and percentage change from 2015 to 2016.**

	2013	2014	2015	2016	Change
Gasoline	\$3.60	\$3.55	\$2.50	\$2.20	-12.0%
Off-Road Diesel	\$3.55	\$3.50	\$2.30	\$1.95	-15.2%
Road Diesel	\$4.10	\$4.00	\$2.85	\$2.45	-14.0%
Water Assessment	\$45.30	\$45.60	\$45.60	\$47.50	4.2%

**Table 4-c. Current and historical fuel and water assessment prices for Eastern Idaho: 2013 - 2016 and percentage change from 2015 to 2016.**

	2013	2014	2015	2016	Change
Gasoline	\$3.60	\$3.50	\$2.50	\$2.20	-12.0%
Off-Road Diesel	\$3.50	\$3.45	\$2.35	\$2.00	-14.9%
Road Diesel	\$4.00	\$3.95	\$2.85	\$2.45	-14.0%
Water Assessment: All	\$15.80	\$15.90	\$15.90	\$16.70	5.0%
E. Idaho South District	\$35.00	\$35.00	\$35.00	\$37.00	5.7%
E. Idaho North District	\$11.95	\$12.05	\$12.05	\$12.50	3.7%



**Table 5. Current and historical fertilizer components prices for Southern Idaho: 2013 - 2016 and percentage change from 2015 to 2016.**

	2013	2014	2015	2016	Change
Dry Nitrogen (46-0-0)	\$0.66	\$0.58	\$0.55	\$0.41	-25.5%
Liquid Nitrogen (32-0-0)	\$0.82	\$0.72	\$0.73	\$0.48	-34.2%
P <sub>2</sub> O <sub>5</sub> Dry (11-52-0)*	\$0.53	\$0.48	\$0.53	\$0.37	-30.2%
P <sub>2</sub> O <sub>5</sub> Liquid (10-34-0)*	\$0.76	\$0.61	\$0.72	\$0.60	-16.7%
K <sub>2</sub> O (0-0-60)	\$0.50	\$0.41	\$0.44	\$0.29	-34.1%
Sulfur	\$0.25	\$0.25	\$0.27	\$0.23	-14.8%

\*Nitrogen in 11-52-0 and 10-34-0 was valued at the price of N in urea and solution 32, respectively.

**Table 6. Calculated potato yields used in published University of Idaho costs and returns estimates by region, both with and without fumigation: 2012 - 2016. \***

Area	2012	2013	2014	2015	2016
	cwt	cwt	cwt	cwt	cwt
Southwest Region: Base Yield	528	538	530	522	512
Potatoes: No Fumigation	485	490	490	480	470
<b>Potatoes: Fumigation</b>	<b>550</b>	<b>550</b>	<b>540</b>	<b>530</b>	<b>520</b>
<b>Adj. Russet Burbank: Fumigation</b>	<b>530</b>	<b>530</b>	<b>525</b>	<b>515</b>	<b>505</b>
Southcentral Region: Base Yield	440	431	443	449	456
<b>Russet Burbank: No Fumigation</b>	<b>415</b>	<b>410</b>	<b>420</b>	<b>425</b>	<b>430</b>
<b>Russet Burbank: Fumigation</b>	<b>470</b>	<b>445</b>	<b>465</b>	<b>470</b>	<b>475</b>
Eastern Region: Russet Burbank:					
South Counties*: Base Yield	395	392	395	400	395
<b>South: No Fumigation</b>	<b>375</b>	<b>375</b>	<b>380</b>	<b>385</b>	<b>380</b>
<b>South: Fumigation</b>	<b>420</b>	<b>410</b>	<b>420</b>	<b>425</b>	<b>420</b>
North Counties*: Base Yield	360	360	368	373	374
<b>North: No Fumigation</b>	<b>350</b>	<b>350</b>	<b>355</b>	<b>360</b>	<b>360</b>
North: Fumigation	390	380	385	390	390

Note: Values in bold indicate published CAR estimates. There are no published CAR estimates for those not in bold. These are shown only for reference and comparison.

\*Eastern Idaho North Counties: Bonneville and Madison. Jefferson County was dropped in 2012.

\*Eastern Idaho South Counties: Bannock, Bingham and Power.

Note: Russet Burbank adjustment factor on SWI is -3%. This was first used in 2011.

**Table 7. Potato yields published by USDA for crop years 2011 - 2015 and the 3-year averages based on the most recent published data.**

Area	2011	2012	2013	2014	2015	3-Year
						Average
Southwest Region	540	530	520	515	500	512
Southcentral Region	429	435	465	447	na	456
Eastern Region	383	394	388	395	386	390
South District	399	406	395	400	391	395
North District	369	373	364	383	375	374
Statewide	404	412	415	415	405	412

Source: USDA-NASS.

Note: Yields for Eastern - North District are the revised yields that include only Bonneville and Madison Counties.

South District contains only Bingham County data. Power and Bannock not published.

**Table 8. Historical potato yields published by USDA for the primary commercial potato counties in Eastern Idaho for 2011 - 2015 and historical 3-year average for crop year.**

Area	2011	2012	2013	2014	2015	3-Year
						Average
<u>North District Counties:</u>						
Bonneville	370	360	359	381	na	370
Madison	367	385	369	384	379	377
2-County Average	369	372	364	383		374
Jefferson	471	na	na	na	na	
<u>South District Counties:</u>						
Bannock	na	400	na	na	na	
Bingham	384	406	395	400	391	395
Power	414	na	na	na	na	
3-County Average	399	403				

Source: USDA-NASS.

Note: Jefferson County was dropped from the North District in 2012 (2011 potato crop year).

Values for previous years were re-calculated using only Bonneville and Madison Counties.

3-Year averages are based on the last three years where data was published.

Note: County-level data was not published for either Bannock or Power Counties for 2013-2015.

**Table 9. Fumigation percentage by region and yield adjustment factors by region.**

<b>Region</b>	<b>Acres Fumigated</b>	<b>Fumigation Adjustment</b>
Southwestern	80%	+ 50 cwt
Southcentral	60%	+ 40 cwt
Southeastern		
South District	50%	+ 35 cwt
North District	40%	+ 30 cwt

Notes:

Southwestern increased from 65% to 80% in 2013 and yield increase dropped from 65 to 50 cwt.

Southcentral increased from 55% to 60% in 2013 and yield increase dropped from 55 to 40 cwt.

South District increased from 45% to 50% in 2013 and yield increase dropped from 45 to 35 cwt.

North District increased from 30% to 45% in 2013 and yield increase dropped from 40 to 30 cwt.

**Table 10-A. Change in per acre cost of production by major cost category from 2015 to 2016 for fumigated Russet Burbank potatoes in three production regions of Idaho.**

Item	Southwestern Idaho Change from 2015 Fumigated EBB4-Po2		Southcentral Idaho Change from 2015 Fumigated EBB3-Po3		Eastern Idaho - S. Change from 2015 Fumigated EBB4-Po6	
	\$	%	\$	%	\$	%
<b>Yield</b>	-10	-1.9%	5	1.1%	-5	-1.2%
<b>Operating Inputs</b>	\$	%	\$	%	\$	%
Seed & Cutting	\$7.20	2.0%	\$9.20	2.8%	\$9.45	3.3%
Fertilizer	-\$144.10	-26.4%	-\$131.45	-26.9%	-\$120.85	-27.0%
Chemicals & Pesticides	-\$86.58	-13.7%	-\$56.42	-10.4%	-\$82.25	-17.3%
Custom & Consultants	-\$28.25	-17.9%	-\$32.00	-20.3%	-\$11.25	-9.4%
Irrigation: Water, Power, Repairs	\$3.52	2.8%	\$2.48	2.1%	\$2.51	2.6%
Machinery: Fuel & Repairs	-\$11.73	-7.6%	-\$10.23	-8.2%	-\$10.54	-8.3%
Field Labor	\$7.72	3.5%	\$6.13	3.5%	\$5.48	3.5%
Sorting: Labor, Repairs & Power	\$0.30	0.4%	\$2.32	3.5%	\$0.72	1.2%
Other: Fees & Crop Insurance	-\$1.62	-1.0%	\$0.90	0.6%	-\$0.72	-0.5%
Operating Interest	-\$6.91	-8.2%	-\$2.94	-4.0%	-\$3.57	-5.5%
Total Operating Costs	-\$260.45	-10.4%	-\$212.01	-9.5%	-\$211.01	-10.6%
Operating Costs per Cwt	-\$0.42	-8.6%	-\$0.50	-10.5%	-\$0.45	-9.5%
<b>Ownership Costs</b>						
Tractors, Trucks & Field Equip.	\$3.00	1.5%	\$2.00	1.1%	\$2.00	1.2%
Potato Handling Equipment	\$2.00	2.7%	\$1.50	2.2%	\$1.50	2.5%
Land*	\$0.00	0.0%	\$0.00	0.0%	\$0.00	0.0%
Overhead	-\$7.00	-11.1%	-\$4.50	-8.0%	-\$5.00	-10.0%
Management Fee	-\$14.00	-7.5%	-\$9.00	-5.4%	-\$10.00	-6.8%
Total Ownership Costs	-\$15.82	-1.3%	-\$9.83	-0.9%	-\$11.35	-1.2%
Ownership Costs per Cwt	\$0.02	0.7%	-\$0.05	-1.9%	\$0.00	0.0%
<b>Total Costs</b>						
Total Costs per Acre	-\$276.27	-7.4%	-\$221.84	-6.6%	-\$222.36	-7.5%
Total Costs per Cwt	-\$0.40	-5.5%	-\$0.54	-7.6%	-\$0.45	-6.4%

Note: Cost of production refers to the cost to grow, harvest and sort potatoes. The cost of on-farm storage is not included. See appendix for detailed cost comparison and for storage costs by month.

