2007 Cost of Potato Production Comparisons for Idaho Commercial Potato Production

Conducted by:

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The Idaho Potato Commission R & E Committee, Potato Processors, and Grower Organizations

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Copies of the report and earlier reports can be found at: http://www.ag.uidaho.edu/aers
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Costs of Potato Production In Idaho

The overall goal of this project is to provide the Idaho potato industry with annual estimates of potato production costs in Idaho by region. Production costs will be compared both within and between regions on a per acre and a per hundredweight basis. Percentage changes in the major cost categories from the most recent previous year will also be calculated.

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 existing potato costs and returns estimates to reflect current input costs and growers' production practices.
3. To develop cost of production estimates for new varieties or production systems as appropriate, or as requested.
4. To provide individual CAR estimates to the Idaho potato industry and University of Idaho faculty with potato responsibility.
5. To calculated change in production costs by region and make this information available to the Idaho potato industry.
6. To re-establish the Cost of Production Advisory Committee and to meet with this group to review the potato 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, and input suppliers. I would also like to thank the Idaho Potato Commission for the funding I receive to support this project, BDK802.

Cost of Production Background

The University of Idaho Department of Agricultural Economics and Rural Sociology (AERS) develops crop costs and returns (CAR) estimates – also referred to as enterprise budgets or cost of production estimates -- for many of the major crops grown in Idaho. CAR estimates are revised and published every other year in odd-numbered years, typically in the early winter. Crop CAR estimates are developed for four geographic regions of the state. These include southwestern Idaho, southcentral Idaho, eastern Idaho, and northern Idaho. Climate and soil conditions not only influence which crops are produced in each region of the state, but they also influence the crop specific production practices in each region. Production practices, even for the same crop, can and do vary significantly by region. Production

practices depicted in the University of Idaho CAR estimates are typical or representative for that crop and region. They are not averages. The relatively small sample size of growers that provide data does not allow us to make statistical inferences for the state or even a region. It is also important to note that while the production practices and costs presented in the CAR estimates are representative of a region, there is a wide range in production practices and costs.

Information used in developing production practices modeled in the CAR estimates comes from a variety of sources, including: surveys of individual growers, information from grower panels, industry fieldmen, as well as University of Idaho county Extension educators and production specialists. Both crop and livestock CAR estimates are available from the Internet at the following URL: http://www.ag.uidaho.edu/aers Click on Resources and then Crops or Livestock. The crop CAR estimates are organized by year and by region. Copies of this report and earlier reports on changes in potato production costs in Idaho can be found at the same web address. Click on Resources and the Project Reports.

2007 Crop Input Costs

The cost information used to produce the 2007 potato CAR estimates came from the summary of data collected from various input supplier surveys that was published as Agricultural Economics Extension Series no. 08-02, *Idaho Crop Input Price Summary for 2007*. This is available upon request or a copy can be obtained at the Internet URL shown above.

Surveys were conducted between June and October and included irrigation districts and canal companies, agricultural lenders, crop insurance companies, trucking companies, aerial and other custom applicators, 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. A charge for handling and transportation is added then added to the FOB seed farm-based seed potato prices to derive a seed potato cost for each region.

Machinery and equipment prices were obtained from a survey of dealers conducted between August 2004 and May of 2005. These prices are adjusted using the USDA Prices Paid Machinery Index. Irrigation equipment prices and costs were based on Extension Bulletin 788, *Economics of Sprinkler Irrigation Systems: handline, solid set & wheelline*, and Extension Bulletin 787, *Economics of Low-Pressure Sprinkler Irrigation Systems: center pivot and linear move*. Irrigation system costs were also adjusted using the USDA Prices Paid Machinery Index. Index-based price adjustments are based on changes from July of the base year to July of the current year.

Potato Cost of Production Overview

Cost of production estimates are influenced by the assumptions made in depicting a representative or typical farm. The size of the farm and the acreage planted to different crops will influence the 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 has eleven potato CAR estimates. Ten CAR estimates are for commercial potato production and one is for seed production. A list of CAR estimates by region and variety is found in Table 1. Table 1 also indicates whether the CAR estimates include storage or fumigation costs.

Farm Size and Potato Acreage

Table 2 shows the farm size and potato acreage for each region's model farm for the five most recent years when cost of production estimates were made. The model farm in southwestern Idaho is 1,000 acres with 250 acres in potatoes, while the model farms for southcentral and eastern Idaho are 1,500 acres with 375 acres and 500 acres in potatoes, respectively. 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 that these costs are spread over; the more acres, the lower the cost. In setting the farm size and selecting the machinery compliment, 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

Price data collected for use in the crop CAR estimates is published as an Agricultural Economics and Rural Sociology Departmental publication. The most recent version of this publication and input price summaries from earlier years are available on the Internet at the URL given on page one. In addition to the prices, the publication also discusses data collection procedures.

Certain input values used in CAR estimates 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 costs and Idaho Power's irrigation power charges. Interest is charged from the time an expenditure is 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 in one of three classes shown in Table 3. The

labor used to operate machinery; tractor operators and truck drivers for example, receive a higher wage than unskilled (other) labor used during harvest to pick clods and rocks on a harvester and to help with storage and trans-loading operations. 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 farms. 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 is for pressurization only. The standard assumption for each model farm is that surface water is delivered to the farm from a canal.

Tables 4-a, 4-b and 4-c contain cost information on common inputs that generally vary by region. These include fuel, water assessment, and fertilizer. 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 1999, a state average price was used in all the CAR estimates for diesel and gasoline.

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 transloading costs which are calculated on a hundredweight basis. Table 5 shows the potato yields that have been used in the commercial potato CAR estimates published by the University of Idaho for each region for the last five updates. Some values are shown only as a reference and indicate the value we would use if we 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 Idaho Agricultural Statistics Service 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 in the potato CAR estimates 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, yield estimates 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 based on three years of historical data: 2004, 2005 and 2006. The 2007 county-level data will not be published until September 2008, 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.

For crop reporting purposes, the IASS breaks Idaho into regions. The IASS 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 IASS 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. (See Table 1.)

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. 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 will be different than those published the previous year.

The 2007 southwest Idaho Russet Burbank CAR estimate uses the fumigated yield of 505 cwt, up 5 cwt from 2006, and the 2007 Shepody CAR estimate uses a fumigated yield of 490 cwt, up 10 cwt from 2006. These yields are unchanged from those used in the 2006 CAR estimates. For southcentral Idaho, the non-fumigated yield in the 2007 CAR estimates is 400 cwt and the fumigated yield is 450. Both increased by 10 cwt compared to 2006 CAR estimates. The yield for the 2007 eastern Idaho north district budget without fumigation was 335cwt, up 5 cwt. There is no CAR estimate that includes fumigation for the north district. The yields used in the eastern Idaho south district CAR estimates were down 5 cwt from 2006. The yield for non-fumigated CAR estimates is 345 and for the fumigated CAR estimate, the yield is 385.

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 has a significant impact on the per acre production costs and can also have a large impact on potato yield and quality. For an individual grower, this is does not pose a problem because the cost and yield increases correspond. In the budgeting procedures used to generate the 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 IASS contain both fumigated and non-fumigated potato acreage, the IASS 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 IASS data.

Historic yields based on IASS 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 IASS 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 then it actually is.

The IASS county-level or regional yield data were used to derive an area yield. 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 the estimated percentage of potato acres in that region that are fumigated and not fumigate, respectively. The yield adjustment attributable to fumigation as well as the percentage of acres fumigated in each region is shown in Table 8.

Fumigation Yield Adjustment Factor

(% of acres not fumigated x Y) + (% acres fumigated x FY) = Area Average Yield,
Where Y = non-fumigation yield,
FY = fumigation yield, , and
FY = Y + 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.

.4Y	+	.6 (Y+50)	=	400		
.4Y	+	.6Y +30	=	400		
1.0Y	+	30	=	400		
		Y	=	370		
And		FY	=	420		
Check:		.4 x 370	+	.6 x 420	=	400

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. Comments from the potato industry on how to improve this procedure are encouraged, particularly on how to improve the values shown in Table 8. Using the percentages of acres fumigated from Table 8 and the number of potato acres grown in each region produces a statewide weighted-average of approximately 45 percent of the potato acreage being fumigated. This falls within the ranges of values of 40-50 percent given by a knowledgeable industry source.

Unresolved Yield Issue

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 IASS includes all tubers greater than 1-1/2 inches. Since the UI CAR estimates do not segment the 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 in order to cover costs. The implicit assumption is that the yields shown in the CAR estimates are a paid yield. But with unuseables averaging around 8 percent for processing potatoes, the yield shown in the UI CAR estimates is greater than what growers would be paid on. This issue may not be resolved in the CAR estimates, but it certainly needs to be addressed if the potato industry uses the values from these CAR estimates to justify contract base prices and incentives. The underlying issue is whether per the per acre

cost and the changes in per acres costs from year-to-year is a better measure to use than cost per hundredweight and the change in per hundredweight costs from year-to-year.

2007 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. Procedural adjustments were made in several calculations between 2006 and 2007. These are discussed later.

Note that beginning with the 2003 CAR estimates, the non-storage CAR estimates model a situation where potatoes are trans-loaded to a semi-trailer, rather than being hauled directly to the plant or processor storage in field trucks, which was the assumption prior to 2003. The semi-trailer is hired, not owned, so it shows up as a custom hauling expense. The expense shows up on the CAR estimates as a custom hauling charge. The labor costs for the crew at the transloading point must also be accounted for. The assumption is that the transloading crew is the same as the "cellar" crew used when potatoes are placed in storage. The transloading labor is included in the trans-loading operating expense, not as a labor charge per se. There is also an ownership cost in the non-storage CAR estimates to account for depreciation, interest and insurance on the trans-loading equipment. The trans-loading equipment includes most but not all the equipment that is used in the storage CAR estimates and includes: conveyers, even-flow bin, eliminator/sizer, and piler. Information regarding the specific farm situation for each CAR estimate, i.e. farm size, tillage, cultivation, fertilization practices, irrigation method, etc., is discussed on the background and assumptions page that is included with each CAR estimate.

Cost Summaries

Tables 9, 10 and 11 summarize the 2007 commercial potato CAR estimates for southwestern, southcentral and eastern Idaho, respectively. Only the southern county Russet Burbank CAR estimates for eastern Idaho are shown in Table 11. To simplify the comparison, input costs are summarized by category. The detailed costs are shown in the appendix. Most input categories contain multiple items. Table 9 (southwestern Idaho) shows the cost summaries for a Russet Burbank and a Shepody CAR estimate. Both use fumigation and neither contains storage costs, but both contain trans-loading costs. Table 10 (southcentral Idaho—Magic Valley) shows the cost summaries for three Russet Burbank CAR estimates. There is a non-storage and a storage CAR estimate, neither with fumigation, and a storage CAR estimate with fumigation. The non-storage CAR estimate includes trans-loading costs. Table 11 (eastern Idaho - South) shows the cost summaries for three Russet Burbank CAR estimates for the southern portion of

eastern Idaho commercial growing area. There is a non-storage (with trans-loading costs) and a storage CAR estimate, neither with fumigation, and a storage CAR estimate with fumigation.

Table 12 summarizes the 2007 operating and ownership costs, both per acre and per hundredweight for all the CAR estimates shown in Tables 9, 10 and 11, as well as the eastern Idaho north district commercial CAR estimate and the G3 seed CAR estimate. Making cost comparisons between regions may not always be appropriate because of difference in the assumed management practices and farm sizes. Management practices for southcentral and southeastern Idaho are fairly similar, making direct comparisons more meaningful.

Cost Comparisons

Table 13 shows the major cost categories (operating, ownership and total) for 2006 and 2007, and the change in costs between years on a per acre basis by CAR estimate for each region. Table 14 shows the same cost categories and changes, but on a per hundredweight basis. The cost data summarized in Tables 13 and 14 is taken from tables 15-22, which are found in the appendix. Operating costs per acre increases ranged from $101 to $142 per acre. Ownership cost increases ranged from $73 to $114 per acre. Total cost per acre increases ranged from $174 to $256. Operating cost changes per hundredweight ranged from $.18 to $.35, ownership costs per hundredweight increases ranged from $.19 to $.26 and the total cost per hundredweight increases ranged from $.38 to $.61.

Tables 15-24 contain the detail 2007 CAR estimates with a comparison to 2006, showing both the dollar change and the percentage change in costs for the major cost categories as well as for individual items. Table 15 and Table 16 contain the southwestern Idaho potato cost of production for Russet Burbank and Shepody, respectively. Tables 17, 18 and 19 contain the three southcentral Idaho Russet Burbank cost of production estimates. Tables 20, 21 and 22 contain the eastern Idaho Russet Burbank cost of production estimates for the southern district (Bannock, Bingham and Power counties). Table 23 contains the eastern Idaho north district (Bonneville, Jefferson and Madison counties) commercial potato cost of production estimate and Table 24 contains the G3 seed potato cost of production estimate. Changes are color-coded; blue indicates an increase and red indicates a decrease. Costs that were affected by a procedural change are shown in a green font.

While overall costs increased between 2006 and 2007, there were exceptions. The price of several pesticides dropped between 2006 and 2007. The price drops were on some insecticides and fungicides. Overall, the 2007 pesticide cost categories were above 2006 for all CAR estimates, except the eastern Idaho storage budget with fumigation and the southcentral storage budget with fumigation. The only other major cost category that showed a decline between 2006 and 2007 was fuel and lube. This cost

category declined on all budgets. Since we only survey fuel dealers once during the summer, this drop may have more to do with us hitting close to the market high with the 2006 survey, because fuel prices aren't cheap. The biggest cost increases were seen in fertilizer with per acre increases of 17 – 25%, or $51 to $65 . Custom charges also went up between 7 – 10% or $5 - $16 per acre in 2007. Seed prices increased, but not as much as last year. Russet Burbank seed increased around 7%. Shepody seed costs were up by only 4.5%. The cost to cut and treat seed also increased by $.25 per hundredweight, or 15.2%. Operating interest increase around 7% because of increased cost of inputs. The interest rate used to calculate the interest cost was the same in 2007 as in 2006. On ownership costs, higher machinery costs drove the depreciation and interest costs higher by 4 – 5%, or $7.50 to $11 per acre. But the biggest increase in ownership costs came from increased land values and increasing cash rents. Land cost increases ranged from $55 to $90 per acre, or 20 – 21%.

Adjustments for 2007

Adjustments in 2007 mostly involved how costs were calculated for transloading equipment and the potato storage systems. The potato storage system includes the storage facility, the air system, and the potato handling equipment used to place potatoes in storage. Transloading repair costs and ownership costs were put on a standardized hundredweight basi. The per hundredweight value is then used to generate a cost per acre based on yield. This makes the cost calculations scale neutral, which lowered the costs for southwestern Idaho and southcentral Idaho where fewer potato acres on the model farm meant higher costs. The repair and ownership values for 2006 were recalculated using this same procedure. A similar change was made to the repair and ownership cost calculations for the potato storage system. Also, the handling equipment and the storage facility ownership and repair values are now combined into one value and are no longer listed separately.

Table 1.Idaho potato costs and returns estimates by region.

Region/Publication No.	Variety	Storage	Fumigation
Commercial Potatoes			
Southwestern:			
EBB2-Pol-07	Russet Burbank	No	Yes
EBB2-Po2-07	Shepody	No	Yes
Southcentral:			
EBB3-Pol-07	Russet Burbank	No	No
EBB3-Po2-07	Russet Burbank	Yes	No
EBB3-Po3-07	Russet Burbank	Yes	Yes
Eastern – South Counties:			
EBB4-Pol-07	Russet Burbank	No	No
EBB4-Po5-07	Russet Burbank	Yes	No
EBB4-Po6-07	Russet Burbank	Yes	Yes
EBB4-Po3-07	Chipping	Yes	No
Eastern – North Counties:			
EBB4-Po2-07	Russet Burbank	Yes	No
Seed			
Eastern – Seed Counties			
EBB4-Po4-07	G3 Russet Burbank	Yes	No

Table 2. Model farm size and potato acreage assumptions by region: 2003- 2007.

	2003		2004		2005		2006		2007	
	Farm	Potato	Farm	Farm	Farm	Potato	Farm	Potato	Farm	Potato
Southwestern	1000	250	1000	1000	1000	250	1000	250	1000	250
Southcentral	1500	375	1500	1500	1500	375	1500	375	1500	375
Eastern	1500	500	1500	1500	1500	500	1500	500	1500	500

Table 3. Interest rates, labor charges and power rates used in CAR estimates: 2003 - 2007.