**Table 10-B. Change in per acre cost of production by major cost category from 2015 to 2016 for non-fumigated Russet Burbank potatoes in three production regions of Idaho.**

Item	Southcentral Idaho Change from 2015 Non-Fumigated EBB3-Po2		Eastern Idaho - S. Change from 2015 Non-Fumigated EBB4-Po5		Eastern Idaho - N. Change from 2015 Non-Fumigated EBB4-Po2	
	\$	%	\$	%	\$	%
<b>Yield</b>	5	1.2%	-5	-1.3%	0	0.0%
<b>Operating Inputs</b>	\$	%	\$	%	\$	%
Seed & Cutting	\$9.20	2.8%	\$9.45	3.3%	\$10.50	3.8%
Fertilizer	-\$120.60	-26.8%	-\$109.35	-26.4%	-\$96.00	-24.6%
Chemicals & Pesticides	-\$61.17	-19.2%	-\$56.05	-21.0%	-\$35.83	-15.0%
Custom & Consultants	-\$30.00	-26.5%	-\$9.25	-12.2%	-\$9.00	-13.4%
Irrigation: Water, Power, Repairs	\$2.44	2.2%	\$2.48	2.7%	\$0.71	1.0%
Machinery: Fuel & Repairs	-\$10.22	-8.2%	-\$10.49	-8.3%	-\$10.82	-8.6%
Field Labor	\$5.92	3.5%	\$5.38	3.5%	\$5.44	3.5%
Sorting: Labor, Repairs & Power	\$2.17	3.6%	\$0.58	1.1%	\$1.22	2.4%
Other: Fees & Crop Insurance	\$0.90	0.7%	-\$0.90	-0.6%	\$0.00	0.0%
Operating Interest	-\$4.46	-8.2%	-\$2.10	-4.4%	-\$1.60	-3.6%
Total Operating Costs	-\$205.82	-11.0%	-\$170.24	-10.2%	-\$135.38	-8.7%
Operating Costs per Cwt	-\$0.53	-12.0%	-\$0.39	-9.0%	-\$0.38	-8.7%
<b>Ownership Costs</b>						
Tractors, Trucks & Field Equip.	\$3.00	1.6%	\$2.00	1.2%	\$2.00	1.2%
Potato Handling Equipment	\$1.50	2.5%	\$1.50	2.7%	\$1.00	1.9%
Land*	\$0.00	0.0%	\$0.00	0.0%	\$0.00	0.0%
Overhead	-\$6.00	-12.8%	-\$4.00	-9.5%	-\$3.50	-9.0%
Management Fee	-\$12.00	-8.2%	-\$8.00	-6.2%	-\$7.00	-5.9%
Total Ownership Costs	-\$13.33	-1.2%	-\$8.35	-0.9%	-\$7.35	-0.9%
Ownership Costs per Cwt	-\$0.06	-2.4%	\$0.01	0.4%	-\$0.02	-0.9%
<b>Total Costs</b>						
Total Costs per Acre	-\$219.15	-7.5%	-\$178.59	-6.9%	-\$142.73	-6.0%
Total Costs per Cwt	-\$0.59	-8.5%	-\$0.38	-5.6%	-\$0.40	-6.0%

Note: Cost of production refers to the cost to grow, harvest and sort potatoes. The cost of on-farm storage is not included. See appendix for detailed cost comparison and for storage costs by month.

**Table 11-A. Cost of production per acre for irrigated Russet Burbank potatoes by region for 2015 and 2016 and change in costs between these years.**

	<b>Southwestern Russet Burbank with Fumigation</b>	<b>Southcentral Russet Burbank with Fumigation</b>	<b>Eastern - South Russet Burbank with Fumigation</b>
	<b>Po2</b>	<b>Po3</b>	<b>Po6</b>
2015 Operating Cost	\$2,511	\$2,228	\$1,993
2016 Operating Cost	\$2,250	\$2,016	\$1,782
\$ Change	<b>-\$260</b>	<b>-\$212</b>	<b>-\$211</b>
% Change	<b>-10.4%</b>	<b>-9.5%</b>	<b>-10.6%</b>
2015 Ownership Cost	\$1,232	\$1,111	\$971
2016 Ownership Cost	\$1,216	\$1,101	\$960
\$ Change	<b>-\$16</b>	<b>-\$10</b>	<b>-\$11</b>
% Change	<b>-1.3%</b>	<b>-0.9%</b>	<b>-1.2%</b>
2015 Total Cost	\$3,743	\$3,339	\$2,964
2016 Total Cost	\$3,466	\$3,117	\$2,742
\$ Change	<b>-\$276</b>	<b>-\$222</b>	<b>-\$222</b>
% Change	<b>-7.4%</b>	<b>-6.6%</b>	<b>-7.5%</b>

Note: values are rounded and may not add up.

**Table 11-B. Cost of production per acre for irrigated Russet Burbank potatoes by region for 2015 and 2016 and change in costs between these years.**

	<b>Southcentral Russet Burbank with No Fumigation</b>	<b>Eastern - South Russet Burbank with No Fumigation</b>	<b>Eastern - North Russet Burbank with No Fumigation</b>
	<b>Po2</b>	<b>Po5</b>	<b>Po2</b>
2015 Operating Cost	\$1,869	\$1,669	\$1,554
2016 Operating Cost	\$1,663	\$1,499	\$1,418
\$ Change	<b>-\$206</b>	<b>-\$170</b>	<b>-\$135</b>
% Change	<b>-11.0%</b>	<b>-10.2%</b>	<b>-8.7%</b>
2015 Ownership Cost	\$1,069	\$938	\$825
2016 Ownership Cost	\$1,056	\$929	\$818
\$ Change	<b>-\$13</b>	<b>-\$8</b>	<b>-\$7</b>
% Change	<b>-1.2%</b>	<b>-0.9%</b>	<b>-0.9%</b>
2015 Total Cost	\$2,938	\$2,607	\$2,379
2016 Total Cost	\$2,719	\$2,428	\$2,236
\$ Change	<b>-\$219</b>	<b>-\$179</b>	<b>-\$143</b>
% Change	<b>-7.5%</b>	<b>-6.9%</b>	<b>-6.0%</b>

Note: values are rounded and may not add up.

**Table 12-A. Cost of production per cwt for irrigated Russet Burbank potatoes by region for 2015 and 2016 and change in costs between these years.**

	<b>Southwestern</b>	<b>Southcentral</b>	<b>Eastern - South</b>
	<b>Russet Burbank with Fumigation</b>	<b>Russet Burbank with Fumigation</b>	<b>Russet Burbank with Fumigation</b>
	<b>Po2</b>	<b>Po3</b>	<b>Po6</b>
2015 Operating Cost	\$4.88	\$4.74	\$4.69
2016 Operating Cost	\$4.46	\$4.24	\$4.24
\$ Change	<b>-\$0.42</b>	<b>-\$0.50</b>	<b>-\$0.45</b>
% Change	<b>-8.6%</b>	<b>-10.5%</b>	<b>-9.5%</b>
2015 Ownership Cost	\$2.39	\$2.36	\$2.28
2016 Ownership Cost	\$2.41	\$2.32	\$2.29
\$ Change	<b>\$0.02</b>	<b>-\$0.05</b>	<b>\$0.00</b>
% Change	<b>0.7%</b>	<b>-1.9%</b>	<b>0.0%</b>
2015 Total Cost	\$7.27	\$7.10	\$6.97
2016 Total Cost	\$6.86	\$6.56	\$6.53
\$ Change	<b>-\$0.40</b>	<b>-\$0.54</b>	<b>-\$0.45</b>
% Change	<b>-5.5%</b>	<b>-7.6%</b>	<b>-6.4%</b>

Note: values are rounded and may not add up.

**Table 12-B. Cost of production per cwt for irrigated Russet Burbank potatoes by region for 2015 and 2016 and change in costs between these years.**

	<b>Southcentral</b>	<b>Eastern - South</b>	<b>Eastern - North</b>
	<b>Russet Burbank with No Fumigation</b>	<b>Russet Burbank with No Fumigation</b>	<b>Russet Burbank with No Fumigation</b>
	<b>Po2</b>	<b>Po5</b>	<b>Po2</b>
2015 Operating Cost	\$4.40	\$4.34	\$4.32
2016 Operating Cost	\$3.87	\$3.95	\$3.94
\$ Change	<b>-\$0.53</b>	<b>-\$0.39</b>	<b>-\$0.38</b>
% Change	<b>-12.0%</b>	<b>-9.0%</b>	<b>-8.7%</b>
2015 Ownership Cost	\$2.52	\$2.44	\$2.29
2016 Ownership Cost	\$2.46	\$2.45	\$2.27
\$ Change	<b>-\$0.06</b>	<b>\$0.01</b>	<b>-\$0.02</b>
% Change	<b>-2.4%</b>	<b>0.4%</b>	<b>-0.9%</b>
2015 Total Cost	\$6.91	\$6.77	\$6.61
2016 Total Cost	\$6.32	\$6.39	\$6.21
\$ Change	<b>-\$0.59</b>	<b>-\$0.38</b>	<b>-\$0.40</b>
% Change	<b>-8.5%</b>	<b>-5.6%</b>	<b>-6.0%</b>

Note: values are rounded and may not add up.

Appendix A  
Southwestern Idaho  
Irrigated Russet Burbank Potato  
Fumigated



**Table A-1. 2016 Costs to grow, harvest and sort Southwestern Idaho Russet Burbank potatoes with fumigation.**

Item	Quantity Per Acre	Unit	Price or Cost	Value or Cost/Acre
<b>Gross Returns</b>				
Potatoes	505.00	cwt	7.25	\$3,661.25
<b>Total Gross Returns</b>				<b>\$3,661.25</b>
<b>Operating Inputs</b>				
<b>Seed:</b>				
G-3 Russet Burbank Seed	24.00	cwt	13.40	321.60
Seed Cutting	24.00	cwt	1.75	42.00
<b>Fertilizer:</b>				
Dry Nitrogen - Preplant	175.00	lb	0.41	71.75
Dry P2O5	220.00	lb	0.37	81.40
K2O	255.00	lb	0.29	73.95
Sulfur	115.00	lb	0.23	26.45
Liquid Nitrogen	135.00	lb	0.48	64.80
Liquid P2O5	65.00	lb	0.60	39.00
Micronutrients & Foliars	2.00	acre	22.00	44.00
<b>Pesticides &amp; Chemicals:</b>				
Vapam HL 42%	42.00	gal	5.20	218.40
Seed Treatment	24.00	cwt	0.60	14.40
Admire Pro	8.00	fl oz	1.30	10.40
Moncut 70DF	0.80	lb	26.60	21.28
Eptam 7E	4.00	pt	5.80	23.20
Metribuzin 75DF	0.75	lb	12.50	9.38
Prowl 3.3EC	2.00	pt	3.25	6.50
Ridomil Gold MZ	2.50	lb	14.00	35.00
Endura (2x)	7.00	oz	3.50	24.50
Revus Top (2x)	12.00	fl oz	2.25	27.00
Bravo Weather Stik (2x)	3.00	pt	5.35	16.05
Manzate Pro-Stick	2.00	lb	4.65	9.30
Gavel 75DF	2.00	lb	8.50	17.00
Fulfill WDG	5.50	oz	5.25	28.88
Brigadier (2x)	12.00	fl oz	1.30	15.60
Movento	5.00	fl oz	6.90	34.50
Reaper 0.15EC (1x)	12.00	fl oz	0.70	8.40
Beleaf 50SG	2.80	oz	9.50	26.60
<b>Custom &amp; Consultants:</b>				
Custom Fumigate - Deep Injection	1.00	acre	42.00	42.00
Custom Fertilize: 400 - 800 lbs	1.00	acre	7.75	7.75
Custom Fertilize: 0 - 400 lbs	1.00	acre	7.50	7.50
Custom Air Spray - 5 gal	5.00	acre	8.50	42.50
Consultant & Soil/Pet. Test	1.00	acre	30.00	30.00
<b>Irrigation:</b>				
Water Assessment	1.00	acre	53.50	53.50
Irrigation Repairs - Center Pivot	31.00	acre-inch	1.91	59.21
Irrigation Power - Center Pivot	31.00	acre-inch	0.52	16.12
<b>Machinery:</b>				
Fuel - Gas	5.32	gal	2.35	12.50
Fuel - Farm Diesel	22.37	gal	2.10	46.98
Fuel - Road Diesel	2.32	gal	2.55	5.92
Lube	1.00	\$	9.78	9.78
Machinery Repairs	1.00	\$	68.16	68.16
<b>Labor:</b>				
Equipment Operator Labor	4.78	hrs	19.15	91.54
Truck Driver Labor	3.60	hrs	14.90	53.64
Irrigation Labor - Center Pivot	1.28	hrs	19.15	24.51
Irrigation Labor - Chem-Fert	1.20	hrs	19.15	22.98
General Farm Labor	3.44	hrs	11.00	37.84
<b>Sorting:</b>				
Sorting Labor	505.00	cwt	0.111	56.06
Sorting Equipment Repairs & Power	505.00	cwt	0.034	17.17
<b>Other:</b>				
Crop Insurance	1.00	acre	70.00	70.00
Fees & Assessments	480.00	cwt	0.18	86.40
Interest on Operating Capital at 6.00%				76.90
<b>Total Operating Costs</b>				<b>\$2,250.28</b>
<b>Operating Costs per Unit</b>				<b>\$4.46</b>
<b>Net Returns Above Operating Costs</b>				<b>\$1,410.97</b>

2015	Yield Change		
515	-10	-1.9%	
<b>\$ Change % Change</b>			
<b>\$356.40</b>	<b>\$7.20</b>	<b>2.0%</b>	
315.60	\$6.00	1.9%	
40.80	\$1.20	2.9%	
<b>\$545.45</b>	<b>-\$144.10</b>	<b>-26.4%</b>	
96.25	-\$24.50	-25.5%	
116.60	-\$35.20	-30.2%	
112.20	-\$38.25	-34.1%	
31.05	-\$4.60	-14.8%	
98.55	-\$33.75	-34.2%	
46.80	-\$7.80	-16.7%	
44.00	\$0.00	0.0%	
<b>\$632.96</b>	<b>-\$86.58</b>	<b>-13.7%</b>	
249.90	-\$31.50	-12.6%	
12.00	\$2.40	20.0%	
12.00	-\$1.60	-13.3%	
26.76	-\$5.48	-20.5%	
25.00	-\$1.80	-7.2%	
10.99	-\$1.61	-14.7%	
9.80	-\$3.30	-33.7%	
36.38	-\$1.38	-3.8%	
49.35	-\$24.85	-50.4%	
29.04	-\$2.04	-7.0%	
13.95	\$2.10	15.1%	
9.70	-\$0.40	-4.1%	
15.50	\$1.50	9.7%	
34.38	-\$5.50	-16.0%	
16.20	-\$0.60	-3.7%	
37.50	-\$3.00	-8.0%	
16.80	-\$8.40	-50.0%	
27.72	-\$1.12	-4.0%	
<b>\$158.00</b>	<b>-\$28.25</b>	<b>-17.9%</b>	
48.00	-\$6.00	-12.5%	
8.75	-\$1.00	-11.4%	
8.25	-\$0.75	-9.1%	
63.00	-\$20.50	-32.5%	
30.00	\$0.00	0.0%	
<b>\$125.31</b>	<b>\$3.52</b>	<b>2.8%</b>	
50.60	\$2.90	5.7%	
58.90	\$0.31	0.5%	
15.81	\$0.31	2.0%	
<b>\$155.07</b>	<b>-\$11.73</b>	<b>-7.6%</b>	
14.10	-\$1.60	-11.3%	
54.81	-\$7.83	-14.3%	
6.84	-\$0.93	-13.6%	
11.36	-\$1.58	-13.9%	
67.96	\$0.20	0.3%	
<b>\$222.79</b>	<b>\$7.72</b>	<b>3.5%</b>	
88.43	\$3.11	3.5%	
51.84	\$1.80	3.5%	
23.68	\$0.83	3.5%	
22.20	\$0.78	3.5%	
36.64	\$1.20	3.3%	
<b>\$72.92</b>	<b>\$0.30</b>	<b>0.4%</b>	
55.41	\$0.64	1.2%	
17.51	-\$0.34	-1.9%	
<b>\$158.02</b>	<b>-\$1.62</b>	<b>-1.0%</b>	
70.00	\$0.00	0.0%	
88.02	-\$1.62	-1.8%	
83.81	-\$6.91	-8.2%	
<b>\$2,510.73</b>	<b>-\$260.45</b>	<b>-10.4%</b>	
<b>\$4.88</b>	<b>-\$0.42</b>	<b>-8.6%</b>	
<b>\$1,351.77</b>			

**Table A-1. 2016 Costs to grow, harvest and sort Southwestern Idaho Russet Burbank potatoes with fumigation.**

Item	Quantity Per Acre	Unit	Price or Cost	Value or Cost/Acre
<b>Ownership Costs:</b>				
Tractors & Equipment Insurance				6.00
Tractors & Equipment Depreciation & Interest				204.00
Potato Handling Equipment Deprec. & Interest				77.00
Land*				700.00
Overhead				56.00
Management Fee				173.00
<b>Total Ownership Costs</b>				<b>\$1,216.00</b>
<b>Ownership Costs per Unit</b>				<b>\$2.41</b>
<b>Total Costs per Acre</b>				<b>\$3,466.28</b>
<b>Total Cost per Unit</b>				<b>\$6.86</b>
<b>Returns to Risk</b>				<b>\$194.97</b>
Notes:				
*Includes irrigation system ownership costs.				
Blue font indicates an increase.				
Red font indicates a decrease.				
A green font indicates a change in product or procedure to derive the cost.				
Procedural changes can result in different costs than were published the previous year.				
<b>Breakeven Analysis:</b>				
	-	Base	+	
	5%		5%	
		<b>Yield</b>		
<u>Price</u>	<b>479.75</b>	<b>505</b>	<b>530.25</b>	
Operating Cost Breakeven	\$4.69	\$4.46	\$4.24	
Ownership Cost Breakeven	\$2.53	\$2.41	\$2.29	
Total Cost Breakeven	\$7.23	\$6.86	\$6.54	
		<b>Price</b>		
<u>Yield</u>	<b>\$6.89</b>	<b>\$7.25</b>	<b>\$7.61</b>	
Operating Cost Breakeven	326.7	310.4	295.6	
Ownership Cost Breakeven	176.6	167.7	159.7	
Total Cost Breakeven	503.3	478.1	455.3	

	5.82	\$0.18	3.1%
	201.00	\$3.00	1.5%
	75.00	\$2.00	2.7%
	700.00	\$0.00	0.0%
	63.00	-\$7.00	-11.1%
	187.00	-\$14.00	-7.5%
<b>Total Ownership Costs</b>	<b>\$1,231.82</b>	<b>-\$15.82</b>	<b>-1.3%</b>
<b>Ownership Costs per Unit</b>	<b>\$2.39</b>	<b>\$0.02</b>	<b>0.7%</b>
<b>Total Costs per Acre</b>	<b>\$3,742.55</b>	<b>-\$276.27</b>	<b>-7.4%</b>
<b>Total Cost per Unit</b>	<b>\$7.27</b>	<b>-\$0.40</b>	<b>-5.5%</b>
<b>Returns to Risk</b>	<b>\$119.95</b>		

**Table A-2. 2016 Cost per cwt to grow, harvest, sort and store Southwestern Idaho Russet Burbank potatoes with fumigation based on both field-run and paid yield.**

	Storage Costs	Field Run Cost per Cwt	Paid Yield Cost per Cwt
Field-Run Yield		505.00	
Paid Yield %	95%		479.8
<b>Base Cost to Grow, Harvest &amp; Sort</b>		<b>\$6.86</b>	<b>\$7.23</b>
Storage System Annual Ownership Costs	\$0.358	\$0.358	\$0.377
Base Cost + Storage Ownership Costs		\$7.22	\$7.60
Storage System Annual Repairs	\$0.041	\$0.041	\$0.043
Base + Storage System Ownership & Repairs		\$7.26	\$7.65
	<b>Cumulative Storage Op. Costs</b>	<b>Cumulative Base + All Storage Costs</b>	<b>Cumulative Base + All Storage Costs</b>
October	\$0.222	\$7.48	\$7.88
November*	\$0.398	\$7.66	\$8.06
December	\$0.485	\$7.75	\$8.16
January	\$0.576	\$7.84	\$8.25
<b>February</b>	<b>\$0.664</b>	<b>\$7.93</b>	<b>\$8.34</b>
March	\$0.753	\$8.02	\$8.44
April	\$0.945	\$8.21	\$8.64
May	\$1.055	\$8.32	\$8.76
June	\$1.184	\$8.45	\$8.89

Data entered directly by user. All other values are calculated.

Calculated values.

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, air system, and the equipment used to place.

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

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

\* Indicates month when sprout inhibitor applied.