	2003	2004	2005	2006	2007
Operating Interest Rate	5.5%	6.0%	7.5%	9.50%	9.50%
Intermediate Interest Rate	5.75%	6.5%	7.75%	8.75%	8.75%
Labor Class (overhead)					
Machinery Labor (30%)	$12.00	$12.15	$13.15	$13.45	$14.10
Irrigation Labor (25%)	$8.05	$8.15	$8.75	$9.00	$9.45
Other Labor (15%)	$7.15	$7.20	$7.70	$7.95	$8.35
Power Rate: Idaho Power Irrigation Service Schedule 24					
Monthly Service Charge	$10.07	$12.00	$12.00	$14.25	$14.25
Demand Charge: irrigation season	$3.58	$ 4.02	$ 4.19	$4.36	$4.36
Base Rate: per kWh	2.8416¢	3.2618¢	3.4897¢	3.3964¢	3.3964¢
Power Cost Adjustment per kWh	1.3159¢	0.5054¢	0.6052¢	-0.36989¢	0.2419¢
Effective Rate: per kWh	4.1575¢	3.7672¢	4.0949¢	3.0275¢	3.6383¢
Pumping Cost per Acre Inch	$1.37	$1.26	$1.39	$1.12	$1.26

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. Pumping costs per acre-inch at different lifts (0-, 100-, 200- and 300-feet) and different irrigation systems (center pivots without corner systems and wheellines) can be found in the *Idaho Crop Input Cost Summary for 2007.*

Table 4-a. Current and historical fuel, water assessment and fertilizer component prices for southwestern Idaho: 2003 - 2007.

	2003	2004	2005	2006	2007
Gasoline	$1.70	$2.08	$2.37	$2.98	$3.00
Off-Road Diesel	$1.17	$1.58	$2.09	$2.75	$2.65
Road Diesel				$3.26	$3.10
Water Assessment	$36.05	$33.60	$34.45	$35.90	$37.40
Dry Nitrogen (46-0-0)	$0.28	$0.32	$0.42	$0.45	$0.50
Liquid Nitrogen (32-0-0)	$0.31	$0.35	$0.47	$0.48	$0.60
P_2O_5 Dry (11-52-0)*	$0.21	$0.22	$0.24	$0.27	$0.38
P_2O_5 Liquid (10-34-0)*	$0.32	$0.35	$0.33	$0.36	$0.37
K_2O (0-0-60)	$0.13	$0.16	$0.22	$0.24	$0.25
Sulfur	$0.12	$0.12	$0.16	$0.18	$0.18

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

Table 4-b. Current and historical fuel, water assessment and component fertilizer prices for south central Idaho: 2003 - 2007.

	2003	2004	2005	2006	2007
Gasoline	$1.65	$2.04	$2.26	$2.97	$2.95
Off-Road Diesel	$1.25	$1.50	$2.07	$2.82	$2.55
Road Diesel				$3.31	$3.05
Water Assessment	$26.40	$27.20	$30.20	$33.95	$38.20
Pre-Plant N (46-0-0)	$0.30	$0.29	$0.39	$0.38	$0.49
Post Plant N (32-0-0)	$0.33	$0.35	$0.45	$0.44	$0.58
P_2O_5 Dry (11-52-0)*	$0.20	$0.21	$0.23	$0.28	$0.37
P_2O_5 Liquid (10-34-0)*	$0.31	$0.33	$0.31	$0.37	$0.38
K_2O (0-0-60)	$0.15	$0.16	$0.22	$0.25	$0.25
Sulfur	$0.12	$0.13	$0.14	$0.17	$0.15

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

Table 4-c. Current and historical fuel, water assessment and fertilizer component prices for eastern Idaho: 2003 - 2007.

	2003	2004	2005	2006	2007
Gasoline	$1.60	$2.01	$2.29	$2.89	$2.90
Off-Road Diesel	$1.18	$1.44	$2.08	$2.79	$2.55
Road Diesel				$3.28	$3.00
Water Assessment	$11.65	$13.05	$12.40	$12.95	$13.45
E. Idaho South District	$19.50	$25.00	$21.00	$23.00	$23.00
E. Idaho North District	$9.50	$9.10	$9.50	$9.55	$10.25
Pre-Plant N (46-0-0)	$0.29	$0.30	$0.39	$0.40	$0.49
Post Plant N (32-0-0)	$0.32	$0.34	$0.43	$0.43	$0.58
P_2O_5 Dry (11-52-0)*	$0.20	$0.22	$0.24	$0.25	$0.37
P_2O_5 Liquid (10-34-0)*	$0.28	$0.27	$0.28	$0.30	$0.38
K_2O (0-0-60)	$0.14	$0.16	$0.21	$0.23	$0.25
Sulfur	$0.12	$0.12	$0.12	$0.15	$0.15

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

Table 5. Calculated potato yields used in published University of Idaho costs and returns estimates by region, both with and without fumigation: 2003 - 2007.*

Area	2003	2004	2005	2006	2007
	cwt	cwt	cwt	cwt	Cwt
Southwest Region: Base Yield	455	470	475	475	480
Russet Burbank: No Fumigation	420	435	440	440	445
Russet Burbank: Fumigation	**480**	**495**	**500**	**500**	**505**
Shepody: No Fumigation:	400	415	420	420	430
Shepody: Fumigation	**460**	**475**	**480**	**480**	**490**
Southcentral Region: Base Yield	405	405	400	415	425
Russet Burbank: No Fumigation	**380**	**385**	**380**	**390**	**400**
Russet Burbank: Fumigation	**430**	**435**	**430**	**440**	**450**
Eastern Region: Russet Burbank: Base	325	330	320	345	345
South Counties* : Base Yield	335	340	355	370	365
South: No Fumigation	**320**	**325**	**340**	**350**	**345**
South: Fumigation	**360**	**365**	**380**	**390**	**385**
North Counties*: Base Yield	325	325	325	340	345
North: No Fumigation	**315**	**315**	**320**	**330**	**335**
North: Fumigation	345	345	350	360	370

Note: Values in bold indicate published CAR estimates. There are no published CAR estimates for those not in bold. These are shown only for comparison.
*Eastern Idaho North Counties: Bonneville, Jefferson and Madison.
*Eastern Idaho South Counties: Bannock, Bingham and Power.

Table 6. Historical potato yields published by IASS for 2002 - 2006 and historical 3-year averages.

Area	2002	2003	2004	2005	2006	**3-Year Average**
Southwest Region	455	465	490	470	475	**478**
Southcentral Region	404	390	413	410	447	**423**
Eastern Region	329	314	345	340	357	347
South District	336	326	371	364	367	**367**
North District	327	310	334	338	355	**343**
Statewide	358	344	374	366	386	375

IASS: Idaho Agricultural Statistics Service, USDA.

Table 7. Historical potato yields reported by IASS for the primary commercial potato counties in eastern Idaho for 2002 - 2006 and historical 3-year averages.

Area	2002	2003	2004	2005	2006	3-Year Average
North District Counties:						
Bonneville	295	286	303	310	340	318
Jefferson	355	333	380	385	389	385
Madison	330	310	320	319	337	325
3-county Average	327	310	334	338	355	343
South District Counties:						
Bannock	315	310	360	377	355	364
Bingham	335	325	370	346	362	359
Power	359	344	382	369	384	378
3-county Average	336	326	371	364	367	367

IASS: Idaho Agricultural Statistics Service, USDA.
Blue is forecast or average based on forecast.

Table 8. Fumigation percentage by region and yield adjustment factors by region.

Region	Acres Fumigated	Fumigation Adjustment
Southwest	60%	+ 60 cwt
Southcentral	50%	+ 50 cwt
Southeastern		
South District	45%	+ 40 cwt
North District	30%	+ 35 cwt

Table 9. 2007 Commercial non-storage potato cost of production summary for southwestern Idaho with fumigation.

	R. Burbank	Shepody
Operating Costs:		
Seed - cut & treated	$290.95	$361.80
Fertilizer	$350.50	$281.30
Pesticides & Chemicals*	$393.20	$410.82
Custom & Consultants	$182.15	$178.80
Irrigation **	$111.26	$108.88
Other Costs ***	$111.75	$109.50
Transloading Operating Costs	$ 41.92	$ 40.67
Fuel & Lube	$ 122.68	$122.68
Machinery Repairs	$ 47.00	$ 47.40
Transloading Equipment Repairs	$ 7.05	$ 6.85
Labor: Machine & Non-Machine	$137.17	$137.17
Operating Interest	$ 76.74	$ 78.58
Total Operating Cost	$1,872.37	$1,884.35
Per CWT Operating Costs	$3.71	$3.85
Ownership Costs:		
Transloading Equipment	$ 43.45	$ 42.15
Machinery & Equipment	$275.41	$277.55
Land Charge ****	$525.00	$525.00
Overhead	$ 46.00	$ 47.00
Management Fee	$131.00	$127.00
Total Ownership Cost	$1,020.86	$1,018.70
Per CWT Ownership Costs	$2.02	$2.08
Total Cost***	$2,893.23	$2,903.05
Per CWT Total Costs	$5.73	$5.92
Yield	505	490

* Pesticide costs include insecticides, herbicides, fungicides and fumigant.

** Irrigation includes power, labor and water assessment.

*** Other costs include crop insurance and assessment fees.

**** Land charge includes irrigation system ownership costs.

*****Total Cost does not include risk.

Table 10. 2007 Commercial Russet Burbank potato cost of production summary for Southcentral Idaho.

	Non-Fumigated		Fumigated
	Non-Storage	Storage	Storage
Operating Costs:			
Seed - cut & treated	$278.30	$278.30	$278.30
Fertilizer	$330.45	$330.45	$350.20
Pesticides *	$157.11	$157.11	$299.11
Custom & Consultants	$174.85	$ 82.85	$110.85
Irrigation **	$ 103.74	$102.74	$107.87
Other Costs ***	$ 98.00	$ 95.00	$102.20
Transloading Operating Costs	$ 33.20		
Storage Operating Costs		$256.00	$288.00
Fuel & Lube	$ 88.50	$ 88.85	$ 90.65
Machinery Repairs	$ 42.50	$ 43.50	$ 46.60
Transloading Equip. Repairs	$ 5.60		
Potato Storage System Repairs		$14.80	$ 16.65
Labor: Machine & Non-Machine	$118.36	$118.08	$129.15
Operating Interest	$ 52.95	$ 49.35	$ 66.60
Total Operating Cost	$1,483.56	$1,618.03	$1,886.18
Per CWT Operating Costs	$3.71	$4.05	$4.19
Ownership Costs:			
Transloading Equipment	$ 34.40		
Potato Storage System		$ 155.00	$174.60
Machinery & Equipment	$174.10	$168.95	$174.10
Land Charge ****	$450.00	$450.00	$450.00
Overhead	$ 37.00	$ 40.45	$ 47.00
Management Fee	$104.00	$110.00	$124.00
Total Ownership Cost	$799.50	$924.40	$969.70
Per CWT Ownership Costs	$2.00	$2.31	$2.15
Total Cost***	$2,283.06	$2,542.43	$2,855.88
Per CWT Total Costs	$5.71	$6.36	$6.35
Yield	400	400	450

* Pesticide costs include insecticides, herbicides, fungicides and fumigant.

** Irrigation includes power, labor and water assessment.

*** Other costs include crop insurance and assessment fees.

**** Land charge includes irrigation system ownership costs.

*****Total Cost does not include risk.

Table 11. 2007 Commercial Russet Burbank potato cost of production summary for Eastern Idaho, southern counties.

	Non-Fumigated		Fumigated
	Non-Storage	Storage	Storage
Operating Costs:			
Seed - cut & treated	$235.20	$235.20	$235.20
Fertilizer	$306.90	$306.90	$323.80
Pesticides *	$105.10	$105.10	$255.10
Custom & Consultants	$132.50	$53.15	$ 53.15
Irrigation **	$ 79.37	$79.37	$ 84.69
Other Costs ***	$ 83.75	$81.20	$ 86.90
Transloading Operating Costs	$ 28.64		
Storage Operating Costs		$220.80	$246.40
Fuel & Lube	$101.33	$100.26	$100.25
Machinery Repairs	$ 42.60	$ 43.30	$ 43.30
Transloading Equipment Repairs	$ 4.85		
Potato Storage System Repairs		$ 12.75	$ 14.25
Labor: Machine & Non-Machine	$117.94	$119.35	$121.27
Operating Interest	$ 43.30	$ 42.00	$58.95
Total Operating Cost	$1,281.48	$1,399.38	$1,623.26
Per CWT Operating Costs	$3.71	$4.06	$4.22
Ownership Costs:			
Transloading Equipment	$ 29.65		
Potato Storage System		$133.85	$135.80
Machinery & Equipment	$188.10	$186.70	$186.70
Land Charge ****	$325.00	$325.00	$325.00
Overhead	$ 32.00	$ 35.00	$ 41.00
Management Fee	$ 90.00	$ 95.00	$107.00
Total Ownership Cost	$664.75	$775.55	$795.50
Per CWT Ownership Costs	$1.93	$2.25	$2.07
Total Cost***	$1,946.23	$2,174.93	$2,418.76
Per CWT Total Costs	$5.64	$6.30	$6.28
Yield	345	345	385

* Pesticide costs include insecticides, herbicides, fungicides and fumigant.

** Irrigation includes power, labor and water assessment.

*** Other costs include crop insurance and assessment fees.

**** Land charge includes irrigation system ownership costs.

*****Total Cost does not include risk.

Table 12. 2007 Idaho potato costs per acre and per cwt summary by region.

CAR Estimate	Operating Cost		Ownership Costs		Total Cost	
	Acre	Cwt	Acre	Cwt	Acre	Cwt
Southwestern Idaho:						
Russet Burbank: No Storage & Fumigation	$1,872	$3.71	$1,021	$2.02	$2,898	$5.73
Shepody: No Storage & Fumigation	$1,884	$3.85	$1,019	$2.08	$2,903	$5.92
Southcentral Idaho:						
Russet Burbank: No Storage	$1,484	$3.71	$800	$2.00	$2,283	$5.71
Russet Burbank: Storage	$1,618	$4.05	$924	$2.31	$2,542	$6.36
Russet Burbank: Storage & Fumigation	$1,886	$4.19	$970	$2.15	$2,856	$6.35
Eastern Idaho: South						
Russet Burbank: No Storage	$1,281	$3.71	$665	$1.93	$1,946	$5.64
Russet Burbank: Storage	$1,399	$4.06	$776	$2.25	$2,175	$6.30
Russet Burbank: Storage & Fumigation	$1,623	$4.22	$796	$2.07	$2,419	$6.28
Eastern Idaho: North						
Russet Burbank: Storage	$1,283	$3.83	$722	$2.16	$2,005	$5.98
Russet Burbank G3 Seed	$1,373	$5.15	$666	$2.53	$2,039	$7.68

Note: the cost per cwt for seed are calculated after subtracting the proportionate share of the revenue from seed tops from the operating (75%), ownership (25%) or total (100%) costs per acre. The adjusted cost is divided by the seed yield, not the total yield. This is a change in procedure from previous years.

Table 13. Cost changes per acre from 2006 to 2007, by region.

	Southwestern Idaho		Southcentral Idaho			Eastern Idaho-South		
	R. Burbank: No Storage	Shepody: No Storage	R. Burbank: No Storage	R. Burbank: Sbrage	R. Burbank: Fum. & Sbr.	R. Burbank: No Storage	R. Burbank: Sbrage	R. Burbank: Fum. & Sbr.
2006 Op. Cost	$1,731	$1,757	$1,372	$1,500	$1,764	$1,181	$1,298	$1,521
2007 Op. Cost	$1,872	$1,884	$1,484	$1,618	$1,886	$1,281	$1,399	$1,623
Change	$142	$127	$112	$118	$122	$101	$102	$103
2006 Own. Cost	$907	$907	$701	$814	$857	$592	$697	$713
2007 Own. Cost	$1,021	$1,019	$800	$924	$970	$665	$776	$796
Change	$114	$112	$99	$110	$113	$73	$79	$82
2006 Total Cost	$2,638	$2,664	$2,073	$2,315	$2,621	$1,772	$1,994	$2,234
2007 Total Cost	$2,893	$2,903	$2,283	$2,542	$2,856	$1,946	$2,175	$2,419
Change	$256	$239	$211	$228	$235	$174	$180	$185

Note: rounded values may not add up.
Op. = Operating and Own. = Ownership

Table 14. Cost changes per cwt from 2006 to 2007, by region.