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

Appendix B  
Southcentral Idaho  
Irrigated Russet Burbank Potato

**Table B-1. 2016 Costs to grow, harvest and sort Southcentral Idaho Russet Burbank potatoes with fumigation.**

Item	Quantity Per Acre	Unit	Price or Cost	Value or Cost/Acre	2015	Yield Change		
<b>Gross Returns</b>								
Potatoes	475.00	cwt	7.00	\$3,325.00	470	5	1.1%	
<b>Total Gross Returns</b>				<b>\$3,325.00</b>				
<b>Operating Inputs</b>								
<b>Seed:</b>					<b>\$339.25</b>	<b>\$330.05</b>	<b>\$9.20</b>	<b>2.8%</b>
G-3 Russet Burbank Seed	23.00	cwt	13.00	299.00	290.95	\$8.05	2.8%	
Seed Cutting	23.00	cwt	1.75	40.25	39.10	\$1.15	2.9%	
<b>Fertilizer:</b>					<b>\$357.80</b>	<b>\$489.25</b>	<b>-\$131.45</b>	<b>-26.9%</b>
Dry Nitrogen - Preplant	175.00	lb	0.41	71.75	96.25	-\$24.50	-25.5%	
Dry P2O5	220.00	lb	0.37	81.40	116.60	-\$35.20	-30.2%	
K2O	235.00	lb	0.29	68.15	103.40	-\$35.25	-34.1%	
Sulfur	90.00	lb	0.23	20.70	24.30	-\$3.60	-14.8%	
Liquid Nitrogen	110.00	lb	0.48	52.80	80.30	-\$27.50	-34.2%	
Liquid P2O5	45.00	lb	0.60	27.00	32.40	-\$5.40	-16.7%	
Micronutrients & Foliars	2.00	acre	18.00	36.00	36.00	\$0.00	0.0%	
<b>Pesticides &amp; Chemicals:</b>					<b>\$487.88</b>	<b>\$544.30</b>	<b>-\$56.42</b>	<b>-10.4%</b>
Metam CLR (42%)	40.00	gal	5.80	232.00	226.00	\$6.00	2.7%	
Seed Treatment	23.00	cwt	0.60	13.80	11.50	\$2.30	20.0%	
Admire Pro	8.00	oz	1.30	10.40	12.00	-\$1.60	-13.3%	
Quadris Flowable	8.00	fl oz	1.65	13.20	18.40	-\$5.20	-28.3%	
Outlook 6EC	20.00	fl oz	1.00	20.00	20.40	-\$0.40	-2.0%	
Prowl 3.3EC	2.00	pt	3.25	6.50	9.80	-\$3.30	-33.7%	
Metribuzin 75DF	0.75	lb	12.50	9.38	10.99	-\$1.61	-14.7%	
Endura	5.50	oz	3.50	19.25	25.85	-\$6.60	-25.5%	
Dithane F45 Rainshield (2x)	3.75	qt	8.00	30.00	48.72	-\$18.72	-38.4%	
Tanos	6.00	oz	2.65	15.90	16.50	-\$0.60	-3.6%	
Gavel 75DF	2.00	lb	8.50	17.00	15.50	\$1.50	9.7%	
Revus Top	7.00	fl oz	2.25	15.75	16.94	-\$1.19	-7.0%	
Brigadier (2x)	12.00	fl oz	1.30	15.60	24.30	-\$8.70	-35.8%	
Movento	5.00	fl oz	6.90	34.50	37.50	-\$3.00	-8.0%	
Agri-Mek .75SC (2x)	7.00	fl oz	2.50	17.50	27.30	-\$9.80	-35.9%	
Reglone	1.00	qt	17.10	17.10	22.60	-\$5.50	-24.3%	
<b>Custom &amp; Consultants:</b>					<b>\$125.25</b>	<b>\$157.25</b>	<b>-\$32.00</b>	<b>-20.3%</b>
Custom Fumigate - Deep Injection	1.00	acre	42.00	42.00	44.00	-\$2.00	-4.5%	
Custom Fertilize: 400 - 800 lbs	1.00	acre	7.75	7.75	7.75	\$0.00	0.0%	
Custom Fertilize: 0 - 400 lbs	1.00	acre	7.50	7.50	7.25	\$0.25	3.4%	
Custom Air Spray - 7.5 gal	4.00	acre	9.50	38.00	68.25	-\$30.25	-44.3%	
Consultant & Soil/Pet. Test	1.00	acre	30.00	30.00	30.00	\$0.00	0.0%	
<b>Irrigation:</b>					<b>\$117.97</b>	<b>\$115.49</b>	<b>\$2.48</b>	<b>2.1%</b>
Water Assessment	1.00	acre	47.50	47.50	45.60	\$1.90	4.2%	
Irrigation Repairs - Center Pivot	29.00	acre-inch	1.91	55.39	55.10	\$0.29	0.5%	
Irrigation Power - Center Pivot	29.00	acre-inch	0.52	15.08	14.79	\$0.29	2.0%	
<b>Machinery:</b>					<b>\$114.85</b>	<b>\$125.09</b>	<b>-\$10.23</b>	<b>-8.2%</b>
Fuel - Gas	4.59	gal	2.20	10.10	11.48	-\$1.38	-12.0%	
Fuel - Farm Diesel	19.41	gal	1.95	37.85	44.64	-\$6.79	-15.2%	
Fuel - Road Diesel	2.28	gal	2.45	5.59	6.50	-\$0.91	-14.0%	
Lube	1.00	\$	8.08	8.08	9.39	-\$1.31	-14.0%	
Machinery Repairs	1.00	\$	53.24	53.24	53.08	\$0.16	0.3%	
<b>Labor:</b>					<b>\$182.58</b>	<b>\$176.45</b>	<b>\$6.13</b>	<b>3.5%</b>
Equipment Operator Labor	4.52	hrs	19.15	86.56	83.62	\$2.94	3.5%	
Truck Driver Labor	2.00	hrs	14.90	29.80	28.80	\$1.00	3.5%	
Irrigation Labor - Center Pivot	1.16	hrs	19.15	22.21	21.46	\$0.75	3.5%	
Irrigation Labor - Chem-Fert	1.00	hrs	19.15	19.15	18.50	\$0.65	3.5%	
General Farm Labor	2.26	hrs	11.00	24.86	24.07	\$0.79	3.3%	
<b>Sorting:</b>					<b>\$68.88</b>	<b>\$66.55</b>	<b>\$2.32</b>	<b>3.5%</b>
Sorting Labor	475.00	cwt	0.111	52.73	50.57	\$2.15	4.3%	
Sorting Equipment Repairs & Power	475.00	cwt	0.034	16.15	15.98	\$0.17	1.1%	
<b>Other:</b>					<b>\$151.18</b>	<b>\$150.28</b>	<b>\$0.90</b>	<b>0.6%</b>
Crop Insurance	1.00	acre	70.00	70.00	70.00	\$0.00	0.0%	
Fees & Assessments	451.00	cwt	0.18	81.18	80.28	\$0.90	1.1%	
Interest on Operating Capital at 6.00%				\$70.30	73.24	-\$2.94	-4.0%	
<b>Total Operating Costs</b>				<b>\$2,015.94</b>	<b>\$2,227.94</b>	<b>-\$212.01</b>	<b>-9.5%</b>	
<b>Operating Costs per Unit</b>				<b>\$4.24</b>	<b>\$4.74</b>	<b>-\$0.50</b>	<b>-10.5%</b>	
<b>Net Returns Above Operating Costs</b>				<b>\$1,309.06</b>	<b>\$1,179.56</b>			

**Table B-1. 2016 Costs to grow, harvest and sort Southcentral Idaho Russet Burbank potatoes with fumigation.**

Item	Quantity Per Acre	Unit	Price or Cost	Value or Cost/Acre
<b>Ownership Costs:</b>				
Tractors & Equipment Insurance				5.73
Tractors & Equipment Depreciation & Interest				190.00
Potato Handling Equipment Deprec. & Interest				70.50
Land*				625.00
Overhead				51.50
Management Fee				158.00
<b>Total Ownership Costs</b>				<b>\$1,100.73</b>
<b>Ownership Costs per Unit</b>				<b>\$2.32</b>
<b>Total Costs per Acre</b>				<b>\$3,116.67</b>
<b>Total Cost per Unit</b>				<b>\$6.56</b>
<b>Returns to Risk</b>				<b>\$208.33</b>

	5.56	\$0.17	3.1%
	188.00	\$2.00	1.1%
	69.00	\$1.50	2.2%
	625.00	\$0.00	0.0%
	56.00	-\$4.50	-8.0%
	167.00	-\$9.00	-5.4%
<b>Total Ownership Costs</b>	<b>\$1,110.56</b>	<b>-\$9.83</b>	<b>-0.9%</b>
<b>Ownership Costs per Unit</b>	<b>\$2.36</b>	<b>-\$0.05</b>	<b>-1.9%</b>
<b>Total Costs per Acre</b>	<b>\$3,338.50</b>	<b>-\$221.84</b>	<b>-6.6%</b>
<b>Total Cost per Unit</b>	<b>\$7.10</b>	<b>-\$0.54</b>	<b>-7.6%</b>
<b>Returns to Risk</b>	<b>\$69.00</b>		

**Notes:**

\*Includes irrigation system ownership costs.

Blue font indicates an increase.

Red font indicates a decrease.

A green font indicates a change in product or procedure to derive the cost.

Procedural changes can result in different costs than were published the previous year.

**Breakeven Analysis:**

	- 5%	Base	+ 5%
		<b>Yield</b>	
<u>Price</u>	<b>451.25</b>	<b>475</b>	<b>498.75</b>
Operating Cost Breakeven	\$4.47	\$4.24	\$4.04
Ownership Cost Breakeven	\$2.44	\$2.32	\$2.21
Total Cost Breakeven	\$6.91	\$6.56	\$6.25
		<b>Price</b>	
<u>Yield</u>	<b>\$6.65</b>	<b>\$7.00</b>	<b>\$7.35</b>
Operating Cost Breakeven	303.1	288.0	274.3
Ownership Cost Breakeven	165.5	157.2	149.8
Total Cost Breakeven	468.7	445.2	424.0

**Table B-2. 2016 Cost per cwt to grow, harvest, sort and store Southcentral Idaho Russet Burbank potatoes with fumigation based on both field-run and paid yield.**

	Storage Costs	Field Run Cost per Cwt	Paid Yield Cost per Cwt
Field-Run Yield		475.00	
Paid Yield %	95%		451.3
<b>Base Cost to Grow, Harvest &amp; Sort</b>		<b>\$6.56</b>	<b>\$6.91</b>
Storage System Annual Ownership Costs	\$0.358	\$0.358	\$0.377
Base Cost + Storage Ownership Costs		\$6.92	\$7.28
Storage System Annual Repairs	\$0.041	\$0.041	\$0.043
Base + Storage System Ownership & Repairs		\$6.96	\$7.33
	<b>Cumulative Storage Op. Costs</b>	<b>Cumulative Base + All Storage Costs</b>	<b>Cumulative Base + All Storage Costs</b>
October	\$0.210	\$7.17	\$7.55
November*	\$0.380	\$7.34	\$7.73
December	\$0.466	\$7.43	\$7.82
January	\$0.550	\$7.51	\$7.91
<b>February</b>	<b>\$0.636</b>	<b>\$7.60</b>	<b>\$8.00</b>
March	\$0.721	\$7.68	\$8.09
April	\$0.908	\$7.87	\$8.28
May	\$1.013	\$7.97	\$8.39
June	\$1.135	\$8.10	\$8.52

Data entered directly by user. All other values are calculated.

Calculated values.

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, air system, and the equipment used to place.

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

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

\* Indicates month when sprout inhibitor applied.

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

Appendix C  
Eastern Idaho Southern Region  
Irrigated Russet Burbank Potato  
Fumigated



**Table C-1. 2016 Costs to grow, harvest and sort Eastern Idaho Southern region Russet Burbank potatoes with fumigation.**

Item	Quantity Per Acre	Unit	Price or Cost	Value or Cost/Acre	2015	Yield Change	
<b>Gross Returns</b>							
Potatoes	420.00	cwt	7.00	\$2,940.00	425	-5	-1.2%
<b>Total Gross Returns</b>				<b>\$2,940.00</b>			
<b>Operating Inputs</b>							
<b>Seed:</b>				<b>\$299.25</b>	<b>\$289.80</b>	<b>\$9.45</b>	<b>3.3%</b>
G-3 Russet Burbank Seed	21.00	cwt	12.50	262.50	254.10	\$8.40	3.3%
Seed Cutting	21.00	cwt	1.75	36.75	35.70	\$1.05	2.9%
<b>Fertilizer:</b>				<b>\$327.35</b>	<b>\$448.20</b>	<b>-\$120.85</b>	<b>-27.0%</b>
Dry Nitrogen - Preplant	140.00	lb	0.41	57.40	77.00	-\$19.60	-25.5%
Dry P2O5	185.00	lb	0.37	68.45	98.05	-\$29.60	-30.2%
K2O	215.00	lb	0.29	62.35	94.60	-\$32.25	-34.1%
Sulfur	85.00	lb	0.23	19.55	22.95	-\$3.40	-14.8%
Liquid Nitrogen	120.00	lb	0.48	57.60	87.60	-\$30.00	-34.2%
Liquid P2O5	50.00	lb	0.60	30.00	36.00	-\$6.00	-16.7%
Micronutrients/Humic Acid - CP	1.00	acre	32.00	32.00	32.00	\$0.00	0.0%
<b>Pesticides &amp; Chemicals:</b>				<b>\$393.30</b>	<b>\$475.55</b>	<b>-\$82.25</b>	<b>-17.3%</b>
Vapam 42%	35.00	gal	5.20	182.00	208.25	-\$26.25	-12.6%
Seed Treatment	21.00	cwt	0.60	12.60	10.50	\$2.10	20.0%
Admire Pro	8.00	fl oz	1.30	10.40	12.00	-\$1.60	-13.3%
Moncut 700DF	1.00	lb	26.60	26.60	33.45	-\$6.85	-20.5%
Metribuzin 75DF	0.67	lb	12.50	8.38	9.82	-\$1.44	-14.7%
Eptam 7E	3.50	pt	5.80	20.30	21.88	-\$1.58	-7.2%
Prowl 3.3EC	2.00	pt	3.25	6.50	9.80	-\$3.30	-33.7%
Quadris Flowable	8.00	fl oz	1.65	13.20	18.40	-\$5.20	-28.3%
Omega 500DF	5.50	fl oz	3.10	17.05	18.70	-\$1.65	-8.8%
Endura	5.50	oz	3.50	19.25	25.85	-\$6.60	-25.5%
Bravo Weatherstik	1.00	pt	5.40	5.40	9.30	-\$3.90	-41.9%
Dithane F45 Rainshield (2x)	3.20	qt	8.00	25.60	27.68	-\$2.08	-7.5%
Ranman	2.75	fl oz	4.50	12.38	12.93	-\$0.55	-4.3%
Agri-Mek .75SC	3.50	fl oz	2.50	8.75	18.20	-\$9.45	-51.9%
Brigadier	6.00	fl oz	1.30	7.80	16.20	-\$8.40	-51.9%
Reglone	2.00	pt	8.55	17.10	22.60	-\$5.50	-24.3%
<b>Custom &amp; Consultants:</b>				<b>\$108.75</b>	<b>\$120.00</b>	<b>-\$11.25</b>	<b>-9.4%</b>
Custom Fumigate - Deep Injection	1.00	acre	42.00	42.00	44.00	-\$2.00	-4.5%
Custom Fertilize: 400 - 800 lbs	1.00	acre	7.75	7.75	7.75	\$0.00	0.0%
Custom Fertilize: 0 - 400 lbs	1.00	acre	7.50	7.50	7.25	\$0.25	3.4%
Custom Air Spray - 5.0 gal	3.00	acre	8.50	25.50	35.00	-\$9.50	-27.1%
Consultant & Soil/Pet. Test	1.00	acre	26.00	26.00	26.00	\$0.00	0.0%
<b>Irrigation:</b>				<b>\$98.97</b>	<b>\$96.46</b>	<b>\$2.51</b>	<b>2.6%</b>
Water Assessment	1.00	acre	37.00	37.00	35.00	\$2.00	5.7%
Irrigation Repairs - Center Pivot	25.50	acre-inch	0.52	13.26	13.01	\$0.25	2.0%
Irrigation Power - Center Pivot	25.50	acre-inch	1.91	48.71	48.45	\$0.26	0.5%
<b>Machinery:</b>				<b>\$116.86</b>	<b>\$127.40</b>	<b>-\$10.54</b>	<b>-8.3%</b>
Fuel - Gas	4.52	gal	2.20	9.94	11.30	-\$1.36	-12.0%
Fuel - Farm Diesel	20.47	gal	2.00	40.94	48.10	-\$7.16	-14.9%
Fuel - Road Diesel	2.02	gal	2.45	4.95	5.76	-\$0.81	-14.0%
Lube	1.00	\$	8.40	8.40	9.77	-\$1.37	-14.0%
Machinery Repairs	1.00	\$	52.63	52.63	52.47	\$0.16	0.3%
<b>Labor:</b>				<b>\$163.46</b>	<b>\$157.98</b>	<b>\$5.48</b>	<b>3.5%</b>
Equipment Operator Labor	3.88	hrs	19.15	74.30	71.78	\$2.52	3.5%
Truck Driver Labor	1.98	hrs	14.90	29.50	28.51	\$0.99	3.5%
Irrigation Labor - Center Pivot	1.02	hrs	19.15	19.53	18.87	\$0.66	3.5%
Irrigation Labor - Chem-Fert	0.82	hrs	19.15	15.70	15.17	\$0.53	3.5%
General Farm Labor	2.22	hrs	11.00	24.42	23.64	\$0.78	3.3%
<b>Sorting:</b>				<b>\$60.90</b>	<b>\$60.18</b>	<b>\$0.72</b>	<b>1.2%</b>
Sorting Labor	420.00	cwt	0.111	46.62	45.73	\$0.89	1.9%
Sorting Equipment Repairs & Power	420.00	cwt	0.034	14.28	14.45	-\$0.17	-1.2%
<b>Other:</b>				<b>\$152.00</b>	<b>\$152.72</b>	<b>-\$0.72</b>	<b>-0.5%</b>
Crop Insurance: MP + Hail	1.00	acre	80.00	80.00	80.00	\$0.00	0.0%
Fees & Assessments	400.00	cwt	0.18	72.00	72.72	-\$0.72	-1.0%
Interest on Operating Capital at 6.00%				\$61.40	64.97	-\$3.57	-5.5%
<b>Total Operating Costs</b>				<b>\$1,782.24</b>	<b>\$1,993.25</b>	<b>-\$211.01</b>	<b>-10.6%</b>
<b>Operating Costs per Unit</b>				<b>\$4.24</b>	<b>\$4.69</b>	<b>-\$0.45</b>	<b>-9.5%</b>
<b>Net Returns Above Operating Costs</b>				<b>\$1,157.76</b>	<b>\$1,088.00</b>		

**Table C-1. 2016 Costs to grow, harvest and sort Eastern Idaho Southern region Russet Burbank potatoes with fumigation.**

Item	Quantity Per Acre	Unit	Price or Cost	Value or Cost/Acre
<b>Ownership Costs:</b>				
Tractors & Equipment Insurance				5.27
Tractors & Equipment Depreciation & Interest				174.00
Potato Handling Equipment Deprec. & Interest				62.50
Land*				535.00
Overhead				45.00
Management Fee				138.00
<b>Total Ownership Costs</b>				<b>\$959.77</b>
<b>Ownership Costs per Unit</b>				<b>\$2.29</b>
<b>Total Costs per Acre</b>				<b>\$2,742.01</b>
<b>Total Cost per Unit</b>				<b>\$6.53</b>
<b>Returns to Risk</b>				<b>\$197.99</b>

	5.12	\$0.15	2.9%
	172.00	\$2.00	1.2%
	61.00	\$1.50	2.5%
	535.00	\$0.00	0.0%
	50.00	-\$5.00	-10.0%
	148.00	-\$10.00	-6.8%
<b>Total Ownership Costs</b>	<b>\$971.12</b>	<b>-\$11.35</b>	<b>-1.2%</b>
<b>Ownership Costs per Unit</b>	<b>\$2.28</b>	<b>\$0.00</b>	<b>0.0%</b>
<b>Total Costs per Acre</b>	<b>\$2,964.37</b>	<b>-\$222.36</b>	<b>-7.5%</b>
<b>Total Cost per Unit</b>	<b>\$6.97</b>	<b>-\$0.45</b>	<b>-6.4%</b>
<b>Returns to Risk</b>	<b>\$116.88</b>		

**Notes:**

\*Includes irrigation system ownership costs.

Blue font indicates an increase.

Red font indicates a decrease.

A green font indicates a change in product or procedure to derive the cost.

Procedural changes can result in different costs than were published the previous year.

**Breakeven Analysis:**

	- 5%	Base	+ 5%
		<b>Yield</b>	
<u>Price</u>	<b>399</b>	<b>420</b>	<b>441</b>
Operating Cost Breakeven	\$4.47	\$4.24	\$4.04
Ownership Cost Breakeven	\$2.41	\$2.29	\$2.18
Total Cost Breakeven	\$6.87	\$6.53	\$6.22
		<b>Price</b>	
<u>Yield</u>	<b>\$6.65</b>	<b>\$7.00</b>	<b>\$7.35</b>
Operating Cost Breakeven	268.0	254.6	242.5
Ownership Cost Breakeven	144.3	137.1	130.6
Total Cost Breakeven	412.3	391.7	373.1

**Table C-2. 2016 Cost per cwt to grow, harvest, sort and store Eastern Idaho Russet Burbank potatoes with fumigation based on both field-run and paid yield.**

	Storage Costs	Field Run Cost per Cwt	Paid Yield Cost per Cwt
Field-Run Yield		420.00	
Paid Yield %	95%		399.0
<b>Base Cost to Grow, Harvest &amp; Sort</b>		<b>\$6.53</b>	<b>\$6.87</b>
Storage System Annual Ownership Costs	\$0.358	\$0.358	\$0.377
Base Cost + Storage Ownership Costs		\$6.89	\$7.25
Storage System Annual Repairs	\$0.041	\$0.041	\$0.043
Base + Storage System Ownership & Repairs		\$6.93	\$7.29
	<b>Cumulative Storage Op. Costs</b>	<b>Cumulative Base + All Storage Costs</b>	<b>Cumulative Base + All Storage Costs</b>
October	\$0.222	\$7.15	\$7.53
November*	\$0.398	\$7.33	\$7.71
December	\$0.485	\$7.41	\$7.80
January	\$0.576	\$7.50	\$7.90
<b>February</b>	<b>\$0.664</b>	<b>\$7.59</b>	\$7.99
March	\$0.753	\$7.68	\$8.08
April	\$0.945	\$7.87	\$8.29
May	\$1.055	\$7.98	\$8.40
June	\$1.184	\$8.11	\$8.54

Data entered directly by user. All other values are calculated.

Calculated values.

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, air system, and the equipment used to place.

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

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

\* Indicates month when sprout inhibitor applied.