	Southwestern Idaho		Southcentral Idaho			Eastern Idaho-South		
	R. Burbank: No Storage	Shepody: No Storage	R.Burbank: No Storage	R.Burbank: Storage	R.Burbank: Furn. & Stbr.	R.Burbank: No Storage	R.Burbank: Storage	R.Burbank: Furn. & Stbr.
2006 Op. Cost	$3.46	$3.66	$3.52	$3.85	$4.01	$3.37	$3.71	$3.90
2007 Op. Cost	$3.71	$3.85	$3.71	$4.05	$4.19	$3.71	$4.06	$4.22
Change	$0.25	$0.19	$0.19	$0.20	$0.18	$0.34	$0.35	$0.32
2006 Own. Cost	$1.81	$1.89	$1.80	$2.09	$1.95	$1.69	$1.99	$1.83
2007 Own. Cost	$2.02	$2.08	$2.00	$2.31	$2.15	$1.93	$2.25	$2.07
Change	$0.21	$0.19	$0.20	$0.22	$0.21	$0.24	$0.26	$0.24
2006 Total Cost	$5.28	$5.55	$5.31	$5.94	$5.96	$5.06	$5.70	$5.73
2007 Total Cost	$5.73	$5.92	$5.71	$6.36	$6.35	$5.64	$6.30	$6.28
Change	$0.45	$0.38	$0.39	$0.42	$0.39	$0.58	$0.61	$0.55

Note: rounded values may not add up.
Op. = Operating and Own. = Ownership

Appendix

EBB2-Po1-07

Southwestern Idaho Russet Burbank Commercial Potatoes: Fumigation and No Storage

Economic costs are used in the University of Idaho costs and returns estimates. All resources are valued based on market price or opportunity cost. Input prices are based on the U of I's annual survey of agricultural supply companies. Except for contract crops, the selling price is a 10-year average. The costs and returns estimate shown here is typical for growing irrigated Russet Burbank commercial potatoes in southwestern Idaho when ground is fumigated. Production practices are based on producer surveys conducted in Canyon, Elmore, Owyhee and Payette counties. 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 quality of management are all crucial factors that influence costs.

The Model Farm

This costs and returns estimate models a 1,000-acre farm with 250 acres in potatoes. In addition to potatoes, the farm grows 250 acres of corn, 150 acres of alfalfa seed, 250 acres of grain, and 100 acres of dry beans. The farm uses a center pivot irrigation system and surface water delivered from an irrigation district. The irrigation district charges a flat fee per acre for water. Irrigation power costs are for pressurization only and are based on current Idaho Power rates.

Tillage, Fertilization, Pest Control, and Irrigation

After the stubble from the preceding grain crop is chopped, the potato ground is irrigated, disked, ripped twice, disked a second time and fumigated in the fall. In April the ground is marked-out and then planted using two 4-row planters with 36-inch row spacing. The seeding rate is 22 hundredweight (cwt) per acre with an additional 5 percent (1 cwt) included to account for waste. Potatoes are cultivated twice in May. The second cultivation is with a basin tillage tool. In September potato vines are rolled and sprayed with a desiccant. Potatoes harvest begins three weeks later using a 2-row harvester, a 2-row windrower, and four 10-wheeler trucks. Potatoes are hauled from the field to a central location where they are transloaded into a semi trailer and transported to the processor by a custom hauler. Most fertilizer is custom applied in two preplant applications, one in the fall before fumigation and one in the spring before planting. A starter fertilizer containing nitrogen, phosphate, and micronutrients is applied at mark-out. Additional nitrogen is applied postplant through the irrigation system. The weed program uses cultural, mechanical (tillage and cultivation), and chemical control methods. Two postemergence herbicides are used for control of annual grasses and broadleaf weeds. The first herbicide is applied with the second cultivation. The second herbicide is applied by chemigation. For insect control, a systemic insecticide is banded at planting, and two contact insecticides are applied by air. Four fungicide applications are made for blight control, starting in late June. Two applications are made by custom air spray while two are made by chemigation. Potatoes receive 24 inches of water during the growing season from approximately 55 irrigations (pivot revolutions), 3 inches in May, 7 inches in June, 9 inches in July, and 5 inches in August. Two inches of water is applied before fall tillage and another three inches are used to apply/incorporate the fumigant. One inch of water is applied prior to harvest. These off-growing season applications are also credited to potatoes for a total of 30 inches.

Resources: Machinery, Land, Labor, and Capital

Table 3 lists the tractors, trucks, and other equipment used to produce potatoes, along with their operating and ownership costs. Transloading equipment is not listed. Except for trucks, machinery is valued at 75 percent of replacement cost new, Table 3. This reduces the machinery repair operating cost and the depreciation and interest ownership costs on equipment by 25 percent. The truck's price includes the cost of a used truck and 75 percent of the cost of a new self-unloading bed. Between surveys, machinery prices are adjusted using USDA's Farm Machinery Prices Paid Index. The land charge is cash rent and covers the ownership costs (depreciation, interest, and insurance) of the irrigation system. A machinery labor charge is made for all field operations except those performed on a custom basis. Custom operations are listed separately. The nonmachine labor accounts for extra planting and harvesting field labor. Labor to operate machinery is valued at $14.10 per hour, while irrigation and nonmachine labor are valued at $9.45 and $8.35, respectively. Labor rates include a base wage plus a percentage for Social Security, Medicare, unemployment insurance, and other labor overhead expenses. Labor overhead amounts to 15 percent for nonmachine labor, 25 percent for irrigation labor, and 30 percent for machinery labor. A management fee, 5 percent of gross returns, is included as an ownership cost. Interest on operating capital is charged from the time an input is applied until the month of harvest and calculated at a nominal rate of 9.5 percent. Interest on intermediate term capital is calculated using a rate of 8.75 percent. An overhead charge of 2.5 percent of operating expenses is included to cover unallocated whole-farm costs such as office expenses, legal and accounting fees, and 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 includes soil and petiole sampling and irrigation scheduling.

Table 15. 2007 Irrigated Russet Burbank Commercial Potatoes: Fumigation and No Storage, Southwestern Idaho. Comparison with 2006.

Item	Quantity Per Acre	Unit	Price or Cost	Value or Cost/Acre	2006	Yield Change 5	1.0%
Gross Returns							
Potatoes	505	cwt	$5.20	$2,626.00	500		
Operating Inputs						**$ Change**	**% Change**
Seed:				$290.95	$267.95	$23.00	8.6%
G-3 Potato Seed	23	cwt	$10.75	$247.25	$230.00	$17.25	7.5%
Seed Cut and Treat	23	cwt	$1.90	$43.70	$37.95	$5.75	15.2%
Fertilizer:				$350.50	$299.70	$50.80	17.0%
Dry Nitrogen - Preplant	160	lb	$0.50	$80.00	$72.00	$8.00	11.1%
Dry P2O5	190	lb	$0.38	$72.20	$51.30	$20.90	40.7%
K2O	180	lb	$0.25	$45.00	$43.20	$1.80	4.2%
Sulfur	80	lb	$0.18	$14.40	$14.40	$0.00	0.0%
Micronutrients	2	ac	$14.00	$28.00	$27.00	$1.00	3.7%
Liquid Nitrogen	150	lb	$0.60	$90.00	$72.00	$18.00	25.0%
Liquid P2O5	55	lb	$0.38	$20.90	$19.80	$1.10	5.6%
Pesticides:				$393.20	$365.03	$28.17	7.7%
Vapam	50	gal	$3.90	$195.00	$180.00	$15.00	8.3%
Thimet 20G	15	lb	$2.75	$41.25	$36.00	$5.25	14.6%
Sencor DF	0.75	lb	$14.35	$10.76	$10.24	$0.52	5.1%
Eptam 7EC	2.0	qt	$7.05	$14.10	$12.80	$1.30	10.2%
Dithane F45 Rainshield	3.2	qt	$4.55	$14.56	$12.48	$2.08	16.7%
Ridomil Gold/Bravo	2.0	lb	$16.55	$33.10	$36.00	-$2.90	-8.1%
Amistar	2.5	oz	$5.55	$13.88	$13.88	-$0.01	0.0%
Monitor 4E	0.75	qt	$29.25	$21.94	$17.66	$4.28	24.2%
Bravo Weather Stik	0.66	qt	$11.75	$7.76	$7.36	$0.40	5.4%
Fulfill	2.75	oz	$5.95	$16.36	$16.36	$0.00	0.0%
Regbne	1	qt	$24.50	$24.50	$22.25	$2.25	10.1%
Custom & Consultants:				$182.15	$166.00	$16.15	9.7%
Custom Fertilize	2	ac	$8.00	$16.00	$13.80	$2.20	15.9%
Consultant	1	ac	$17.00	$17.00	$16.00	$1.00	6.3%
Custom Air Spray-10G	3	ac	$11.00	$33.00	$31.20	$1.80	5.8%
Custom Hauling	505	cwt	$0.23	$116.15	$105.00	$11.15	10.6%
Irrigation:				$111.26	$104.68	$6.58	6.3%
Water Assessment	1	ac	$37.40	$37.40	$35.95	$1.45	4.0%
Irrigation Power-CP	30	acin	$1.26	$37.80	$33.60	$4.20	12.5%
Irrigation Repairs	30	acin	$0.55	$16.50	$16.50	$0.00	0.0%
Irrigation Labor-CP	2.07	hr	$9.45	$19.56	$18.63	$0.93	5.0%
Other:				$153.67	$146.00	$7.66	5.2%
Fees & Assessments	505	cwt	$0.15	$75.75	$70.00	$5.75	8.2%
Crop Insurance	1	ac	$36.00	$36.00	$36.00	$0.00	0.0%
Transloading Costs	505	cwt	$0.083	$41.92	$40.00	$1.92	4.8%
Fuel& Lubricants				$122.68	$127.15	-$4.47	-3.5%
Machinery Repairs				$47.00	$45.28	$1.72	3.8%
Transloading Equipment Repairs				$7.05	$6.50	$0.55	8.5%
Machinery Labor	7.78	hrs	$14.10	$109.70	$104.64	$5.06	4.8%
Other Labor	3.29	hrs	$8.35	$27.47	$26.16	$1.31	5.0%
Operating Interest				$76.74	$71.72	$5.02	7.0%
Total Operating Costs				$1,872.37	$1,730.81	$141.56	8.2%
Operating Costs per Unit				$3.71	$3.46	$0.25	7.1%
Net Returns Above Operating Expenses				$753.63	$719.19	$34.44	

Table 15. 2007 Irrigated Russet Burbank Commercial Potatoes: Fumigation and No Storage, Southwestern Idaho. Comparison with 2006.

Item	Quantity Per Acre	Unit	Price or Cost	Value or Cost/Acre			
Ownership Costs:							
Transloading Equipment				$43.45	$41.00	$2.45	6.0%
Tractors & Equipment Insurance				$6.50	$6.26	$0.24	3.8%
Tractors & Equipment Depreciation & Interest				$268.91	$258.57	$10.34	4.0%
Irrigation Equipment Depreciation & Interest							
Land *				$525.00	$435.00	$90.00	20.7%
Overhead				$46.00	$43.00	$3.00	7.0%
Management Fee				$131.00	$123.00	$8.00	6.5%
Total Ownership Costs				$1,020.86	$906.83	$114.03	12.6%
Ownership Costs per Unit				$2.02	$1.81	$0.21	11.5%
Total Costs per Acre				$2,893.23	$2,637.64	$255.59	9.7%
Total Cost per Unit				$5.73	$5.28	$0.45	8.6%
Returns to Risk				-$257.23	-$187.64	-$79.59	

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 Yield	+ 5%
Price	479.75	505	530.25
Operating Cost Breakeven	$3.90	$3.71	$3.53
Ownership Cost Breakeven	$2.13	$2.02	$1.93
Total Cost Breakeven	$6.03	$5.73	$5.46
		Price	
Yield	$4.94	$5.20	$5.46
Operating Cost Breakeven	379.0	360.1	342.9
Ownership Cost Breakeven	206.7	196.3	187.0
Total Cost Breakeven	585.7	556.4	529.9

EBB2-Po2-07

Southwestern Idaho Shepody Commercial Potatoes: Fumigation and No Storage

Economic costs are used in the University of Idaho costs and returns estimates. All resources are valued based on market price or opportunity cost. Input prices are based on the U of I's annual survey of agricultural supply companies. Except for contract crops, the selling price is a 10-year average. The costs and returns estimate shown here is typical for growing irrigated Shepody commercial potatoes in southwestern Idaho when ground is fumigated. Production practices are based on producer surveys conducted in Canyon, Elmore, Owyhee and Payette counties. 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 quality of management are all crucial factors that influence costs.

The Model Farm

This costs and returns estimate models a 1,000-acre farm with 250 acres in potatoes. In addition to potatoes, the farm grows 250 acres of corn, 150 acres of alfalfa seed, 250 acres of grain, and 100 acres of dry beans. The farm uses a center pivot irrigation system and surface water delivered from an irrigation district. The irrigation district charges a flat fee per acre for water. Irrigation power costs are for pressurization only and are based on current Idaho Power rates.

Tillage, Fertilization, Pest Control, and Irrigation

After the stubble from the preceding grain crop is chopped, the potato ground is irrigated, disked, ripped twice, disked a second time and fumigated in the fall. In April the ground is marked-out and then planted using two 4-row planters with 36-inch row spacing. The seeding rate is 26 hundredweight (cwt) per acre with an additional 5 percent (1 cwt) included to account for waste. Potatoes are cultivated twice in May. The second cultivation is with a basin tillage tool. In September potatoes are harvested using a 2-row harvester, a 2-row windrower, and four 10-wheeler trucks. Potatoes are hauled from the field to a central location where they are transloaded into a semi trailer and transported to the processor by a custom hauler. Most fertilizer is custom applied in two preplant applications, one in the fall before fumigation and one in the spring before planting. A starter fertilizer containing nitrogen, phosphate, and micronutrients is applied at mark-out. Additional nitrogen is applied postplant through the irrigation system. The weed program uses cultural, mechanical (tillage and cultivation), and chemical control methods. Two postemergence herbicide applications are made to control annual grasses and broadleaf weeds. The first, a two-way tank mix, is applied with the second cultivation. The second herbicide application is made by chemigation. For insect control, a systemic insecticide is banded at planting, and two contact insecticides are applied by air. Four fungicide applications are made for blight control, starting in late June. Two applications are made by custom air spray while two are made by chemigation. Potatoes receive 24 inches of water during the growing season from approximately 55 irrigations (pivot revolutions), 3 inches in May, 7 inches in June, 9 inches in July, and 5 inches in August. Two inches of water is applied before fall tillage and another three inches are used to apply/incorporate the fumigant. These off-growing season applications are also credited to potatoes for a total of 29 inches.

Resources: Machinery, Land, Labor, and Capital

Table 3 lists the tractors, trucks, and other equipment used to produce potatoes, along with their operating and ownership costs. Transloading equipment is not listed. Except for trucks, machinery is valued at 75 percent of replacement cost new, Table 3. This reduces the machinery repair operating cost and the depreciation and interest ownership costs on equipment by 25 percent. The truck's price includes the cost of a used truck and 75 percent of the cost of a new self-unloading bed. Between surveys, machinery prices are adjusted using USDA's Farm Machinery Prices Paid Index. The land charge is cash rent and covers the ownership costs (depreciation, interest, and insurance) of the irrigation system. A machinery labor charge is made for all field operations except those performed on a custom basis. Custom operations are listed separately. The non-machine labor accounts for extra planting and harvesting field labor. Labor to operate machinery is valued at $14.10 per hour, while irrigation and non-machine labor are valued at $9.45 and $8.35, respectively. Labor rates include a base wage plus a percentage for Social Security, Medicare, unemployment insurance, and other labor overhead expenses. Labor overhead amounts to 15 percent for non-machine labor, 25 percent for irrigation labor, and 30 percent for machinery labor. A management fee, 5 percent of gross returns, is included as an ownership cost. Interest on operating capital is charged from the time an input is applied until the month of harvest and calculated at a nominal rate of 9.5 percent. Interest on intermediate term capital is calculated using a rate of 8.75 percent. An overhead charge of 2.5 percent of operating expenses is included to cover unallocated whole-farm costs such as office expenses, legal and accounting fees, and 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 includes soil and petiole sampling and irrigation scheduling.

Table 16. 2007 Irrigated Shepody Commercial Potatoes: With Fumigation and No Storage, Southwestern Idaho. Comparison With 2006.