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

Appendix D  
Southcentral Idaho  
Irrigated Russet Burbank Potato  
Non-Fumigated

**Table D-1. 2016 Costs to grow, harvest and sort Southcentral Idaho Russet Burbank potatoes.**

Item	Quantity Per Acre	Unit	Price or Cost	Value or Cost/Acre
<b>Gross Returns</b>				
Potatoes	430.00	cwt	7.00	\$3,010.00
<b>Total Gross Returns</b>				<b>\$3,010.00</b>
<b>Operating Inputs</b>				
<b>Seed:</b>				
				<b>\$339.25</b>
G-3 Russet Burbank Seed	23.00	cwt	13.00	299.00
Seed Cutting	23.00	cwt	1.75	40.25
<b>Fertilizer:</b>				
				<b>\$328.70</b>
Dry Nitrogen - Preplant	155.00	lb	0.41	63.55
Dry P2O5	205.00	lb	0.37	75.85
K2O	215.00	lb	0.29	62.35
Sulfur	85.00	lb	0.23	19.55
Liquid Nitrogen	105.00	lb	0.48	50.40
Liquid P2O5	35.00	lb	0.60	21.00
Micronutrients & Foliars	2.00	acre	18.00	36.00
<b>Pesticides &amp; Chemicals:</b>				
				<b>\$257.13</b>
Seed Treatment	23.00	cwt	0.60	13.80
Admire Pro	8.00	oz	1.30	10.40
Quadris Flowable	8.00	fl oz	1.65	13.20
Outlook 6EC	20.00	fl oz	1.00	20.00
Prowl 3.3EC	2.00	pt	3.25	6.50
Metribuzin 75DF	0.75	lb	12.50	9.38
Endura	5.50	oz	3.50	19.25
Dithane F45 Rainshield (2x)	3.75	qt	8.00	30.00
Tanos	6.00	oz	2.65	15.90
Gavel 75DF	2.00	lb	8.50	17.00
Revus Top	7.00	fl oz	2.25	15.75
Brigadier (2x)	12.00	fl oz	1.30	15.60
Movento	5.00	fl oz	6.90	34.50
Agri-Mek .75SC (2x)	7.50	fl oz	2.50	18.75
Reglone	1.00	qt	17.10	17.10
<b>Custom &amp; Consultants:</b>				
				<b>\$83.25</b>
Custom Fertilize: 400 - 800 lbs	1.00	acre	7.75	7.75
Custom Fertilize: 0 - 400 lbs	1.00	acre	7.50	7.50
Custom Air Spray - 7.5 gal	4.00	acre	9.50	38.00
Consultant & Soil/Pet. Test	1.00	acre	30.00	30.00
<b>Irrigation:</b>				
				<b>\$113.11</b>
Water Assessment	1.00	acre	47.50	47.50
Irrigation Repairs - Center Pivot	27.00	acre-inch	1.91	51.57
Irrigation Power - Center Pivot	27.00	acre-inch	0.52	14.04
<b>Machinery:</b>				
				<b>\$114.26</b>
Fuel - Gas	4.59	gal	2.20	10.10
Fuel - Farm Diesel	19.41	gal	1.95	37.85
Fuel - Road Diesel	2.28	gal	2.45	5.59
Lube	1.00	\$	8.03	8.03
Machinery Repairs	1.00	\$	52.70	52.70
<b>Labor:</b>				
				<b>\$176.41</b>
Equipment Operator Labor	4.49	hrs	19.15	85.98
Truck Driver Labor	1.83	hrs	14.90	27.27
Irrigation Labor - Center Pivot	1.08	hrs	19.15	20.68
Irrigation Labor - Chem-Fert	0.92	hrs	19.15	17.62
General Farm Labor	2.26	hrs	11.00	24.86
<b>Sorting:</b>				
				<b>\$62.35</b>
Sorting Labor	430.00	cwt	0.111	47.73
Sorting Equipment Repairs & Power	430.00	cwt	0.034	14.62
<b>Other:</b>				
				<b>\$138.62</b>
Crop Insurance	1.00	acre	65.00	65.00
Fees & Assessments	409.00	cwt	0.18	73.62
Interest on Operating Capital at 6.00%				\$49.85
<b>Total Operating Costs</b>				<b>\$1,662.93</b>
<b>Operating Costs per Unit</b>				<b>\$3.87</b>
<b>Net Returns Above Operating Costs</b>				<b>\$1,347.07</b>

2015	Yield Change	
425	5	1.2%
<b>\$ Change % Change</b>		
<b>\$330.05</b>	<b>\$9.20</b>	<b>2.8%</b>
290.95	\$8.05	2.8%
39.10	\$1.15	2.9%
<b>\$449.30</b>	<b>-\$120.60</b>	<b>-26.8%</b>
85.25	-\$21.70	-25.5%
108.65	-\$32.80	-30.2%
94.60	-\$32.25	-34.1%
22.95	-\$3.40	-14.8%
76.65	-\$26.25	-34.2%
25.20	-\$4.20	-16.7%
36.00	\$0.00	0.0%
<b>\$318.30</b>	<b>-\$61.17</b>	<b>-19.2%</b>
11.50	\$2.30	20.0%
12.00	-\$1.60	-13.3%
18.40	-\$5.20	-28.3%
20.40	-\$0.40	-2.0%
9.80	-\$3.30	-33.7%
10.99	-\$1.61	-14.7%
25.85	-\$6.60	-25.5%
48.72	-\$18.72	-38.4%
16.50	-\$0.60	-3.6%
15.50	\$1.50	9.7%
16.94	-\$1.19	-7.0%
24.30	-\$8.70	-35.8%
37.50	-\$3.00	-8.0%
27.30	-\$8.55	-31.3%
22.60	-\$5.50	-24.3%
<b>\$113.25</b>	<b>-\$30.00</b>	<b>-26.5%</b>
7.75	\$0.00	0.0%
7.25	\$0.25	3.4%
68.25	-\$30.25	-44.3%
30.00	\$0.00	0.0%
<b>\$110.67</b>	<b>\$2.44</b>	<b>2.2%</b>
45.60	\$1.90	4.2%
51.30	\$0.27	0.5%
13.77	\$0.27	2.0%
<b>\$124.49</b>	<b>-\$10.22</b>	<b>-8.2%</b>
11.48	-\$1.38	-12.0%
44.64	-\$6.79	-15.2%
6.50	-\$0.91	-14.0%
9.33	-\$1.30	-13.9%
52.54	\$0.16	0.3%
<b>\$170.49</b>	<b>\$5.92</b>	<b>3.5%</b>
83.07	\$2.92	3.5%
26.35	\$0.92	3.5%
19.98	\$0.70	3.5%
17.02	\$0.60	3.5%
24.07	\$0.79	3.3%
<b>\$60.18</b>	<b>\$2.17</b>	<b>3.6%</b>
45.73	\$2.00	4.4%
14.45	\$0.17	1.2%
<b>\$137.72</b>	<b>\$0.90</b>	<b>0.7%</b>
65.00	\$0.00	0.0%
72.72	\$0.90	1.2%
54.31	-\$4.46	-8.2%
<b>\$1,868.75</b>	<b>-\$205.82</b>	<b>-11.0%</b>
<b>\$4.40</b>	<b>-\$0.53</b>	<b>-12.0%</b>
<b>\$1,212.50</b>		

**Table D-1. 2016 Costs to grow, harvest and sort Southcentral Idaho Russet Burbank potatoes.**

Item	Quantity Per Acre	Unit	Price or Cost	Value or Cost/Acre
<b>Ownership Costs:</b>				
Tractors & Equipment Insurance				5.63
Tractors & Equipment Depreciation & Interest				188.00
Potato Handling Equipment Deprec. & Interest				62.50
Land*				625.00
Overhead				41.00
Management Fee				134.00
<b>Total Ownership Costs</b>				<b>\$1,056.13</b>
<b>Ownership Costs per Unit</b>				<b>\$2.46</b>
<b>Total Costs per Acre</b>				<b>\$2,719.06</b>
<b>Total Cost per Unit</b>				<b>\$6.32</b>
<b>Returns to Risk</b>				<b>\$290.94</b>

	5.46	\$0.17	3.1%
	185.00	\$3.00	1.6%
	61.00	\$1.50	2.5%
	625.00	\$0.00	0.0%
	47.00	-\$6.00	-12.8%
	146.00	-\$12.00	-8.2%
<b>Total Ownership Costs</b>	<b>\$1,069.46</b>	<b>-\$13.33</b>	<b>-1.2%</b>
<b>Ownership Costs per Unit</b>	<b>\$2.52</b>	<b>-\$0.06</b>	<b>-2.4%</b>
<b>Total Costs per Acre</b>	<b>\$2,938.21</b>	<b>-\$219.15</b>	<b>-7.5%</b>
<b>Total Cost per Unit</b>	<b>\$6.91</b>	<b>-\$0.59</b>	<b>-8.5%</b>
<b>Returns to Risk</b>	<b>\$143.04</b>		

**Notes:**

\*Includes irrigation system ownership costs.

Blue font indicates an increase.

Red font indicates a decrease.

A green font indicates a change in product or procedure to derive the cost.

Procedural changes can result in different costs than were published the previous year.

**Breakeven Analysis:**

	- 5%	Base	+ 5%
		<b>Yield</b>	
<u>Price</u>	<b>408.5</b>	<b>430</b>	<b>451.5</b>
Operating Cost Breakeven	\$4.07	\$3.87	\$3.68
Ownership Cost Breakeven	\$2.59	\$2.46	\$2.34
Total Cost Breakeven	\$6.66	\$6.32	\$6.02
		<b>Price</b>	
<u>Yield</u>	<b>\$6.65</b>	<b>\$7.00</b>	<b>\$7.35</b>
Operating Cost Breakeven	250.1	237.6	226.2
Ownership Cost Breakeven	158.8	150.9	143.7
Total Cost Breakeven	408.9	388.4	369.9

**Table D-2. 2016 Cost per cwt to grow, harvest, sort and store Southcentral Idaho Russet Burbank potatoes based on both field-run and paid yield.**

	Storage Costs	Field Run Cost per Cwt	Paid Yield Cost per Cwt
Field-Run Yield		430.00	
Paid Yield %	95%		408.5
<b>Base Cost to Grow, Harvest &amp; Sort</b>		<b>\$6.32</b>	<b>\$6.66</b>
Storage System Annual Ownership Costs	\$0.358	\$0.358	\$0.377
Base Cost + Storage Ownership Costs		\$6.68	\$7.03
Storage System Annual Repairs	\$0.041	\$0.041	\$0.043
Base + Storage System Ownership & Repairs		\$6.72	\$7.08
	<b>Cumulative Storage Op. Costs</b>	<b>Cumulative Base + All Storage Costs</b>	<b>Cumulative Base + All Storage Costs</b>
October	\$0.210	\$6.93	\$7.30
November*	\$0.380	\$7.10	\$7.48
December	\$0.466	\$7.19	\$7.57
January	\$0.550	\$7.27	\$7.66
<b>February</b>	<b>\$0.636</b>	<b>\$7.36</b>	<b>\$7.75</b>
March	\$0.721	\$7.44	\$7.84
April	\$0.908	\$7.63	\$8.03
May	\$1.013	\$7.74	\$8.14
June	\$1.135	\$7.86	\$8.27

Data entered directly by user. All other values are calculated.

Calculated values.

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, air system, and the equipment used to place.

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

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

\* Indicates month when sprout inhibitor applied.

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

Appendix E  
Eastern Idaho Southern Region  
Irrigated Russet Burbank Potato Non-  
Fumigated



**Table E-1. 2016 Costs to grow, harvest and sort Eastern Idaho Southern region Russet Burbank potatoes.**

Item	Quantity Per Acre	Unit	Price or Cost	Value or Cost/Acre
<b>Gross Returns</b>				
Potatoes	380.00	cwt	7.00	\$2,660.00
<b>Total Gross Returns</b>				<b>\$2,660.00</b>
<b>Operating Inputs</b>				
<b>Seed:</b>				
G-3 Russet Burbank Seed	21.00	cwt	12.50	262.50
Seed Cutting	21.00	cwt	1.75	36.75
<b>Fertilizer:</b>				
Dry Nitrogen - Preplant	135.00	lb	0.41	55.35
Dry P2O5	160.00	lb	0.37	59.20
K2O	195.00	lb	0.29	56.55
Sulfur	85.00	lb	0.23	19.55
Liquid Nitrogen	100.00	lb	0.48	48.00
Liquid P2O5	60.00	lb	0.60	36.00
Micronutrients/Humic Acid - CP	1.00	acre	30.00	30.00
<b>Pesticides &amp; Chemicals:</b>				
Seed Treatment	21.00	cwt	0.60	12.60
Admire Pro	8.00	fl oz	1.30	10.40
Moncut 700DF	1.00	lb	26.60	26.60
Metribuzin 75DF	0.67	lb	12.50	8.38
Eptam 7E	3.50	pt	5.80	20.30
Prowl 3.3EC	2.00	pt	3.25	6.50
Quadris Flowable	8.00	fl oz	1.65	13.20
Omega 500DF	5.50	fl oz	3.10	17.05
Endura	5.50	oz	3.50	19.25
Bravo Weatherstik	1.00	pt	5.35	5.35
Dithane F45 Rainshield (2x)	3.20	qt	8.00	25.60
Ranman	2.75	fl oz	4.50	12.38
Agri-Mek .75SC	3.50	fl oz	2.50	8.75
Brigadier	6.00	fl oz	1.30	7.80
Reglone	2.00	pt	8.55	17.10
<b>Custom &amp; Consultants:</b>				
Custom Fertilize: 400 - 800 lbs	1.00	acre	7.75	7.75
Custom Fertilize: 0 - 400 lbs	1.00	acre	7.50	7.50
Custom Air Spray - 5.0 gal	3.00	acre	8.50	25.50
Consultant & Soil/Pet. Test	1.00	acre	26.00	26.00
<b>Irrigation:</b>				
Water Assessment	1.00	acre	37.00	37.00
Irrigation Repairs - Center Pivot	24.00	acre-inch	0.52	12.48
Irrigation Power - Center Pivot	24.00	acre-inch	1.91	45.84
<b>Machinery:</b>				
Fuel - Gas	4.52	gal	2.20	9.94
Fuel - Farm Diesel	20.47	gal	2.00	40.94
Fuel - Road Diesel	1.92	gal	2.45	4.70
Lube	1.00	\$	8.37	8.37
Machinery Repairs	1.00	\$	52.20	52.20
<b>Labor:</b>				
Equipment Operator Labor	3.88	hrs	19.15	74.30
Truck Driver Labor	1.86	hrs	14.90	27.71
Irrigation Labor - Center Pivot	0.96	hrs	19.15	18.38
Irrigation Labor - Chem-Fert	0.80	hrs	19.15	15.32
General Farm Labor	2.24	hrs	11.00	24.64
<b>Sorting:</b>				
Sorting Labor	380.00	cwt	0.111	42.18
Sorting Equipment Repairs & Power	380.00	cwt	0.034	12.92
<b>Other:</b>				
Crop Insurance: MP + Hail	1.00	acre	80.00	80.00
Fees & Assessments	361.00	cwt	0.18	64.98
Interest on Operating Capital at 6.00%				\$45.40
<b>Total Operating Costs</b>				<b>\$1,499.22</b>
<b>Operating Costs per Unit</b>				<b>\$3.95</b>
<b>Net Returns Above Operating Costs</b>				<b>\$1,160.78</b>

2015	Yield Change		
385	-5	-1.3%	
<b>\$ Change % Change</b>			
<b>\$289.80</b>	<b>\$9.45</b>	<b>3.3%</b>	
254.10	\$8.40	3.3%	
35.70	\$1.05	2.9%	
<b>\$414.00</b>	<b>-\$109.35</b>	<b>-26.4%</b>	
74.25	-\$18.90	-25.5%	
84.80	-\$25.60	-30.2%	
85.80	-\$29.25	-34.1%	
22.95	-\$3.40	-14.8%	
73.00	-\$25.00	-34.2%	
43.20	-\$7.20	-16.7%	
30.00	\$0.00	0.0%	
<b>\$267.30</b>	<b>-\$56.05</b>	<b>-21.0%</b>	
10.50	\$2.10	20.0%	
12.00	-\$1.60	-13.3%	
33.45	-\$6.85	-20.5%	
9.82	-\$1.44	-14.7%	
21.88	-\$1.58	-7.2%	
9.80	-\$3.30	-33.7%	
18.40	-\$5.20	-28.3%	
18.70	-\$1.65	-8.8%	
25.85	-\$6.60	-25.5%	
9.30	-\$3.95	-42.5%	
27.68	-\$2.08	-7.5%	
12.93	-\$0.55	-4.3%	
18.20	-\$9.45	-51.9%	
16.20	-\$8.40	-51.9%	
22.60	-\$5.50	-24.3%	
<b>\$76.00</b>	<b>-\$9.25</b>	<b>-12.2%</b>	
7.75	\$0.00	0.0%	
7.25	\$0.25	3.4%	
35.00	-\$9.50	-27.1%	
26.00	\$0.00	0.0%	
<b>\$92.84</b>	<b>\$2.48</b>	<b>2.7%</b>	
35.00	\$2.00	5.7%	
12.24	\$0.24	2.0%	
45.60	\$0.24	0.5%	
<b>\$126.65</b>	<b>-\$10.49</b>	<b>-8.3%</b>	
11.30	-\$1.36	-12.0%	
48.10	-\$7.16	-14.9%	
5.47	-\$0.77	-14.0%	
9.73	-\$1.36	-14.0%	
52.04	\$0.16	0.3%	
<b>\$154.98</b>	<b>\$5.38</b>	<b>3.5%</b>	
71.78	\$2.52	3.5%	
26.78	\$0.93	3.5%	
17.76	\$0.62	3.5%	
14.80	\$0.52	3.5%	
23.86	\$0.78	3.3%	
<b>\$54.52</b>	<b>\$0.58</b>	<b>1.1%</b>	
41.43	\$0.75	1.8%	
13.09	-\$0.17	-1.3%	
<b>\$145.88</b>	<b>-\$0.90</b>	<b>-0.6%</b>	
80.00	\$0.00	0.0%	
65.88	-\$0.90	-1.4%	
47.50	-\$2.10	-4.4%	
<b>\$1,669.46</b>	<b>-\$170.24</b>	<b>-10.2%</b>	
<b>\$4.34</b>	<b>-\$0.39</b>	<b>-9.0%</b>	
<b>\$1,121.79</b>			

**Table E-1. 2016 Costs to grow, harvest and sort Eastern Idaho Southern region Russet Burbank potatoes.**

Item	Quantity Per Acre	Unit	Price or Cost	Value or Cost/Acre
<b>Ownership Costs:</b>				
Tractors & Equipment Insurance				5.21
Tractors & Equipment Depreciation & Interest				172.00
Potato Handling Equipment Deprec. & Interest				57.00
Land*				535.00
Overhead				38.00
Management Fee				122.00
<b>Total Ownership Costs</b>				<b>\$929.21</b>
<b>Ownership Costs per Unit</b>				<b>\$2.45</b>
<b>Total Costs per Acre</b>				<b>\$2,428.43</b>
<b>Total Cost per Unit</b>				<b>\$6.39</b>
<b>Returns to Risk</b>				<b>\$231.57</b>
Notes:				
*Includes irrigation system ownership costs.				
Blue font indicates an increase.				
Red font indicates a decrease.				
A green font indicates a change in product or procedure to derive the cost.				
Procedural changes can result in different costs than were published the previous year.				
<b>Breakeven Analysis:</b>				
	-	Base	+	
	5%		5%	
		<b>Yield</b>		
<u>Price</u>	<b>361</b>	<b>380</b>	<b>399</b>	
Operating Cost Breakeven	\$4.15	\$3.95	\$3.76	
Ownership Cost Breakeven	\$2.57	\$2.45	\$2.33	
Total Cost Breakeven	\$6.73	\$6.39	\$6.09	
		<b>Price</b>		
<u>Yield</u>	<b>\$6.65</b>	<b>\$7.00</b>	<b>\$7.35</b>	
Operating Cost Breakeven	225.4	214.2	204.0	
Ownership Cost Breakeven	139.7	132.7	126.4	
Total Cost Breakeven	365.2	346.9	330.4	

	5.06	\$0.15	3.0%
	170.00	\$2.00	1.2%
	55.50	\$1.50	2.7%
	535.00	\$0.00	0.0%
	42.00	-\$4.00	-9.5%
	130.00	-\$8.00	-6.2%
<b>Total Ownership Costs</b>	<b>\$937.56</b>	<b>-\$8.35</b>	<b>-0.9%</b>
<b>Ownership Costs per Unit</b>	<b>\$2.44</b>	<b>\$0.01</b>	<b>0.4%</b>
<b>Total Costs per Acre</b>	<b>\$2,607.02</b>	<b>-\$178.59</b>	<b>-6.9%</b>
<b>Total Cost per Unit</b>	<b>\$6.77</b>	<b>-\$0.38</b>	<b>-5.6%</b>
<b>Returns to Risk</b>	<b>\$184.23</b>		

**Table E-2. 2016 Cost per cwt to grow, harvest, sort and store Eastern Idaho Russet Burbank potatoes based on both field-run and paid yield.**

	Storage Costs	Field Run Cost per Cwt	Paid Yield Cost per Cwt
Field-Run Yield		380.00	
Paid Yield %	95%		361.0
<b>Base Cost to Grow, Harvest &amp; Sort</b>		<b>\$6.39</b>	<b>\$6.73</b>
Storage System Annual Ownership Costs	\$0.358	\$0.358	\$0.377
Base Cost + Storage Ownership Costs		\$6.75	\$7.10
Storage System Annual Repairs	\$0.041	\$0.041	\$0.043
Base + Storage System Ownership & Repairs		\$6.79	\$7.15
	<b>Cumulative Storage Op. Costs</b>	<b>Cumulative Base + All Storage Costs</b>	<b>Cumulative Base + All Storage Costs</b>
October	\$0.222	\$7.01	\$7.38
November*	\$0.398	\$7.19	\$7.57
December	\$0.485	\$7.27	\$7.66
January	\$0.576	\$7.37	\$7.75
<b>February</b>	<b>\$0.664</b>	<b>\$7.45</b>	<b>\$7.85</b>
March	\$0.753	\$7.54	\$7.94
April	\$0.945	\$7.73	\$8.14
May	\$1.055	\$7.84	\$8.26
June	\$1.184	\$7.97	\$8.39

Data entered directly by user. All other values are calculated.

Calculated values.

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, air system, and the equipment used to place.

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

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

\* Indicates month when sprout inhibitor applied.