Item	Quantity Per Acre	Unit	Price or Cost	Value or Cost/Acre	2006	Yield Change	
					480	10	2.1%
						$ Change	% Change
Gross Returns							
Potatoes	490	cwt	$5.20	$2,548.00	$2,496.00	$52.00	2.1%
Operating Inputs							
Seed:				$361.80	$341.55	$20.25	5.9%
G-3 Shepody Potato Seed	27	cwt	$11.50	$310.50	$297.00	$13.50	4.5%
Seed Cut and Treat	27	cwt	$1.90	$51.30	$44.55	$6.75	15.2%
Fertilizer:				$281.30	$243.60	$37.70	15.5%
Dry Nitrogen - Preplant	145	lb	$0.50	$72.50	$65.25	$7.25	11.1%
Dry P2O5	145	lb	$0.38	$55.10	$39.15	$15.95	40.7%
K2O	160	lb	$0.25	$40.00	$38.40	$1.60	4.2%
Sulfur	60	lb	$0.18	$10.80	$10.80	$0.00	0.0%
Micronutrients	2	ac	$14.00	$28.00	$27.00	$1.00	3.7%
Liquid Nitrogen	90	lb	$0.60	$54.00	$43.20	$10.80	25.0%
Liquid P2O5	55	lb	$0.38	$20.90	$19.80	$1.10	5.6%
Pesticides:				$410.82	$382.54	$28.28	7.4%
Vapam	50	gal	$3.90	$195.00	$180.00	$15.00	8.3%
Thimet 20G	15	lb	$2.75	$41.25	$36.00	$5.25	14.6%
Treflan 4 HFP	0.5	qt	$7.25	$3.63	$2.80	$0.83	29.5%
Dual Magnum	1.0	qt	$24.75	$24.75	$24.95	-$0.20	-0.8%
Eptam 7EC	2.0	qt	$7.05	$14.10	$12.80	$1.30	10.2%
Dithane F45 Rainshield	3.2	qt	$4.55	$14.56	$12.48	$2.08	16.7%
Ridomil Gold/Bravo	2.0	lb	$16.55	$33.10	$36.00	-$2.90	-8.1%
Amistar	2.5	oz	$5.55	$13.88	$13.88	-$0.01	0.0%
Monitor 4E	0.75	qt	$29.25	$21.94	$17.66	$4.28	24.2%
Bravo Weather Stik	0.66	lb	$11.75	$7.76	$7.36	$0.40	5.4%
Fulfill	2.75	oz	$5.95	$16.36	$16.36	$0.00	0.0%
Reglone	1.0	qt	$24.50	$24.50	$22.25	$2.25	10.1%
Custom & Consultants:				$178.70	$161.80	$16.90	10.4%
Custom Fertilize	2	ac	$8.00	$16.00	$13.80	$2.20	15.9%
Consultant	1	ac	$17.00	$17.00	$16.00	$1.00	6.3%
Custom Air Spray-10G	3	ac	$11.00	$33.00	$31.20	$1.80	5.8%
Custom Hauling	490	cwt	$0.23	$112.70	$100.80	$11.90	11.8%
Irrigation:				$108.88	$102.47	$6.41	6.3%
Water Assessment	1	ac	$37.40	$37.40	$35.95	$1.45	4.0%
Irrigation Power-CP	29	acin	$1.26	$36.54	$32.48	$4.06	12.5%
Irrigation Repairs	29	acin	$0.55	$15.95	$15.95	$0.00	0.0%
Irrigation Labor-CP	2.01	hr	$9.45	$18.99	$18.09	$0.90	5.0%
Other:				$150.17	$141.60	$8.57	6.1%
Fees & Assessments	490	cwt	$0.15	$73.50	$67.20	$6.30	9.4%
Crop Insurance	1	ac	$36.00	$36.00	$36.00	$0.00	0.0%
Transloading Costs	490	cwt	$0.083	$40.67	$38.40	$2.27	5.9%
Fuel& Lubricants				$122.68	$127.15	-$4.47	-3.5%
Machinery Repairs				$47.40	$45.57	$1.83	4.0%
Transloading Equipment Repairs				$6.85	$6.35	$0.50	7.9%
Machinery Labor	7.78	hrs	$14.10	$109.70	$104.64	$5.06	4.8%
Other Labor	3.29	hrs	$8.35	$27.47	$26.16	$1.31	5.0%
Operating Interest				$78.58	$73.44	$5.14	7.0%
Total Operating Costs				$1,884.35	$1,756.87	$127.48	7.3%
Operating Costs per Unit				$3.85	$3.66	$0.19	5.1%
Net Returns Above Operating Expenses				$663.65	$643.13	$20.52	

Table 16. 2007 Irrigated Shepody Commercial Potatoes: With Fumigation and No Storage, Southwestern Idaho. Comparison With 2006.

Item	Quantity Per Acre	Unit	Price or Cost	Value or Cost/Acre			
Ownership Costs:							
Transloading Equipment				$42.15	$39.00	$3.15	8.1%
Tractors & Equipment Insurance				$6.55	$6.30	$0.25	4.0%
Tractors & Equipment Depreciation & Interest				$271.00	$260.43	$10.57	4.1%
Irrigation Equipment Depreciation & Interest							
Land *				$525.00	$435.00	$90.00	20.7%
Overhead				$47.00	$43.00	$4.00	9.3%
Management Fee				$127.00	$123.00	$4.00	3.3%
Total Ownership Costs				$1,018.70	$906.73	$111.97	12.3%
Ownership Costs per Unit				$2.08	$1.89	$0.19	10.1%
Total Costs per Acre				$2,903.05	$2,663.60	$239.45	9.0%
Total Cost per Unit				$5.92	$5.55	$0.38	6.8%
Returns to Risk				-$355.05	-$263.60	-$91.45	

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 Yield	+ 5%
Price	465.5	490	514.5
Operating Cost Breakeven	$4.05	$3.85	$3.66
Ownership Cost Breakeven	$2.19	$2.08	$1.98
Total Cost Breakeven	$6.24	$5.92	$5.64

		Price	
Yield	$4.94	$5.20	$5.46
Operating Cost Breakeven	381.4	362.4	345.1
Ownership Cost Breakeven	206.2	195.9	186.6
Total Cost Breakeven	587.7	558.3	531.7

EBB3-Po1-07

Southcentral Idaho Russet Burbank Commercial Potatoes: No Storage and No Fumigation

Economic costs are used in the University of Idaho costs and returns estimates. All resources are valued based on market price or opportunity cost. Input prices are based on the U of I's annual survey of agricultural supply companies. Except for contract crops, the selling price is a 10-year average. The costs and returns estimate shown here is typical for growing irrigated Russet Burbank commercial potatoes in southcentral Idaho. Production practices are based on producer surveys conducted in Cassia, Gooding, Jerome, Minidoka and Twin Falls counties. Although production practices may be similar for individual farms, each 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 quality of management are all crucial factors that influence costs.

The Model Farm

This costs and returns estimate models a 1,500-acre farm with 375 acres in potatoes. In addition to potatoes, the farm also grows 375 acres of sugarbeets and 750 acres of grain. Corn or dry beans may substitute for grain. The farm uses a center pivot irrigation system and surface water delivered to the farm from an irrigation district. The district charges a flat fee per acre for water. Irrigation power costs are for pressurization only and are based on current Idaho Power rates.

Tillage, Fertilization, Pest Control, and Irrigation

After the stubble from the preceding grain crop is chopped, the potato ground is irrigated, disked twice and ripped in the fall, then chisel plowed and marked-out in the spring. Potatoes are planted in late April or early May using a 6-row planter with a 36-inch row spacing. The seeding rate is 22 hundredweight (cwt), with an additional 5 percent (1 cwt) added to account for waste. Potatoes are cultivated once in May after emergence with a basin tillage tool. In September, vines are rolled and sprayed with sulfuric acid. Potato harvest begins 3 weeks later using a 2-row harvester, 4-row windrower, and five 10-wheeler trucks (300 cwt capacity). Potatoes are hauled from the field to a central location where they are transloaded into a semi trailer and transported to the processor by a custom hauler. Most fertilizer is custom applied in split preplant applications, fall and spring. A liquid starter fertilizer and micronutrients are applied at mark-out. Additional nitrogen is applied postplant through the irrigation system. The weed program uses cultural, mechanical (tillage and cultivation) and chemical control methods. A two-way herbicide tank mix is applied at cultivation to control annual grasses and broadleaf weeds. A third herbicide is applied by chemigation during May. For insect control, a systemic insecticide is banded at planting, and contact insecticides are applied twice by air, once in July and once in August. Three fungicide applications are made for blight control, starting in early July. All applications are made by a custom aerial applicator. Potatoes receive 23.5 inches of water during the growing season from approximately 55 irrigations (pivot revolutions), 1 inch in May, 5 inches in June, 9.5 inches in July, and 8 inches in August. One additional inch of water is applied before harvest in September and 2 inches of water applied to the grain stubble before fall tillage are also credited to potatoes, for a total of 26.5 inches.

Resources: Machinery, Land, Labor, and Capital

Table 3 lists the tractors, trucks, and other equipment used to produce potatoes, along with their operating and ownership costs. Transloading equipment is not listed. Except for trucks, machinery is valued at 75 percent of replacement cost new, Table 3. This reduces the machinery repair operating cost and the depreciation and interest ownership costs on equipment by 25 percent. The truck's price includes the cost of a used truck and 75 percent of the cost of a new self-unloading bed. Between surveys, machinery prices are adjusted using USDA's Farm Machinery Prices Paid Index. The land charge is cash rent and covers the ownership costs (depreciation, interest, and insurance) of the irrigation system. A machinery labor charge is made for all field operations except those performed on a custom basis. Custom operations are listed separately. The non-machine labor accounts for extra planting and harvesting field labor. Labor to operate machinery is valued at $14.10 per hour, while irrigation and non-machine labor are valued at $9.45 and $8.35, respectively. Labor rates include a base wage plus a percentage for Social Security, Medicare, unemployment insurance, and other labor overhead expenses. Labor overhead amounts to 15 percent for non-machine labor, 25 percent for irrigation labor, and 30 percent for machinery labor. A management fee, 5 percent of gross returns, is included as an ownership cost. Interest on operating capital is charged from the time an input is applied until the month of harvest and is calculated at a nominal rate of 9.5 percent. Interest on intermediate term capital is calculated using a rate of 8.75 percent. A general overhead charge of 2.5 percent of operating expenses is included to cover unallocated whole-farm costs such as office expenses, legal and accounting fees, and 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.

Table 17. 2007 Southcentral Idaho Irrigated Russet Burbank Commercial Potatoes: No Storage. Comparison With 2006.

Item	Quantity Per Acre	Unit	Price or Cost	Value or Cost/Acre		2006	Yield Change	
Gross Returns								
Potatoes	400	cwt	$5.20		$2,080.00	390	10	2.6%
Operating Inputs							**$ Change**	**% Change**
Seed:				$278.30		$256.45	$21.85	8.5%
G-3 Potato Seed	23	cwt	$10.20		$234.60	$218.50	$16.10	7.4%
Seed Cut and Treat	23	cwt	$1.90		$43.70	$37.95	$5.75	15.2%
Fertilizer:				$330.45		$276.30	$54.15	19.6%
Dry Nitrogen - Preplant	165	lb	$0.49		$80.85	$62.70	$18.15	28.9%
Dry P2O5	200	lb	$0.37		$74.00	$56.00	$18.00	32.1%
K2O	180	lb	$0.25		$45.00	$45.00	$0.00	0.0%
Sulfur	80	lb	$0.15		$12.00	$13.60	-$1.60	-11.8%
Micronutrients	2	ac	$14.00		$28.00	$27.00	$1.00	3.7%
Liquid Nitrogen	130	lb	$0.58		$75.40	$57.20	$18.20	31.8%
Liquid P2O5	40	lb	$0.38		$15.20	$14.80	$0.40	2.7%
Pesticides:				$157.11		$155.93	$1.18	0.8%
Thimet 20G	15	lb	$2.30		$34.50	$35.25	-$0.75	-2.1%
Prowl 3.3 EC	1	qt	$6.25		$6.25	$5.80	$0.45	7.8%
Sencor DF	0.75	lb	$14.50		$10.88	$10.20	$0.68	6.6%
Eptam 7E	2.0	qt	$7.15		$14.30	$13.10	$1.20	9.2%
Dithane F45 Rainshield	3.2	qt	$3.85		$12.32	$12.48	-$0.16	-1.3%
Bravo Ultrex WDG	2.5	lb	$6.80		$17.00	$18.00	-$1.00	-5.6%
Fulfill WDG	2.75	oz	$6.20		$17.05	$17.19	-$0.14	-0.8%
Monitor 4E	0.75	qt	$29.75		$22.31	$17.66	$4.65	26.3%
Sulfuric Acid	25	gal	$0.90		$22.50	$26.25	-$3.75	-14.3%
Custom & Consultants:				$174.85		$159.45	$15.40	9.7%
Custom Fertilize	2	ac	$7.25		$14.50	$13.00	$1.50	11.5%
Consultant	1	ac	$17.00		$17.00	$16.00	$1.00	6.3%
Custom Air Spray-10G	4	ac	$10.40		$41.60	$39.60	$2.00	5.1%
Custom Hauling	400	cwt	$0.23		$92.00	$81.90	$10.10	12.3%
Sulfuric Acid Application	1	ac	$9.75		$9.75	$8.95	$0.80	8.9%
Irrigation:				$103.74		$94.95	$8.79	9.3%
Water Assessment	1	ac	$38.20		$38.20	$33.95	$4.25	12.5%
Irrigation Power CP	26.5	acin	$1.26		$33.39	$29.68	$3.71	12.5%
Irrigation Repairs	26.5	acin	$0.55		$14.58	$14.58	$0.00	0.0%
Irrigation Labor CP	1.86	hr	$9.45		$17.58	$16.74	$0.84	5.0%
Other:				$131.20		$123.80	$7.40	6.0%
Fees & Assessments	400	cwt	$0.15		$60.00	$54.60	$5.40	9.9%
Crop Insurance	1	ac	$38.00		$38.00	$38.00	$0.00	0.0%
Transloading Costs	400	cwt	$0.083		$33.20	$31.20	$2.00	6.4%
Fuel & Lubricants					$88.50	$96.63	-$8.13	-8.4%
Machinery Repairs					$42.50	$40.85	$1.65	4.0%
Transloading Equipment Repairs					$5.60	$5.20	$0.40	7.7%
Machinery Labor	6.77	hrs	$14.10		$95.40	$91.00	$4.40	4.8%
Other Labor	2.75	hrs	$8.35		$22.96	$21.86	$1.10	5.0%
Operating Interest					$52.95	$49.51	$3.44	6.9%
Total Operating Costs					$1,483.56	$1,371.93	$111.63	8.1%
Operating Costs per Unit					$3.71	$3.52	$0.19	5.4%
Net Returns Above Operating Expenses					$596.44	$539.07	$57.37	

Table 17. 2007 Southcentral Idaho Irrigated Russet Burbank Commercial Potatoes: No Storage. Comparison With 2006.

Item	Quantity Per Acre	Unit	Price or Cost	Value or Cost/Acre			
Ownership Costs:							
Transloading Equipment				$34.40	$32.00	$2.40	7.5%
Tractors & Equipment Insurance				$4.10	$3.93	$0.17	4.3%
Tractors & Equipment Depreciation & Interest				$170.00	$162.66	$7.34	4.5%
Irrigation Equipment Depreciation & Interest							
Land *				$450.00	$375.00	$75.00	20.0%
Overhead				$37.00	$34.00	$3.00	8.8%
Management Fee				$104.00	$93.00	$11.00	11.8%
Total Ownership Costs				$799.50	$700.59	$98.91	14.1%
Ownership Costs per Unit				$2.00	$1.80	$0.20	11.3%
Total Costs per Acre				$2,283.06	$2,072.52	$210.54	10.2%
Total Cost per Unit				$5.71	$5.31	$0.39	7.4%
Returns to Risk				-$203.06	$161.52	-$41.54	

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.

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

Breakeven Analysis:

	- 5%	Base Yield	+ 5%
Price	380	400	420
Operating Cost Breakeven	$3.90	$3.71	$3.53
Ownership Cost Breakeven	$2.10	$2.00	$1.90
Total Cost Breakeven	$6.01	$5.71	$5.44

		Price	
Yield	$4.94	$5.20	$5.46
Operating Cost Breakeven	300.3	285.3	271.7
Ownership Cost Breakeven	161.8	153.8	146.4
Total Cost Breakeven	462.2	439.1	418.1

EBB3-Po2-07

Southcentral Idaho Russet Burbank Commercial Potatoes: On-Farm Storage and No Fumigation

Economic costs are used in the University of Idaho costs and returns estimates. All resources are valued based on market price or opportunity cost. Input prices are based on the U of I's annual survey of agricultural supply companies. Except for contract crops, the selling price is a 10-year average. The costs and returns estimate shown here is typical for growing and storing irrigated Russet Burbank commercial potatoes in southcentral Idaho. Production practices are based on producer surveys conducted in Cassia, Gooding, Jerome, Minidoka and Twin Falls counties. Although production practices may be similar for individual farms, each 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 quality of management are all crucial factors that influence costs.

The Model Farm

This costs and returns estimate models a 1,500-acre farm with 375 acres in potatoes. In addition to potatoes, the farm also grows 375 acres of sugarbeets and 750 acres of grain. Corn or dry beans may substitute for grain. The farm uses a center pivot irrigation system and surface water delivered to the farm from an irrigation district. The district charges a flat fee per acre for water. Irrigation power costs are for pressurization only and are based on current Idaho Power rates.