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

Appendix F  
Eastern Idaho Northern Region  
Irrigated Russet Burbank Potato Non-  
Fumigated

**Table E-1. 2016 Costs to grow, harvest and sort Eastern Idaho Northern region Russet Burbank potatoes.**

Item	Quantity Per Acre	Unit	Price or Cost	Value or Cost/Acre
<b>Gross Returns</b>				
Potatoes	360.00	cwt	6.75	\$2,430.00
<b>Total Gross Returns</b>				<b>\$2,430.00</b>
<b>Operating Inputs</b>				
<b>Seed:</b>				
				<b>\$289.80</b>
G-3 Russet Burbank Seed	21.00	cwt	12.05	253.05
Seed Cutting	21.00	cwt	1.75	36.75
<b>Fertilizer:</b>				
				<b>\$294.90</b>
Dry Nitrogen - Preplant	135.00	lb	0.41	55.35
Dry P2O5	155.00	lb	0.37	57.35
K2O	160.00	lb	0.29	46.40
Sulfur	80.00	lb	0.23	18.40
Liquid Nitrogen	105.00	lb	0.48	50.40
Liquid P2O5	45.00	lb	0.60	27.00
Micronutrients/Humic Acid - CP	1.00	acre	40.00	40.00
<b>Pesticides &amp; Chemicals:</b>				
				<b>\$202.90</b>
Seed Treatment	21.00	cwt	0.60	12.60
Admire Pro	8.00	fl oz	1.30	10.40
Regent 4SC	3.20	fl oz	7.85	25.12
Metribuzin 75DF	0.75	lb	12.50	9.38
Outlook 6EC	18.00	fl oz	1.00	18.00
Prowl 3.3EC	2.00	pt	3.25	6.50
Quadris Flowable	8.00	fl oz	1.65	13.20
Bravo ZN	1.25	pt	4.90	6.13
Endura	5.50	oz	3.50	19.25
Dithane F45	1.60	qt	8.00	12.80
Revus Top	7.00	fl oz	2.25	15.75
Brigadier	6.00	fl oz	1.30	7.80
Fulfill WDG	5.50	oz	5.25	28.88
Reglone	2.00	pt	8.55	17.10
<b>Custom &amp; Consultants:</b>				
				<b>\$58.25</b>
Custom Fertilize: 400 - 800 lbs	1.00	acre	7.75	7.75
Custom Fertilize: 0 - 400 lbs	1.00	acre	7.50	7.50
Custom Air Spray - 5.0 gal	2.00	acre	8.50	17.00
Consultant & Soil/Pet. Test	1.00	acre	26.00	26.00
<b>Irrigation:</b>				
				<b>\$68.39</b>
Water Assessment	1.00	acre	12.50	12.50
Irrigation Repairs - Center Pivot	23.00	acre-inch	0.52	11.96
Irrigation Power - Center Pivot	23.00	acre-inch	1.91	43.93
<b>Machinery:</b>				
				<b>\$115.71</b>
Fuel - Gas	4.51	gal	2.20	9.92
Fuel - Farm Diesel	21.30	gal	2.00	42.60
Fuel - Road Diesel	1.91	gal	2.45	4.68
Lube	1.00	\$	8.61	8.61
Machinery Repairs	1.00	\$	49.90	49.90
<b>Labor:</b>				
				<b>\$162.03</b>
Equipment Operator Labor	4.03	hrs	19.15	77.17
Truck Driver Labor	1.86	hrs	14.90	27.71
Irrigation Labor - Center Pivot	0.92	hrs	19.15	17.62
Irrigation Labor - Chem-Fert	0.76	hrs	19.15	14.55
General Farm Labor	2.27	hrs	11.00	24.97
<b>Sorting:</b>				
				<b>\$52.20</b>
Sorting Labor	360.00	cwt	0.111	39.96
Sorting Equipment Repairs & Power	360.00	cwt	0.034	12.24
<b>Other:</b>				
				<b>\$131.56</b>
Crop Insurance: MP + Hail	1.00	acre	70.00	70.00
Fees & Assessments	342.00	cwt	0.18	61.56
Interest on Operating Capital at 6.00%				\$42.55
<b>Total Operating Costs</b>				<b>\$1,418.29</b>
<b>Operating Costs per Unit</b>				<b>\$3.94</b>
<b>Net Returns Above Operating Costs</b>				<b>\$1,011.71</b>

2015	Yield Change	
360	0	0.0%
	<b>\$ Change</b>	<b>% Change</b>
<b>\$279.30</b>	<b>\$10.50</b>	<b>3.8%</b>
243.60	\$9.45	3.9%
35.70	\$1.05	2.9%
<b>\$390.90</b>	<b>-\$96.00</b>	<b>-24.6%</b>
79.75	-\$24.40	-30.6%
82.15	-\$24.80	-30.2%
79.20	-\$32.80	-41.4%
27.00	-\$8.60	-31.9%
58.40	-\$8.00	-13.7%
32.40	-\$5.40	-16.7%
32.00	\$8.00	25.0%
<b>\$238.73</b>	<b>-\$35.83</b>	<b>-15.0%</b>
10.50	\$2.10	20.0%
12.00	-\$1.60	-13.3%
25.60	-\$0.48	-1.9%
10.99	-\$1.61	-14.7%
18.36	-\$0.36	-2.0%
9.80	-\$3.30	-33.7%
18.40	-\$5.20	-28.3%
11.38	-\$5.25	-46.2%
25.85	-\$6.60	-25.5%
13.84	-\$1.04	-7.5%
16.94	-\$1.19	-7.0%
8.10	-\$0.30	-3.7%
34.38	-\$5.50	-16.0%
22.60	-\$5.50	-24.3%
<b>\$67.25</b>	<b>-\$9.00</b>	<b>-13.4%</b>
7.75	\$0.00	0.0%
7.25	\$0.25	3.4%
26.25	-\$9.25	-35.2%
26.00	\$0.00	0.0%
<b>\$67.68</b>	<b>\$0.71</b>	<b>1.0%</b>
12.25	\$0.25	2.0%
11.73	\$0.23	2.0%
43.70	\$0.23	0.5%
<b>\$126.53</b>	<b>-\$10.82</b>	<b>-8.6%</b>
11.28	-\$1.35	-12.0%
50.06	-\$7.46	-14.9%
5.44	-\$0.76	-14.0%
10.01	-\$1.40	-14.0%
49.75	\$0.15	0.3%
<b>\$156.59</b>	<b>\$5.44</b>	<b>3.5%</b>
74.56	\$2.62	3.5%
26.78	\$0.93	3.5%
17.02	\$0.60	3.5%
14.06	\$0.49	3.5%
24.18	\$0.79	3.3%
<b>\$50.98</b>	<b>\$1.22</b>	<b>2.4%</b>
38.74	\$1.22	3.2%
12.24	\$0.00	0.0%
<b>\$131.56</b>	<b>\$0.00</b>	<b>0.0%</b>
70.00	\$0.00	0.0%
61.56	\$0.00	0.0%
44.15	-\$1.60	-3.6%
<b>\$1,553.67</b>	<b>-\$135.38</b>	<b>-8.7%</b>
<b>\$4.32</b>	<b>-\$0.38</b>	<b>-8.7%</b>
<b>\$966.33</b>		

**Table E-1. 2016 Costs to grow, harvest and sort Eastern Idaho Northern region Russet Burbank potatoes.**

Item	Quantity Per Acre	Unit	Price or Cost	Value or Cost/Acre
<b>Ownership Costs:</b>				
Tractors & Equipment Insurance				5.23
Tractors & Equipment Depreciation & Interest				172.00
Potato Handling Equipment Deprec. & Interest				53.00
Land*				440.00
Overhead				35.50
Management Fee				112.00
<b>Total Ownership Costs</b>				<b>\$817.73</b>
<b>Ownership Costs per Unit</b>				<b>\$2.27</b>
<b>Total Costs per Acre</b>				<b>\$2,236.02</b>
<b>Total Cost per Unit</b>				<b>\$6.21</b>
<b>Returns to Risk</b>				<b>\$193.98</b>
Notes:				
*Includes irrigation system ownership costs.				
Blue font indicates an increase.				
Red font indicates a decrease.				
A green font indicates a change in product or procedure to derive the cost.				
Procedural changes can result in different costs than were published the previous year.				
<b>Breakeven Analysis:</b>				
	-	Base	+	
	5%		5%	
		<b>Yield</b>		
<u>Price</u>	<b>342</b>	<b>360</b>	<b>378</b>	
Operating Cost Breakeven	\$4.15	\$3.94	\$3.75	
Ownership Cost Breakeven	\$2.39	\$2.27	\$2.16	
Total Cost Breakeven	\$6.54	\$6.21	\$5.92	
		<b>Price</b>		
<u>Yield</u>	<b>\$6.41</b>	<b>\$6.75</b>	<b>\$7.09</b>	
Operating Cost Breakeven	221.2	210.1	200.1	
Ownership Cost Breakeven	127.5	121.1	115.4	
Total Cost Breakeven	348.7	331.3	315.5	

	5.08	\$0.15	3.0%
	170.00	\$2.00	1.2%
	52.00	\$1.00	1.9%
	440.00	\$0.00	0.0%
	39.00	-\$3.50	-9.0%
	119.00	-\$7.00	-5.9%
<b>Total Ownership Costs</b>	<b>\$825.08</b>	<b>-\$7.35</b>	<b>-0.9%</b>
<b>Ownership Costs per Unit</b>	<b>\$2.29</b>	<b>-\$0.02</b>	<b>-0.9%</b>
<b>Total Costs per Acre</b>	<b>\$2,378.75</b>	<b>-\$142.73</b>	<b>-6.0%</b>
<b>Total Cost per Unit</b>	<b>\$6.61</b>	<b>-\$0.40</b>	<b>-6.0%</b>
<b>Returns to Risk</b>	<b>\$141.25</b>		

**Table E-2. 2016 Cost per cwt to grow, harvest, sort and store Eastern Idaho Russet Burbank potatoes based on both field-run and paid yield.**

	Storage Costs	Field Run Cost per Cwt	Paid Yield Cost per Cwt
Field-Run Yield		360.00	
Paid Yield %	95%		342.0
<b>Base Cost to Grow, Harvest &amp; Sort</b>		<b>\$6.21</b>	<b>\$6.54</b>
Storage System Annual Ownership Costs	\$0.358	\$0.358	\$0.377
Base Cost + Storage Ownership Costs		\$6.57	\$6.91
Storage System Annual Repairs	\$0.041	\$0.041	\$0.043
Base + Storage System Ownership & Repairs		\$6.61	\$6.96
	<b>Cumulative Storage Op. Costs</b>	<b>Cumulative Base + All Storage Costs</b>	<b>Cumulative Base + All Storage Costs</b>
October	\$0.222	\$6.83	\$7.19
November*	\$0.398	\$7.01	\$7.38
December	\$0.485	\$7.10	\$7.47
January	\$0.576	\$7.19	\$7.56
<b>February</b>	<b>\$0.664</b>	<b>\$7.27</b>	<b>\$7.66</b>
March	\$0.753	\$7.36	\$7.75
April	\$0.945	\$7.56	\$7.95
May	\$1.055	\$7.67	\$8.07
June	\$1.184	\$7.79	\$8.20

Data entered directly by user. All other values are calculated.

Calculated values.

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, air system, and the equipment used to place.

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

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

\* Indicates month when sprout inhibitor applied.

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