Tillage, Fertilization, Pest Control, and Irrigation

After the stubble from the preceding grain crop is chopped, the potato ground is irrigated, disked twice and ripped in the fall, then chisel plowed and marked-out in the spring. Potatoes are planted in late April or early May using a 6-row planter with a 36-inch row spacing. The seeding rate is 22 hundredweight (cwt), with an additional 5 percent (1 cwt) added to account for waste. Potatoes are cultivated once in May after emergence with a basin tillage tool. In September, vines are rolled and sprayed with sulfuric acid. Potato harvest begins 3 weeks later using a 2-row harvester, 4-row windrower, and five 10-wheeler trucks (300 cwt capacity). Potatoes are hauled directly to on-farm storage. Potatoes are stored 5 months in a modern, above ground storage facility with air and humidification. In addition to labor, electricity, and sprout inhibitor, storage operating costs include a charge for shrink and interest based on the value of the stored crop. Most fertilizer is custom applied in split preplant applications, fall and spring. A liquid starter fertilizer and micronutrients are applied at mark-out. Additional nitrogen is applied postplant through the irrigation system. The weed program uses cultural, mechanical (tillage and cultivation) and chemical control methods. A two-way herbicide tank mix is applied at cultivation to control annual grasses and broadleaf weeds. A third herbicide is applied by chemigation during May. For insect control, a systemic insecticide is banded at planting, and contact insecticides are applied twice by air, once in July and once in August. Three fungicide applications are made for blight control, starting in early July. All applications are made by a custom aerial applicator. Potatoes receive 23.5 inches of water during the growing season from approximately 55 irrigations (pivot revolutions), 1 inch in May, 5 inches in June, 9.5 inches in July, and 8 inches in August. One additional inch of water is applied before harvest in September and 2 inches of water applied to the grain stubble before fall tillage are also credited to potatoes, for a total of 26.5 inches.

Resources: Machinery, Land, Labor, and Capital

Table 3 lists the tractors, trucks, and other equipment used to produce potatoes, along with their operating and ownership costs. Storage and handling equipment is not listed. Except for trucks, machinery is valued at 75 percent of replacement cost new, Table 3. This reduces the machinery repair operating cost and the depreciation and interest ownership costs on equipment by 25 percent. The truck's price includes the cost of a used truck and 75 percent of the cost of a new self-unloading bed. Between surveys, machinery prices are adjusted using USDA's Farm Machinery Prices Paid Index. The land charge is cash rent and covers the ownership costs (depreciation, interest, and insurance) of the irrigation system. A machinery labor charge is made for all field operations except those performed on a custom basis. Custom operations are listed separately. The non-machine labor accounts for extra planting and harvesting field labor. Labor to operate machinery is valued at $14.10 per hour, while irrigation and non-machine labor are valued at $9.45 and $8.35, respectively. Labor rates include a base wage plus a percentage for Social Security, Medicare, unemployment insurance, and other labor overhead expenses. Labor overhead amounts to 15 percent for non-machine labor, 25 percent for irrigation labor, and 30 percent for machinery labor. A management fee, 5 percent of gross returns, is included as a non-ownership cost. Interest on operating capital is charged from the time an input is applied until the month of harvest and is calculated at a nominal rate of 9.5 percent. Interest on intermediate term capital is calculated using a rate of 8.75 percent. A general overhead charge of 2.5 percent of operating expenses is included to cover unallocated whole-farm costs such as office expenses, legal and accounting fees, and 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.

Table 18. 2007 Southcentral Idaho Irrigated Russet Burbank Commercial Potatoes: With On-Farm Storage. Comparison With 2006.

Item	Quantity Per Acre	Unit	Price or Cost	Value or Cost/Acre		2006	Yield Change	
Gross Returns						390	10	2.6%
Potatoes	400	cwt	$5.50		$2,200.00			
Operating Inputs							**$ Change**	**% Change**
Seed:				$278.30		$256.45	$21.85	8.5%
G-3 Potato Seed	23	cwt	$10.20		$234.60	$218.50	$16.10	7.4%
Seed Cut and Treat	23	cwt	$1.90		$43.70	$37.95	$5.75	15.2%
Fertilizer:				$330.45		$276.30	$54.15	19.6%
Dry Nitrogen - Preplant	165	lb	$0.49		$80.85	$62.70	$18.15	28.9%
Dry P2O5	200	lb	$0.37		$74.00	$56.00	$18.00	32.1%
K2O	180	lb	$0.25		$45.00	$45.00	$0.00	0.0%
Sulfur	80	lb	$0.15		$12.00	$13.60	-$1.60	-11.8%
Micronutrients	2	ac	$14.00		$28.00	$27.00	$1.00	3.7%
Liquid Nitrogen	130	lb	$0.58		$75.40	$57.20	$18.20	31.8%
Liquid P2O5	40	lb	$0.38		$15.20	$14.80	$0.40	2.7%
Pesticides:				$157.11		$155.93	$1.18	0.8%
Thimet 20G	15	lb	$2.30		$34.50	$35.25	-$0.75	-2.1%
Prowl 3.3 EC	1.0	qt	$6.25		$6.25	$5.80	$0.45	7.8%
Sencor DF	0.75	lb	$14.50		$10.88	$10.20	$0.68	6.6%
Eptam 7E	2.0	qt	$7.15		$14.30	$13.10	$1.20	9.2%
Dithane F45 Rainshield	3.2	qt	$3.85		$12.32	$12.48	-$0.16	-1.3%
Bravo UltrexWDG	2.5	lb	$6.80		$17.00	$18.00	-$1.00	-5.6%
Fulfill WDG	2.75	oz	$6.20		$17.05	$17.19	-$0.14	-0.8%
Monitor 4E	0.75	qt	$29.75		$22.31	$17.66	$4.65	26.3%
Sulfuric Acid	25	gal	$0.90		$22.50	$26.25	-$3.75	-14.3%
Custom & Consultants:				$82.85		$77.55	$5.30	6.8%
Custom Fertilize	2	ac	$7.25		$14.50	$13.00	$1.50	11.5%
Consultant	1	ac	$17.00		$17.00	$16.00	$1.00	6.3%
Custom Air Spray-10G	4	ac	$10.40		$41.60	$39.60	$2.00	5.1%
Sulfuric Acid Application	1	ac	$9.75		$9.75	$8.95	$0.80	8.9%
Irrigation:				$103.74		$94.95	$8.79	9.3%
Water Assessment	1	ac	$38.20		$38.20	$33.95	$4.25	12.5%
Irrigation Power-CP	26.5	acin	$1.26		$33.39	$29.68	$3.71	12.5%
Irrigation Repairs	26.5	acin	$0.55		$14.58	$14.58	$0.00	0.0%
Irrigation Labor-CP	1.86	hr	$9.45		$17.58	$16.74	$0.84	5.0%
Other:				$351.00		$327.84	$23.16	7.1%
Fees & Assessments	380	cwt	$0.15		$57.00	$51.94	$5.06	9.7%
Crop Insurance	1	ac	$38.00		$38.00	$38.00	$0.00	0.0%
Storage Operating Costs	400	cwt	$0.64		$256.00	$237.90	$18.10	7.6%
Fuel & Lubricants					$88.85	$97.21	-$8.36	-8.6%
Machinery Repairs					$43.50	$41.71	$1.79	4.3%
Potato Storage System Repairs					$14.80	$13.70	$1.10	8.0%
Machinery Labor	6.75	hrs	$14.10		$95.12	$90.73	$4.39	4.8%
Other Labor	2.75	hrs	$8.35		$22.96	$21.86	$1.10	5.0%
Operating Interest					$49.35	$46.12	$3.23	7.0%
Total Operating Costs					$1,618.03	$1,500.35	$117.68	7.8%
Operating Costs per Unit					$4.05	$3.85	$0.20	5.1%
Net Returns Above Operating Expenses					$581.97	$508.15	$73.82	

Table 18. 2007 Southcentral Idaho Irrigated Russet Burbank Commercial Potatoes: With On-Farm Storage. Comparison With 2006.

Item	Quantity Per Acre	Unit	Price or Cost	Value or Cost/Acre			
Ownership Costs:							
Potato Storage System				$155.00	$144.00	$11.00	7.6%
Tractors & Equipment Insurance				$3.95	$3.80	$0.15	3.9%
Tractors & Equipment Depreciation & Interest				$165.00	$157.52	$7.48	4.7%
Irrigation Equipment Depreciation & Interest							
Land *				$450.00	$375.00	$75.00	20.0%
Overhead				$40.45	$36.00	$4.45	12.4%
Management Fee				$110.00	$98.00	$12.00	12.2%
Total Ownership Costs				$924.40	$814.32	$110.08	13.5%
Ownership Costs per Unit				$2.31	$2.09	$0.22	10.7%
Total Costs per Acre				$2,542.43	$2,314.67	$227.76	9.8%
Total Cost per Unit				$6.36	$5.94	$0.42	7.1%
Returns to Risk				-$342.43	-$306.17	-$36.26	

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%
		Yield	
Price	380	400	420
Operating Cost Breakeven	$4.26	$4.05	$3.85
Ownership Cost Breakeven	$2.43	$2.31	$2.20
Total Cost Breakeven	$6.69	$6.36	$6.05
		Price	
Yield	$5.23	$5.50	$5.78
Operating Cost Breakeven	309.7	294.2	280.2
Ownership Cost Breakeven	176.9	168.1	160.1
Total Cost Breakeven	486.6	462.3	440.2

EBB3-Po3-07

Southcentral Idaho Russet Burbank Commercial Potatoes: Fumigation and On-Farm Storage

Economic costs are used in the University of Idaho costs and returns estimates. All resources are valued based on market price or opportunity cost. Input prices are based on the U of I's annual survey of agricultural supply companies. Except for contract crops, the selling price is a 10-year average. The costs and returns estimate shown here is typical for growing and storing irrigated Russet Burbank commercial potatoes in southcentral Idaho when ground is fumigated. Production practices are based on producer surveys conducted in Cassia, Gooding, Jerome, Minidoka and Twin Falls counties. Although production practices may be similar for individual farms, each 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 quality of management are all crucial factors that influence costs.

The Model Farm

This costs and returns estimate models a 1,500-acre farm with 375 acres in potatoes. In addition to potatoes, the farm also grows 375 acres of sugarbeets and 750 acres of grain. Corn or dry beans may substitute for grain. The farm uses a center pivot irrigation system and surface water delivered to the farm from an irrigation district. The district charges a flat fee per acre for water. Irrigation power costs are for pressurization only and are based on current Idaho Power rates.

Tillage, Fertilization, Pest Control, and Irrigation

After the stubble from the preceding grain crop is chopped, the potato ground is irrigated, disked twice, ripped and fumigated in the fall. The ground is chisel plowed and marked-out in the spring. Potatoes are planted in late April or early May using a 6-row planter with a 36-inch row spacing. The seeding rate is 22 hundredweight (cwt), with an additional 5 percent (1 cwt) added to account for waste. Potatoes are cultivated once in May after emergence with a basin tillage tool. In September, vines are rolled and sprayed with sulfuric acid. Potato harvest begins 3 weeks later using a 2-row harvester, 4-row windrower, and five 10-wheeler trucks (300 cwt capacity). Potatoes are hauled directly to on-farm storage. Potatoes are stored 5 months in a modern, above ground storage facility with air and humidification. In addition to labor, electricity, and sprout inhibitor, storage operating costs include a charge for shrink and interest based on the value of the stored crop. Most fertilizer is custom applied in split preplant applications, fall and spring. A liquid starter fertilizer and micronutrients are applied at mark-out. Additional nitrogen is applied postplant through the irrigation system. The weed program uses cultural, mechanical (tillage and cultivation) and chemical control methods. A two-way herbicide tank mix is applied at cultivation to control annual grasses and broadleaf weeds. A third herbicide is applied by chemigation during May. For insect control, a systemic insecticide is banded at planting, and contact insecticides are applied twice by air, once in July and once in August. Three fungicide applications are made for blight control, starting in early July. All applications are made by a custom aerial applicator. Potatoes receive 23.5 inches of water during the growing season from approximately 55 irrigations (pivot revolutions), 1 inch in May, 5 inches in June, 9.5 inches in July, and 8 inches in August. One inch of water applied before harvest in September and 2 inches of water applied to the grain stubble before fall tillage are also credited to potatoes, for a total of 26.5 inches credited to potatoes.

Resources: Machinery, Land, Labor, and Capital

Table 3 lists the tractors, trucks, and other equipment used to produce potatoes, along with their operating and ownership costs. Storage and handling equipment is not listed. Except for trucks, machinery is valued at 75 percent of replacement cost new, Table 3. This reduces the machinery repair operating cost and the depreciation and interest ownership costs on equipment by 25 percent. The truck's price includes the cost of a used truck and 75 percent of the cost of a new self-unloading bed. Between surveys, machinery prices are adjusted using USDA's Farm Machinery Prices Paid Index. The land charge is cash rent and covers the ownership costs (depreciation, interest, and insurance) of the irrigation system. A machinery labor charge is made for all field operations except those performed on a custom basis. Custom operations are listed separately. The non-machine labor accounts for extra planting and harvesting field labor. Labor to operate machinery is valued at $14.10 per hour, while irrigation and non-machine labor are valued at $9.45 and $8.35, respectively. Labor rates include a base wage plus a percentage for Social Security, Medicare, unemployment insurance, and other labor overhead expenses. Labor overhead amounts to 15 percent for non-machine labor, 25 percent for irrigation labor, and 30 percent for machinery labor. A management fee, 5 percent of gross returns, is included as a ownership cost. Interest on operating capital is charged from the time an input is applied until the month of harvest and is calculated at a nominal rate of 9.5 percent. Interest on intermediate term capital is calculated using a rate of 8.75 percent. A general overhead charge of 2.5 percent of operating expenses is included to cover unallocated whole-farm costs such as office expenses, legal and accounting fees, and 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.

Table 19. 2007 Southcentral Idaho Irrigated Russet Burbank Commercial Potatoes: With Fumigation and On-Farm Storage. Comparison With 2006.

Item	Quantity Per Acre	Unit	Price or Cost	Value or Cost/Acre	2006	Yield Change 10	Yield Change 2.3%
Gross Returns							
Potatoes	450	cwt	$5.50	$2,475.00	440		
						$ Change	**% Change**
Operating Inputs							
Seed:				$278.30	$256.45	$21.85	8.5%
G-3 Potato Seed	23	cwt	$10.20	$234.60	$218.50	$16.10	7.4%
Seed Cut and Treat	23	cwt	$1.90	$43.70	$37.95	$5.75	15.2%
Fertilizer:				$350.20	$292.60	$57.60	19.7%
Dry Nitrogen - Preplant	180	lb	$0.49	$88.20	$68.40	$19.80	28.9%
Dry P2O5	220	lb	$0.37	$81.40	$61.60	$19.80	32.1%
K2O	200	lb	$0.25	$50.00	$50.00	$0.00	0.0%
Sulfur	80	lb	$0.15	$12.00	$13.60	$1.60	-11.8%
Micronutrients	2	ac	$14.00	$28.00	$27.00	$1.00	3.7%
Liquid Nitrogen	130	lb	$0.58	$75.40	$57.20	$18.20	31.8%
Liquid P2O5	40	lb	$0.38	$15.20	$14.80	$0.40	2.7%
Pesticides:				$299.11	$301.93	$2.82	-0.9%
Metam Sodium	40	gal	$3.55	$142.00	$146.00	$4.00	-2.7%
Thimet 20G	15	lb	$2.30	$34.50	$35.25	$0.75	-2.1%
Prowl	1.0	qt	$6.25	$6.25	$5.80	$0.45	7.8%
Sencor DF	0.75	lb	$14.50	$10.88	$10.20	$0.68	6.6%
Eptam 7E	2.0	qt	$7.15	$14.30	$13.10	$1.20	9.2%
Dithane F45 Rainshield	3.2	qt	$3.85	$12.32	$12.48	$0.16	-1.3%
Bravo Ultrex WDG	2.5	lb	$6.80	$17.00	$18.00	$1.00	-5.6%
Fulfill WDG	2.75	oz	$6.20	$17.05	$17.19	$0.14	-0.8%
Monitor 4E	0.75	qt	$29.75	$22.31	$17.66	$4.65	26.3%
Sulfuric Acid	25	gal	$0.90	$22.50	$26.25	$3.75	-14.3%
Custom & Consultants:				$110.85	$104.55	$6.30	6.0%
Custom Fertilize	2	ac	$7.25	$14.50	$13.00	$1.50	11.5%
Consultant	1	ac	$17.00	$17.00	$16.00	$1.00	6.3%
Custom Air Spray-10G	4	ac	$10.40	$41.60	$39.60	$2.00	5.1%
Fumigation: Deep Injection	1	ac	$28.00	$28.00	$27.00	$1.00	3.7%
Sulfuric Acid Application	1	ac	$9.75	$9.75	$8.95	$0.80	8.9%
Irrigation:				$107.87	$98.80	$9.07	9.2%
Water Assessment	1	ac	$38.20	$38.20	$33.95	$4.25	12.5%
Irrigation Power CP	28	acin	$1.26	$35.28	$31.36	$3.92	12.5%
Irrigation Repairs	28	acin	$0.55	$15.40	$15.40	$0.00	0.0%
Irrigation Labor CP	2.01	hr	$9.45	$18.99	$18.09	$0.90	5.0%
Other:				$390.20	$364.92	$25.28	6.9%
Fees & Assessments	428	cwt	$0.15	$64.20	$58.52	$5.68	9.7%
Crop Insurance	1	ac	$38.00	$38.00	$38.00	$0.00	0.0%
Storage Operating Costs	450	cwt	$0.64	$288.00	$268.40	$19.60	7.3%
Fuel & Lubricants				$90.65	$99.20	$8.55	-8.6%
Machinery Repairs				$46.60	$44.80	$1.80	4.0%
Potato Storage System Repairs				$16.65	$15.45	$1.20	7.8%
Machinery Labor	7.23	hrs	$14.10	$101.93	$97.23	$4.70	4.8%
Other Labor	3.26	hrs	$8.35	$27.22	$25.92	$1.30	5.0%
Operating Interest				$66.60	$62.32	$4.28	6.9%
Total Operating Costs				$1,886.18	$1,764.17	$122.01	6.9%
Operating Costs per Unit				$4.19	$4.01	$0.18	4.5%
Net Returns Above Operating Expenses				$588.82	$502.58	$86.24	

Table 19. 2007 Southcentral Idaho Irrigated Russet Burbank Commercial Potatoes: With Fumigation and On-Farm Storage. Comparison With 2006.

Item	Quantity Per Acre	Unit	Price or Cost	Value or Cost/Acre			
Ownership Costs:							
Potato Storage System				$174.60	$162.20	$12.40	7.6%
Tractors & Equipment Insurance				$4.10	$3.93	$0.17	4.3%
Tractors & Equipment Depreciation & Interest				$170.00	$162.61	$7.39	4.5%
Irrigation Equipment Depreciation & Interest							
Land *				$450.00	$375.00	$75.00	20.0%
Overhead				$47.00	$43.00	$4.00	9.3%
Management				$124.00	$110.00	$14.00	12.7%
Total Ownership Costs				$969.70	$856.74	$112.96	13.2%
Ownership Costs per Unit				$2.15	$1.95	$0.21	10.7%
Total Costs per Acre				$2,855.88	$2,620.91	$234.97	9.0%
Total Cost per Unit				$6.35	$5.96	$0.39	6.5%
Returns to Risk				-$380.88	-$354.91	-$25.97	

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

Breakeven Analysis:	- 5%	Base	+ 5%
		Yield	
Price	427.5	450	472.5
Operating Cost Breakeven	$4.41	$4.19	$3.99
Ownership Cost Breakeven	$2.27	$2.15	$2.05
Total Cost Breakeven	$6.68	$6.35	$6.04
		Price	
Yield	$5.23	$5.50	$5.78
Operating Cost Breakeven	361.0	342.9	326.6
Ownership Cost Breakeven	185.6	176.3	167.9
Total Cost Breakeven	546.6	519.3	494.5

EBB4-Po1-07

Eastern Idaho South District Russet Burbank Commercial Potatoes: No Storage and No Fumigation

Economic costs are used in the University of Idaho costs and returns estimates. All resources are valued based on market price or opportunity cost. Input prices are based on the U of I's annual survey of agricultural supply companies. Except for contract crops, the selling price is a 10-year average. The costs and returns estimate shown here is typical for growing irrigated Russet Burbank commercial potatoes in the higher yielding counties of eastern Idaho. Production practices are based on producer surveys conducted in Bingham, Bannock, and Power counties. 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 quality of management are all crucial factors that influence costs.

The Model Farm

This costs and returns estimate models a 1,500-acre farm with 500 acres in potatoes. The typical crop rotation is one year of potatoes followed by two years of grain. Corn may substitute for grain, while sugarbeets and alfalfa are grown in longer rotations. The farm uses a center pivot irrigation system and surface water delivered from an irrigation district. The irrigation district charges a flat fee per acre for water. Irrigation power costs are for pressurization only and are based on current Idaho Power rates.

Tillage, Fertilization, Pest Control, and Irrigation

After the stubble from the preceding grain crop is chopped, the potato ground is irrigated, disked twice and ripped in the fall, then chisel plowed, and marked-out for planting in the spring. Potatoes are planted in early May using a 6-row planter with 36-inch row spacing. The seeding rate is 20 hundredweight (cwt) with an additional 5 percent (1 cwt) to account for waste. Potatoes are cultivated and hilled in late May and cultivated in early June with a basin tillage tool. In September, vines are rolled and removed mechanically. Potato harvest begins three weeks later using a 2-row harvester, 4-row windrower, and five 10-wheeler trucks (300 cwt capacity). Potatoes are hauled from the field to a central location where they are transloaded into a semi trailer and transported to the processor by a custom hauler. Most fertilizer is custom applied in two preplant applications, fall and spring. A liquid phosphate starter fertilizer and micronutrients are applied at mark-out. Additional nitrogen is applied post-plant through the sprinkler system. The weed control program uses cultural, mechanical (tillage and cultivation), and chemical control methods. A two-way herbicide tank mix is applied preemergence to control annual grasses and broadleaf weeds. For insect control, a systemic insecticide is banded at planting and a contact insecticide is applied by air in July. Two fungicide applications are made for blight control, starting in July. The first application is made by custom ground application and the second is custom applied by air. Potatoes receive 20.5 inches of water during the growing season from approximately 47 irrigations (pivot revolutions), 5 inches in May, 6 inches in June, 8 inches in July, and 6 inches in August. One inch of water is applied pre-harvest in September and 1.5 inches are applied to the grain stubble for a total of 23 inches credited to the potato crop.

Resources: Machinery, Land, Labor, and Capital

Table 3 lists the tractors, trucks, and other equipment used to produce potatoes, along with their operating and ownership costs. Transloading equipment is not listed. Except for trucks, machinery is valued at 75 percent of replacement cost new, Table 3. This reduces the machinery repair operating cost and the depreciation and interest ownership costs on equipment by 25 percent. The truck's price includes the cost of a used truck and 75 percent of the cost of a new self-unloading bed. Between surveys, machinery prices are adjusted using USDA's Farm Machinery Prices Paid Index. The land charge is cash rent and covers the ownership costs (depreciation, interest, and insurance) of the irrigation system. A machinery labor charge is made for all field operations except those performed on a custom basis. Custom operations are listed separately. The non-machine labor accounts for extra planting and harvesting field labor. Labor to operate machinery is valued at $14.10 per hour, while irrigation and non-machine labor are valued at $9.45 and $8.35, respectively. Labor rates include a base wage plus a percentage for Social Security, Medicare, unemployment insurance, and other labor overhead expenses. Labor overhead amounts to 15 percent for non-machine labor, 25 percent for irrigation labor, and 30 percent for machinery labor. A management fee, 5 percent of gross returns, is included as an ownership cost. Interest on operating capital is charged from the time an input is applied until the month of harvest and is calculated at a nominal rate of 9.5 percent. Interest on intermediate term capital is calculated using a rate of 8.75 percent. A general overhead charge of 2.5 percent of operating expenses is included to cover unallocated whole-farm costs such as office expenses, legal and accounting fees, and 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.

Table 20. 2007 Irrigated Russet Burbank Commercial Potatoes With No Storage for Eastern Idaho - South: Bannock, Bingham and Power Counties with comparison to 2006.

Item	Quantity Per Acre	Unit	Price or Cost	Value or Cost/Acre	2006	Yield Change	
Gross Returns							
Potatoes	345	cwt	$5.20	$1,794.00	350	-5	-1.4%
Operating Inputs						$ Change	% Change
Seed:				$235.20	$217.35	$17.85	8.2%
G-3 Potato Seed	21	cwt	$9.30	$195.30	$182.70	$12.60	6.9%
Seed Cut and Treat	21	cwt	$1.90	$39.90	$34.65	$5.25	15.2%
Fertilizer:				$306.90	$245.45	$61.45	25.0%
Nitrogen - Preplant	145	lb	$0.49	$71.05	$58.00	$13.05	22.5%
P2O5	155	lb	$0.37	$57.35	$38.75	$18.60	48.0%
K2O	175	lb	$0.25	$43.75	$40.25	$3.50	8.7%
Sulfur	85	lb	$0.15	$12.75	$12.75	$0.00	0.0%
Liquid Nitrogen	140	lb	$0.58	$81.20	$60.20	$21.00	34.9%
Liquid P2O5	60	ac	$0.38	$22.80	$18.00	$4.80	26.7%
Micronutrients	1	lb	$18.00	$18.00	$17.50	$0.50	2.9%
Pesticides:				$105.10	$102.39	$2.71	2.6%
Thimet 20G	15	lb	$2.35	$35.25	$38.25	-$3.00	-7.8%
Sencor 75DF	0.75	lb	$14.65	$10.99	$8.06	$2.93	36.3%
Eptam 7EC	2.0	qt	$7.50	$15.00	$13.20	$1.80	13.6%
Bravo Ultrex	1.25	lb	$7.00	$8.75	$9.13	-$0.38	-4.2%
Dithane F45 Rainshield	3.2	qt	$4.00	$12.80	$13.12	-$0.32	-2.4%
Monitor 4E	0.75	qt	$29.75	$22.31	$20.63	$1.68	8.2%
Custom & Consultants:				$132.50	$121.85	$10.65	8.7%
Custom Fertilize	2	ac	$6.50	$13.00	$10.30	$2.70	26.2%
Consultant	1	ac	$17.00	$17.00	$16.00	$1.00	6.3%
Custom Ground Spray-Po	1	ac	$6.25	$6.25	$5.95	$0.30	5.0%
Custom Air Spray-10G	2	ac	$8.45	$16.90	$16.10	$0.80	5.0%
Custom Hauling	345	cwt	$0.23	$79.35	$73.50	$5.85	8.0%
Irrigation:				$79.37	$75.45	$3.92	5.2%
Water Assessment	1	ac	$23.00	$23.00	$23.00	$0.00	0.0%
Irrigation Power - CP*	23	acin	$1.26	$28.98	$25.76	$3.22	12.5%
Irrigation Repairs - CP*	23	acin	$0.55	$12.65	$12.65	$0.00	0.0%
Irrigation Labor - CP*	1.56	hr	$9.45	$14.74	$14.04	$0.70	5.0%
Other:				$112.39	$109.00	$3.39	3.1%
Fees & Assessments	345	cwt	$0.15	$51.75	$49.00	$2.75	5.6%
Crop Insurance	1	ac	$32.00	$32.00	$32.00	$0.00	0.0%
Transloading Costs	345	cwt	$0.083	$28.64	$28.00	$0.64	2.3%
Fuel & Lubricants				$101.33	$110.78	-$9.45	-8.5%
Machinery Repairs				$42.60	$40.99	$1.61	3.9%
Transloading Equipment Repairs				$4.65	$4.65	$0.20	4.3%
Machinery Labor	6.89	hrs	$14.10	$97.15	$92.67	$4.48	4.8%
Other Labor	2.49	hrs	$8.35	$20.79	$19.80	$0.99	5.0%
Operating Interest				$43.30	$40.50	$2.80	6.9%
Total Operating Costs				$1,281.48	$1,180.88	$100.60	8.5%
Operating Costs per Unit				$3.71	$3.37	$0.34	10.1%
Net Returns Above Operating Expenses				$512.52	$534.12	-$21.60	

Table 20. 2007 Irrigated Russet Burbank Commercial Potatoes With No Storage for Eastern Idaho - South: Bannock, Bingham and Power Counties with comparison to 2006.

Item	Quantity Per Acre	Unit	Price or Cost	Value or Cost/Acre			
Ownership Costs:							
Transloading Equipment				$29.65	$28.50	$1.15	4.0%
Tractors & Equipment Insurance				$4.35	$4.18	$0.17	4.1%
Tractors & Equipment Depreciation & Interest				$183.75	$175.82	$7.93	4.5%
Irrigation Equipment Depreciation & Interest							
Land **				$325.00	$270.00	$55.00	20.4%
Overhead				$32.00	$29.00	$3.00	10.3%
Management Fee				$90.00	$84.00	$6.00	7.1%
Total Ownership Costs				$664.75	$591.50	$73.25	12.4%
Ownership Costs per Unit				$1.93	$1.69	$0.24	14.0%
Total Costs per Acre				$1,946.23	$1,772.38	$173.85	9.8%
Total Cost per Unit				$5.64	$5.06	$0.58	11.4%
Returns to Risk				-$152.23	-$57.38	-$94.85	

Notes:
* Center Pivot. **Includes irrigation system ownership costs.
Blue font indicates an increase.
A 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 Yield	+ 5%
Price	327.75	345	362.25
Operating Cost Breakeven	$3.91	$3.71	$3.54
Ownership Cost Breakeven	$2.03	$1.93	$1.84
Total Cost Breakeven	$5.94	$5.64	$5.37

		Price	
Yield	$4.94	$5.20	$5.46
Operating Cost Breakeven	259.4	246.4	234.7
Ownership Cost Breakeven	134.6	127.8	121.7
Total Cost Breakeven	394.0	374.3	356.5

Date:
User's Name:
Address:

EBB4-Po6-07

Eastern Idaho South District Russet Burbank Commercial Potatoes: On-Farm Storage

Economic costs are used in the University of Idaho costs and returns estimates. All resources are valued based on market price or opportunity cost. Input prices are based on the U of I's annual survey of agricultural supply companies. Except for contract crops, the selling price is a 10-year average. The costs and returns estimate shown here is typical for growing and storing irrigated Russet Burbank commercial potatoes in the higher yielding counties of eastern Idaho. Production practices are based on producer surveys conducted in Bingham, Bannock, and Power counties. 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 quality of management are all crucial factors that influence costs.

The Model Farm

This costs and returns estimate models a 1,500-acre farm with 500 acres in potatoes. The typical crop rotation is one year of potatoes followed by two years of grain. Corn may substitute for grain, while sugarbeets and alfalfa are grown in longer rotations. The farm uses a center pivot irrigation system and surface water delivered from an irrigation district. The irrigation district charges a flat fee per acre for water. Irrigation power costs are for pressurization only and are based on current Idaho Power rates.

Tillage, Fertilization, Pest Control, and Irrigation

After the stubble from the preceding grain crop is chopped, the potato ground is irrigated, disked twice and ripped in the fall, then chisel plowed and marked-out for planting in the spring. Potatoes are planted in May using a 6-row planter with 36-inch row spacing. The seeding rate is 20 hundredweight (cwt) with an additional 5 percent (1 cwt) to account for waste. Potatoes are cultivated and hilled in late May and cultivated in early June with a basin tillage tool. In September, vines are rolled and removed mechanically. Potato harvest begins three weeks later using a 2-row harvester, 4-row windrower, and five 10-wheeler trucks (300 cwt capacity). Potatoes are hauled directly to on-farm storage. Potatoes are stored 5 months in a modern, above ground storage facility with air and humidification. In addition to labor, electricity, and sprout inhibitor expenses, storage operating cost includes a charge for shrink and interest based on the value of the stored crop. Most fertilizer is custom applied in two preplant applications, fall and spring. A liquid phosphate starter fertilizer and micronutrients are applied at row mark-out. Additional nitrogen is applied post-plant through the sprinkler system. The weed control program uses cultural, mechanical (tillage and cultivation), and chemical control methods. A two-way herbicide tank mix is applied preemergence to control annual grasses and broadleaf weeds. For insect control, a systemic insecticide is banded at planting and a contact insecticide is applied by air in July. Two fungicide applications are made for blight control, starting in July. The first application is made by custom ground application and the second is custom applied by air. Potatoes receive 20.5 inches of water during the growing season from approximately 47 irrigations (pivot revolutions), 5 inches in May, 6 inches in June, 8 inches in July, and 6 inches in August. One inch of water is applied pre-harvest in September and 1.5 inches are applied to the grain stubble for a total of 23 inches credited to the potato crop.

Resources: Machinery, Land, Labor, and Capital

Table 3 lists the tractors, trucks, and other equipment used to produce potatoes, along with their operating and ownership costs. Storage and handling equipment is not listed. Except for trucks, machinery is valued at 75 percent of replacement cost new, Table 3. This reduces the machinery repair operating cost and the depreciation and interest ownership costs on equipment by 25 percent. The truck's price includes the cost of a used truck and 75 percent of the cost of a new self-unloading bed. Between surveys, machinery prices are adjusted using USDA's Farm Machinery Prices Paid Index. The land charge is cash rent and covers the ownership costs (depreciation, interest, and insurance) of the irrigation system. A machinery labor charge is made for all field operations except those performed on a custom basis. Custom operations are listed separately. The non-machine labor accounts for extra planting and harvesting field labor. Labor to operate machinery is valued at $14.10 per hour, while irrigation and non-machine labor are valued at $9.45 and $8.35, respectively. Labor rates include a base wage plus a percentage for Social Security, Medicare, unemployment insurance, and other labor overhead expenses. Labor overhead amounts to 15 percent for non-machine labor, 25 percent for irrigation labor, and 30 percent for machinery labor. A management fee, 5 percent of gross returns, is included as a ownership cost. Interest on operating capital is charged from the time an input is applied until the month of harvest and is calculated at a nominal rate of 9.5 percent. Interest on intermediate term capital is calculated using a rate of 8.75 percent. A general overhead charge of 2.5 percent of operating expenses is included to cover unallocated whole-farm costs such as office expenses, legal and accounting fees, and 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.

Table 21. 2007 Irrigated Russet Burbank Commercial Potatoes With On-Farm Storage for Eastern Idaho - South: Bannock, Bingham and Power Counties with comparison to 2006.

Item	Quantity Per Acre	Unit	Price or Cost	Value or Cost/Acre		2006	Yield Change	
Gross Returns								
Potatoes	345	cwt	$5.50		$1,897.50	350	-5	-1.4%
Operating Inputs							$ Change	% Change
Seed:				$235.20		$217.35	$17.85	8.2%
G-3 Potato Seed	21	cwt	$9.30		$195.30	$182.70	$12.60	6.9%
Seed Cut and Treat	21	cwt	$1.90		$39.90	$34.65	$5.25	15.2%
Fertilizer:				$306.90		$245.45	$61.45	25.0%
Nitrogen - Preplant	145	lb	$0.49		$71.05	$58.00	$13.05	22.5%
P2O5	155	lb	$0.37		$57.35	$38.75	$18.60	48.0%
K2O	175	lb	$0.25		$43.75	$40.25	$3.50	8.7%
Sulfur	85	lb	$0.15		$12.75	$12.75	$0.00	0.0%
Liquid Nitrogen	140	lb	$0.58		$81.20	$60.20	$21.00	34.9%
Liquid P2O5	60	ac	$0.38		$22.80	$18.00	$4.80	26.7%
Micronutrients	1	lb	$18.00		$18.00	$17.50	$0.50	2.9%
					$0.00			
Pesticides:				$105.10		$102.39	$2.71	2.6%
Thimet 20G	15	lb	$2.35		$35.25	$38.25	-$3.00	-7.8%
Sencor DF	0.75	lb	$14.65		$10.99	$8.06	$2.93	36.3%
Eptam 7E	2.0	qt	$7.50		$15.00	$13.20	$1.80	13.6%
Bravo Ultrex	1.25	lb	$7.00		$8.75	$9.13	-$0.38	-4.2%
Dithane F45 Rainshield	3.2	qt	$4.00		$12.80	$13.12	-$0.32	-2.4%
Monitor 4E	0.75	qt	$29.75		$22.31	$20.63	$1.68	8.2%
					$0.00			
Custom & Consultants:				$53.15		$48.35	$4.80	9.9%
Custom Fertilize	2	ac	$6.50		$13.00	$10.30	$2.70	26.2%
Consultant	1	ac	$17.00		$17.00	$16.00	$1.00	6.3%
Custom Ground Spray	1	ac	$6.25		$6.25	$5.95	$0.30	5.0%
Custom Air Spray- 10G	2	ac	$8.45		$16.90	$16.10	$0.80	5.0%
Irrigation:				$79.37		$75.45	$3.92	5.2%
Water Assessment	1	ac	$23.00		$23.00	$23.00	$0.00	0.0%
Irrigation Power - CP*	23	acin	$1.26		$28.98	$25.76	$3.22	12.5%
Irrigation Repairs - CP*	23	acin	$0.55		$12.65	$12.65	$0.00	0.0%
Irrigation Labor - CP*	1.56	hr	$9.45		$14.74	$14.04	$0.70	5.0%
Other:				$302.00		$292.12	$9.88	3.4%
Fees & Assessments	328	cwt	$0.15		$49.20	$46.62	$2.58	5.5%
Crop Insurance	1	ac	$32.00		$32.00	$32.00	$0.00	0.0%
Storage Operating Costs	345	cwt	$0.64		$220.80	$213.50	$7.30	3.4%
Fuel & Lubricants					$100.26	$109.64	-$9.38	-8.6%
Machinery Repairs					$43.30	$41.63	$1.67	4.0%
Potato Storage System Repairs					$12.75	$12.30	$0.45	3.7%
Machinery Labor	6.99	hrs	$14.10		$98.56	$94.02	$4.54	4.8%
Other Labor	2.49	hrs	$8.35		$20.79	$19.80	$0.99	5.0%
Operating Interest					$42.00	$39.27	$2.73	7.0%
Total Operating Costs					$1,399.38	$1,297.77	$101.61	7.8%
Operating Costs per Unit					$4.06	$3.71	$0.35	9.4%
Net Returns Above Operating Expenses					$498.12	$504.73	-$6.61	

Table 21. 2007 Irrigated Russet Burbank Commercial Potatoes With On-Farm Storage for Eastern Idaho - South: Bannock, Bingham and Power Counties with comparison to 2006.

Item	Quantity Per Acre	Unit	Price or Cost	Value or Cost/Acre	2006		
Ownership Costs:							
Potato Storage System				$133.85	$129.00	$4.85	3.8%
Tractors & Equipment Insurance				$4.30	$4.14	$0.16	3.9%
Tractors & Equipment Depreciation & Interest				$182.40	$174.57	$7.83	4.5%
Irrigation Equipment Depreciation & Interest							
Land **				$325.00	$270.00	$55.00	20.4%
Overhead				$35.00	$31.00	$4.00	12.9%
Management Fee				$95.00	$88.00	$7.00	8.0%
Total Ownership Costs				$775.55	$696.71	$78.84	11.3%
Ownership Costs per Unit				$2.25	$1.90	$0.26	12.9%
Total Costs per Acre				$2,174.93	$1,994.48	$180.45	9.0%
Total Cost per Unit				$6.30	$5.70	$0.61	10.6%
Returns to Risk				-$277.43	-$191.98	-$85.45	

Notes:
* Center Pivot. **Includes irrigation system ownership costs.
Blue font indicates an increase.
A 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 Yield	+ 5%
Price	327.75	345	362.25
Operating Cost Breakeven	$4.27	$4.06	$3.86
Ownership Cost Breakeven	$2.37	$2.25	$2.14
Total Cost Breakeven	$6.64	$6.30	$6.00

		Price	
Yield	$5.23	$5.50	$5.78
Operating Cost Breakeven	267.8	254.4	242.3
Ownership Cost Breakeven	148.4	141.0	134.3
Total Cost Breakeven	416.3	395.4	376.6

Date:
User's Name:
Address:

EBB4-Pc6-07

Eastern Idaho South District Russet Burbank Commercial Potatoes: On-Farm Storage

Economic costs are used in the University of Idaho costs and returns estimates. All resources are valued based on market price or opportunity cost. Input prices are based on the U of I's annual survey of agricultural supply companies. Except for contract crops, the selling price is a 10-year average. The costs and returns estimate shown here is typical for growing and storing irrigated Russet Burbank commercial potatoes in the higher yielding counties of eastern Idaho. Production practices are based on producer surveys conducted in Bingham, Bannock, and Power counties. 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 quality of management are all crucial factors that influence costs.

The Model Farm

This costs and returns estimate models a 1,500-acre farm with 500 acres in potatoes. The typical crop rotation is one year of potatoes followed by two years of grain. Corn may substitute for grain, while sugarbeets and alfalfa are grown in longer rotations. The farm uses a center pivot irrigation system and surface water delivered from an irrigation district. The irrigation district charges a flat fee per acre for water. Irrigation power costs are for pressurization only and are based on current Idaho Power rates.

Tillage, Fertilization, Pest Control, and Irrigation

After the stubble from the preceding grain crop is chopped, the potato ground is irrigated, disked twice and ripped in the fall, then chisel plowed and marked-out for planting in the spring. Potatoes are planted in May using a 6-row planter with 36-inch row spacing. The seeding rate is 20 hundredweight (cwt) with an additional 5 percent (1 cwt) to account for waste. Potatoes are cultivated and hilled in late May and cultivated in early June with a basin tillage tool. In September, vines are rolled and removed mechanically. Potato harvest begins three weeks later using a 2-row harvester, 4-row windrower, and five 10-wheeler trucks (300 cwt capacity). Potatoes are hauled directly to on-farm storage. Potatoes are stored 5 months in a modern, above ground storage facility with air and humidification. In addition to labor, electricity, and sprout inhibitor expenses, storage operating cost includes a charge for shrink and interest based on the value of the stored crop. Most fertilizer is custom applied in two preplant applications, fall and spring. A liquid phosphate starter fertilizer and micronutrients are applied at row mark-out. Additional nitrogen is applied post-plant through the sprinkler system. The weed control program uses cultural, mechanical (tillage and cultivation), and chemical control methods. A two-way herbicide tank mix is applied preemergence to control annual grasses and broadleaf weeds. For insect control, a systemic insecticide is banded at planting and a contact insecticide is applied by air in July. Two fungicide applications are made for blight control, starting in July. The first application is made by custom ground application and the second is custom applied by air. Potatoes receive 20.5 inches of water during the growing season from approximately 47 irrigations (pivot revolutions), 5 inches in May, 6 inches in June, 8 inches in July, and 6 inches in August. One inch of water is applied pre-harvest in September and 1.5 inches are applied to the grain stubble for a total of 23 inches credited to the potato crop.

Resources: Machinery, Land, Labor, and Capital

Table 3 lists the tractors, trucks, and other equipment used to produce potatoes, along with their operating and ownership costs. Storage and handling equipment is not listed. Except for trucks, machinery is valued at 75 percent of replacement cost new, Table 3. This reduces the machinery repair operating cost and the depreciation and interest ownership costs on equipment by 25 percent. The truck's price includes the cost of a used truck and 75 percent of the cost of a new self-unloading bed. Between surveys, machinery prices are adjusted using USDA's Farm Machinery Prices Paid Index. The land charge is cash rent and covers the ownership costs (depreciation, interest, and insurance) of the irrigation system. A machinery labor charge is made for all field operations except those performed on a custom basis. Custom operations are listed separately. The non-machine labor accounts for extra planting and harvesting field labor. Labor to operate machinery is valued at $14.10 per hour, while irrigation and non-machine labor are valued at $9.45 and $8.35, respectively. Labor rates include a base wage plus a percentage for Social Security, Medicare, unemployment insurance, and other labor overhead expenses. Labor overhead amounts to 15 percent for non-machine labor, 25 percent for irrigation labor, and 30 percent for machinery labor. A management fee, 5 percent of gross returns, is included as an ownership cost. Interest on operating capital is charged from the time an input is applied until the month of harvest and is calculated at a nominal rate of 9.5 percent. Interest on intermediate term capital is calculated using a rate of 8.75 percent. A general overhead charge of 2.5 percent of operating expenses is included to cover unallocated whole-farm costs such as office expenses, legal and accounting fees, and 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.

EBB4-Po6-07

Eastern Idaho South District Russet Burbank Commercial Potatoes: Fumigation and On-Farm Storage

Economic costs are used in the University of Idaho costs and returns estimates. All resources are valued based on market price or opportunity cost. Input prices are based on the U of I's annual survey of agricultural supply companies. Except for contract crops, the selling price is a 10-year average. The costs and returns estimate shown here is typical for growing irrigated Russet Burbank commercial potatoes in the higher yielding counties of eastern Idaho that fumigate. Production practices are based on producer surveys conducted in Bingham, Bannock, and Power counties. 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 quality of management are all crucial factors that influence costs.

The Model Farm

This costs and returns estimate models a 1,500-acre farm with 500 acres in potatoes. The typical crop rotation is one year of potatoes followed by two years of grain. Corn may substitute for grain, while sugarbeets and alfalfa are grown in longer rotations. The farm uses a center pivot irrigation system and surface water delivered from an irrigation district. The irrigation district charges a flat fee per acre for water.

Tillage, Fertilization, Pest Control, and Irrigation

After the stubble from the preceding grain crop is chopped, the potato ground is irrigated, disked twice, ripped and fumigated in the fall. The ground is chisel plowed and marked-out for planting in the spring. Potatoes are planted in May using a 6-row planter with 36-inch row spacing. The seeding rate is 20 hundredweight (cwt) with an additional 5 percent (1 cwt) to account for waste. Potatoes are cultivated and hilled in late May and cultivated in early June with a basin tillage tool. In September, vines are rolled and removed mechanically. Potato harvest begins three weeks later using a 2-row harvester, 4-row windrower, and five 10-wheeler trucks (300 cwt capacity). Potatoes are hauled directly to on-farm storage. Potatoes are stored 5 months in a modern, above ground storage facility with air and humidification. In addition to labor, electricity, and sprout inhibitor expenses, storage operating cost includes a charge for shrink and interest based on the value of the stored crop. Most fertilizer is custom applied in two preplant applications, fall and spring. A liquid phosphate starter fertilizer and micronutrients are applied at row mark-out. Additional nitrogen is applied post-plant through the sprinkler system. The weed control program uses cultural, mechanical (tillage and cultivation), and chemical control methods. A two-way herbicide tank mix is applied preemergence to control annual grasses and broadleaf weeds. For insect control, a systemic insecticide is banded at planting and a contact insecticide is applied by air in July. Two fungicide applications are made for blight control, starting in July. The first application is made by custom ground application and the second is custom applied by air. Potatoes receive 20.5 inches of water during the growing season from approximately 47 irrigations (pivot revolutions), 5 inches in May, 6 inches in June, 8 inches in July, and 6 inches in August. One inch of water is applied pre-harvest in September, 1.5 inches are applied to the grain stubble before fall tillage and 2 inches are applied to apply/incorporate the fumigant for a total of 25 inches credited to the potato crop.

Resources: Machinery, Land, Labor, and Capital

Table 3 lists the tractors, trucks, and other equipment used to produce potatoes, along with their operating and ownership costs. Storage and handling equipment is not listed. Except for trucks, machinery is valued at 75 percent of replacement cost new, Table 3. This reduces the machinery repair operating cost and the depreciation and interest ownership costs on equipment by 25 percent. The truck's price includes the cost of a used truck and 75 percent of the cost of a new self-unloading bed. Between surveys, machinery prices are adjusted using USDA's Farm Machinery Prices Paid Index. The land charge is cash rent and covers the ownership costs (depreciation, interest, and insurance) of the irrigation system. A machinery labor charge is made for all field operations except those performed on a custom basis. Custom operations are listed separately. The non-machine labor accounts for extra planting and harvesting field labor. Labor to operate machinery is valued at $14.10 per hour, while irrigation and non-machine labor are valued at $9.45 and $8.35, respectively. Labor rates include a base wage plus a percentage for Social Security, Medicare, unemployment insurance, and other labor overhead expenses. Labor overhead amounts to 15 percent for non-machine labor, 25 percent for irrigation labor, and 30 percent for machinery labor. A management fee, 5 percent of gross returns, is included as a non-ownership cost. Interest on operating capital is charged from the time an input is applied until the month of harvest and is calculated at a nominal rate of 9.5 percent. Interest on intermediate term capital is calculated using a rate of 8.75 percent. A general overhead charge of 2.5 percent of operating expenses is included to cover unallocated whole-farm costs such as office expenses, legal and accounting fees, and 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.

Table 22. 2007 Irrigated Russet Burbank Commercial Potatoes With Fumigation & On-Farm Storage for Eastern Idaho - South: Bannock, Bingham and Power Counties with comparison to 2006.

Item	Quantity Per Acre	Unit	Price or Cost	Value or Cost/Acre		2006	Yield Change	
Gross Returns								
Potatoes	385	cwt	$5.50		$2,117.50	390	-5	-1.3%
Operating Inputs							$ Change	% Change
Seed:				$235.20		$217.35	$17.85	8.2%
G-3 Potato Seed	21	cwt	$9.30		$195.30	$182.70	$12.60	6.9%
Seed Cut and Treat	21	cwt	$1.90		$39.90	$34.65	$5.25	15.2%
Fertilizer:				$323.80		$258.55	$65.25	25.2%
Nitrogen - Preplant	155	lb	$0.49		$75.95	$62.00	$13.95	22.5%
P2O5	165	lb	$0.37		$61.05	$41.25	$19.80	48.0%
K2O	185	lb	$0.25		$46.25	$42.55	$3.70	8.7%
Sulfur	85	lb	$0.15		$12.75	$12.75	$0.00	0.0%
Liquid Nitrogen	150	lb	$0.58		$87.00	$64.50	$22.50	34.9%
Liquid P2O5	60	ac	$0.38		$22.80	$18.00	$4.80	26.7%
Micronutrients	1	lb	$18.00		$18.00	$17.50	$0.50	2.9%
					$0.00			
Pesticides:				$255.10		$258.39	-$3.29	-1.3%
Vapam 42%	40	gal	$3.75		$150.00	$156.00	-$6.00	-3.8%
Thimet 20G	15	lb	$2.35		$35.25	$38.25	-$3.00	-7.8%
Sencor 75DF	0.75	lb	$14.65		$10.99	$8.06	$2.93	36.3%
Eptam 7E	2.0	qt	$7.50		$15.00	$13.20	$1.80	13.6%
Bravo Ultrex	1.25	lb	$7.00		$8.75	$9.13	-$0.38	-4.2%
Dithane F45 Rainshield	3.2	qt	$4.00		$12.80	$13.12	-$0.32	-2.4%
Monitor 4E	0.75	qt	$29.75		$22.31	$20.63	$1.68	8.2%
Custom & Consultants:				$53.15		$48.35	$4.80	9.9%
Custom Fertilize	2	ac	$6.50		$13.00	$10.30	$2.70	26.2%
Consultant	1	ac	$17.00		$17.00	$16.00	$1.00	6.3%
Custom Ground Spray	1	ac	$6.25		$6.25	$5.95	$0.30	5.0%
Custom Air Spray-10G	2	ac	$8.45		$16.90	$16.10	$0.80	5.0%
Irrigation:				$84.69		$80.41	$4.28	5.3%
Water Assessment	1	ac	$23.00		$23.00	$23.00	$0.00	0.0%
Irrigation Power - CP*	25	acin	$1.26		$31.50	$28.00	$3.50	12.5%
Irrigation Repairs - CP*	25	acin	$0.55		$13.75	$13.75	$0.00	0.0%
Irrigation Labor - CP*	1.74	hr	$9.45		$16.44	$15.66	$0.78	5.0%
Other:				$333.30		$321.84	$11.46	3.6%
Fees & Assessments	366	cwt	$0.15		$54.90	$51.94	$2.96	5.7%
Crop Insurance	1	ac	$32.00		$32.00	$32.00	$0.00	0.0%
Storage Operating Costs	385	cwt	$0.64		$246.40	$237.90	$8.50	3.6%
Fuel & Lubricants					$100.25	$109.64	-$9.39	-8.6%
Machinery Repairs					$43.30	$41.63	$1.67	4.0%
Potato Storage System Repairs					$14.25	$13.70	$0.55	4.0%
Machinery Labor	6.99	hrs	$14.10		$98.56	$94.02	$4.54	4.8%
Other Labor	2.72	hrs	$8.35		$22.71	$21.62	$1.09	5.1%
Operating Interest					$58.95	$55.09	$3.86	7.0%
Total Operating Costs					$1,623.26	$1,520.59	$102.67	6.8%
Operating Costs per Unit					$4.22	$3.90	$0.32	8.1%
Net Returns Above Operating Expenses					$494.24	$487.91	$6.33	

Table 22. 2007 Irrigated Russet Burbank Commercial Potatoes With Fumigation & On-Farm Storage for Eastern Idaho - South: Bannock, Bingham and Power Counties with comparison to 2006.

Item	Quantity Per Acre	Unit	Price or Cost	Value or Cost/Acre	2006		
Ownership Costs:							
Potato Storage System				$135.80	$129.50	$6.30	4.9%
Tractors & Equipment Insurance				$4.30	$4.14	$0.16	3.9%
Tractors & Equipment Depreciation & Interest				$182.40	$174.57	$7.83	4.5%
Irrigation Equipment Depreciation & Interest							
Land **				$325.00	$270.00	$55.00	20.4%
Overhead				$41.00	$37.00	$4.00	10.8%
Management Fee				$107.00	$98.00	$9.00	9.2%
Total Ownership Costs				$795.50	$713.21	$82.29	11.5%
Ownership Costs per Unit				$2.07	$1.83	$0.24	13.0%
Total Costs per Acre				$2,418.75	$2,233.80	$184.96	8.3%
Total Cost per Unit				$6.28	$5.73	$0.55	9.7%
Returns to Risk				-$301.25	-$225.30	-$75.96	

Notes:
* Center Pivot. **Includes irrigation system ownership costs.
Blue font indicates an increase.
A 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 Yield	+ 5%
Price	365.75	385	404.25
Operating Cost Breakeven	$4.44	$4.22	$4.02
Ownership Cost Breakeven	$2.17	$2.07	$1.97
Total Cost Breakeven	$6.61	$6.28	$5.98

		Price	
Yield	$5.23	$5.50	$5.78
Operating Cost Breakeven	310.7	295.1	281.1
Ownership Cost Breakeven	152.2	144.6	137.7
Total Cost Breakeven	462.9	439.8	418.8

Date:
User's Name:
Address:

EBB4-Po2-07

Eastern Idaho North District Russet Burbank Commercial Potatoes: On-Farm Storage and No Fumigation

Economic costs are used in the University of Idaho costs and returns estimates. All resources are valued based on market price or opportunity cost. Input prices are based on the U of I's annual survey of agricultural supply companies. Except for contract crops, the selling price is a 10-year average. The costs and returns estimate shown here is typical for growing and storing irrigated Russet Burbank commercial potatoes in the lower yielding counties of eastern Idaho. Production practices are based on producer surveys conducted in Bonneville, Jefferson and Madison counties. 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 quality of management are all crucial factors that influence costs.

The Model Farm

This costs and returns estimate models a 1,500-acre farm with 300 acres in potatoes. The typical crop rotation is one year of potatoes followed by two years of grain. Dry peas or a oil crop may substitute for grain while alfalfa is grown in longer rotations. The farm uses a center pivot irrigation system and surface water delivered from an irrigation district. The irrigation district charges a flat fee per acre for water. Irrigation power costs are for pressurization only and are based on current Idaho Power rates.

Tillage, Fertilization, Pest Control, and Irrigation

After the stubble from the preceding grain crop is chopped, the potato ground is irrigated, disked twice, and ripped in the fall, then chisel plowed and marked-out for planting in the spring. Potatoes are planted in May using a 6-row planter with a 36-inch row spacing. The seeding rate is 19 hundredweight (cwt) with an additional 5 percent (1 cwt) to account for waste. Potatoes are cultivated and hilled in early June and cultivated later in the month with a basin tillage tool. In September, vines are rolled and then killed with sulfuric acid. Potato harvest begins 3 weeks later using a 2-row harvester, 4-row windrower, and five 10-wheeler trucks (300 cwt capacity). Potatoes are hauled directly to on-farm storage. Potatoes are stored 5 months in a modern, above ground storage facility with air and humidification. In addition to labor, electricity, and sprout inhibitor, storage operating costs also include a charge for shrink and interest based on the value of the stored crop. Most fertilizer is custom applied in a split application, April and June. A liquid starter fertilizer is applied at mark-out. Nitrogen, phosphate and sulfur are also applied postplant through the sprinkler system. The weed control program uses cultural, mechanical (tillage and cultivation), and chemical methods. A two-way herbicide tank mix is applied preemergence to control annual grasses and broadleaf weeds. For insect control, a systemic insecticide is banded at planting and a contact insecticide is applied by air in July. Two fungicide applications are made for blight control, starting in July. All applications are custom applied by air. Potatoes receive 18 inches of water during the growing season from approximately 41 irrigations (pivot revolutions), 5 inches in June, 8 inches in July, and 5 inches in August. One additional inch of water is applied preharvest in September and 1.5 inches of water applied to the grain stubble are also credited to potatoes, for a total of 20.5 inches.

Resources: Machinery, Land, Labor, and Capital

Table 3 lists the tractors, trucks, and other equipment used to produce potatoes, along with their operating and ownership costs. Storage and handling equipment is not listed. Except for trucks, machinery is valued at 75 percent of replacement cost new, Table 3. This reduces the machinery repair operating cost and the depreciation and interest ownership costs on equipment by 25 percent. The truck's price includes the cost of a used truck and 75 percent of the cost of a new self-unloading bed. Between surveys, machinery prices are adjusted using USDA's Farm Machinery Prices Paid Index. The land charge is cash rent and covers the ownership costs (depreciation, interest, and insurance) of the irrigation system. A machinery labor charge is made for all field operations except those performed on a custom basis. Custom operations are listed separately. The non-machine labor accounts for extra planting and harvesting field labor. Labor to operate machinery is valued at $14.10 per hour, while irrigation and non-machine labor are valued at $9.45 and $8.35, respectively. Labor rates include a base wage plus a percentage for Social Security, Medicare, unemployment insurance, and other labor overhead expenses. Labor overhead amounts to 15 percent for non-machine labor, 25 percent for irrigation labor, and 30 percent for machinery labor. A management fee, 5 percent of gross returns, is included as an ownership cost. Interest on operating capital is charged from the time an input is applied until the month of harvest and is calculated at a nominal rate of 9.5 percent. Interest on intermediate term capital is calculated using a rate of 8.75 percent. A general overhead charge of 2.5 percent of operating expenses is included to cover unallocated whole-farm costs such as office expenses, legal and accounting fees, and 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.

Table 23. 2007 Irrigated Russet Burbank Commercial Potatoes With On-Farm Storage for Eastern Idaho - North: Bonneville, Jefferson and Madison Counties with comparion to 2006.

Item	Quantity Per Acre	Unit	Price or Cost	Value or Cost/Acre	2006	Yield Change	
Gross Returns						5	1.5%
Potatoes	335	cwt	$5.50	$1,842.50	330		
Operating Inputs						$ Change	% Change
Seed:				$217.00	$200.00	$17.00	8.5%
G-3 Potato Seed	20	cwt	$8.95	$179.00	$167.00	$12.00	7.2%
Seed Cut and Treat	20	cwt	$1.90	$38.00	$33.00	$5.00	15.2%
Fertilizer:				$250.05	$202.85	$47.20	23.3%
Nitrogen	150	lb	$0.49	$73.50	$60.00	$13.50	22.5%
P2O5	100	lb	$0.37	$37.00	$25.00	$12.00	48.0%
K2O	140	lb	$0.25	$35.00	$32.20	$2.80	8.7%
Sulfur	65	lb	$0.15	$9.75	$9.75	$0.00	0.0%
Liquid Nitrogen	80	lb	$0.58	$46.40	$34.40	$12.00	34.9%
Liquid P2O5	80	ac	$0.38	$30.40	$24.00	$6.40	26.7%
Micronutrients	1	lb	$18.00	$18.00	$17.50	$0.50	2.9%
				$0.00			
Pesticides:				$112.66	$111.64	$1.02	0.9%
Thimet 20G	15	lb	$2.35	$35.25	$38.25	-$3.00	-7.8%
Sencor DF	0.75	lb	$14.65	$10.99	$8.06	$2.93	36.3%
Eptam 7E	2.0	qt	$7.50	$15.00	$13.20	$1.80	13.6%
Bravo Ultrex	1.25	lb	$7.00	$8.75	$9.13	-$0.38	-4.2%
Dithane F45 Rainshield	3.2	qt	$4.00	$12.80	$13.12	-$0.32	-2.4%
Furadan 4F	0.5	qt	$19.75	$9.88	$9.88	-$0.01	-0.1%
Sulfuric Acid	25	gal	$0.80	$20.00	$20.00	$0.00	0.0%
Custom & Consultants:				$64.40	$59.50	$4.90	8.2%
Custom Fertilize	2	ac	$6.50	$13.00	$10.30	$2.70	26.2%
Consultant	1	ac	$17.00	$17.00	$16.00	$1.00	6.3%
Custom Air Spray-100i	3	ac	$8.45	$25.35	$24.15	$1.20	5.0%
Sulfuric Acid Application	1	ac	$9.05	$9.05	$9.05	$0.00	0.0%
				$0.00			
Irrigation:				$60.40	$56.21	$4.19	7.4%
Water Assessment	1	ac	$10.25	$10.25	$9.55	$0.70	7.3%
Irrigation Power - CP*	20.5	acin	$1.26	$25.83	$22.96	$2.87	12.5%
Irrigation Repairs - CP*	20.5	acin	$0.55	$11.28	$11.28	$0.00	0.0%
Irrigation Labor - CP*	1.38	hr	$9.45	$13.04	$12.42	$0.62	5.0%
Other:				$292.10	$275.26	$16.84	6.1%
Fees & Assessments	318	cwt	$0.15	$47.70	$43.96	$3.74	8.5%
Crop Insurance	1	ac	$30.00	$30.00	$30.00	$0.00	0.0%
Storage Operating Costs	335	cwt	$0.64	$214.40	$201.30	$13.10	6.5%
Fuel & Lubricants				$92.92	$101.60	-$8.68	-8.5%
Machinery Repairs				$40.20	$38.50	$1.70	4.4%
Potato Storage System Repairs				$12.40	$11.60	$0.80	6.9%
Machinery Labor	6.49	hrs	$14.10	$91.44	$87.22	$4.22	4.8%
Other Labor	2.18	hrs	$8.35	$18.20	$17.33	$0.87	5.0%
Operating Interest				$31.20	$29.17	$2.03	7.0%
Total Operating Costs				$1,282.97	$1,190.88	$92.09	7.7%
Operating Costs per Unit				$3.83	$3.61	$0.22	6.1%
Net Returns Above Operating Expenses				$559.53	$508.62	$50.91	

Table 23. 2007 Irrigated Russet Burbank Commercial Potatoes With On-Farm Storage for Eastern Idaho - North: Bonneville, Jefferson and Madison Counties with comparion to 2006.

Item	Quantity Per Acre	Unit	Price or Cost	Value or Cost/Acre	2006		
Ownership Costs:							
Potato Storage System				$130.00	$121.65	$8.35	6.9%
Tractors & Equipment Insurance				$4.00	$3.84	$0.16	4.2%
Tractors & Equipment Depreciation & Interest				$169.00	$161.70	$7.30	4.5%
Irrigation Equipment Depreciation & Interest							
Land **				$295.00	$245.00	$50.00	20.4%
Overhead				$32.00	$29.00	$3.00	10.3%
Management Fee				$92.00	$82.00	$10.00	12.2%
Total Ownership Costs				$722.00	$643.19	$78.81	12.3%
Ownership Costs per Unit				$2.16	$1.95	$0.21	10.6%
Total Costs per Acre				$2,004.97	$1,834.07	$170.90	9.3%
Total Cost per Unit				$5.98	$5.56	$0.43	7.7%
Returns to Risk				-$162.47	-$134.57	-$27.90	

Notes:
* Center Pivot. **Includes irrigation system ownership costs.
Blue font indicates an increase.
A 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 Yield	+ 5%
Price	318.25	335	351.75
Operating Cost Breakeven	$4.03	$3.83	$3.65
Ownership Cost Breakeven	$2.27	$2.16	$2.05
Total Cost Breakeven	$6.30	$5.98	$5.70
		Price	
Yield	$5.23	$5.50	$5.78
Operating Cost Breakeven	245.5	233.3	222.2
Ownership Cost Breakeven	138.2	131.3	125.0
Total Cost Breakeven	383.7	364.5	347.2

Date:
User's Name:
Address:

EBB4-Po4-07

Eastern Idaho North District Russet Burbank G3 Seed Potatoes: On-Farm Storage

Economic costs are used in the University of Idaho costs and returns estimates. All resources are valued based on market price or opportunity cost. Input prices are based on the U of I annual survey of agricultural supply companies. Except for contract crops, the selling price is a 10-year average. The costs and returns estimate shown here is typical for growing and storing irrigated Russet Burbank seed potatoes in southeastern Idaho. Production practices are based on producer surveys conducted in Fremont and Teton counties. Although production practices may be similar for individual farms, each 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 quality of management are all crucial factors that influence costs.

The Model Farm

This costs and returns estimate models a 1,350-acre farm with 350 acres in seed potatoes. The crop rotation is one year of potatoes followed by two to three years of grain, alfalfa, dry peas, or canola seed crop. The farm has a center pivot irrigation system that pressurizes surface water delivered to the farm from an irrigation district. The district charges a flat water assessment fee per acre. Irrigation power costs are for pressurization only and are based on current Idaho Power rates.

Tillage, Fertilization, Pest Control, and Irrigation

After the stubble from the preceding grain crop is chopped, the potato ground is disked and ripped in the fall, then disked, chisel plowed, and marked-out for planting in the spring. Potatoes are planted in late May using a 6-row planter with 36-inch row spacing. The seeding rate is 22 hundredweight (cwt), with an additional 5 percent (1 cwt) to account for waste. Hills are harrowed off after planting and potatoes are cultivated once in June after emergence. In September, vines are killed and then killed with sulfuric acid. Potato harvest begins 3 weeks later using a 2-row harvester, a 4-row windrower, and four 10-wheeler trucks (300 cwt capacity). Potatoes are hauled directly to on-farm storage. Potatoes are stored for 5 to 6 months in a modern, above ground storage facility with air and humidification. In addition to labor and electricity expenses, storage operating cost includes a charge for shrink and interest based on the value of the crop in storage. Most fertilizer is custom applied preplant in the spring. A liquid starter fertilizer is applied at mark-out. The weed control program uses cultural, mechanical (tillage and cultivation) and chemical control methods. One herbicide is applied and incorporated with the fertilizer and a second is ground applied in June. A systemic insecticide is banded at planting, and three applications of a contact insecticide are applied by air during the growing season. Two fungicide applications are made for blight control by a custom aerial applicator, starting in late July. Potatoes are irrigated in July and again in August. Potatoes receive 11 inches of water during the growing season using twenty five irrigations (pivot rotations), 1 inch in June, 5 inches in July, and 5 inches in August. One additional inch of water applied before harvest is also credited to potatoes, for a total of 12 inches.

Resources: Machinery, Land, Labor, and Capital

Table 3 lists the tractors, trucks, and other equipment used to produce potatoes, along with their operating and ownership costs. Storage and handling equipment is not listed. Except for trucks, machinery is valued at 75 percent of replacement cost new, Table 3. This reduces the machinery repair operating cost and the depreciation and interest ownership costs on equipment by 25 percent. The truck's price includes the cost of a used truck and 75 percent of the cost of a new self-unloading bed. Between surveys, machinery prices are adjusted using USDA's Farm Machinery Prices Paid Index. The land charge is cash rent and covers the ownership costs (depreciation, interest, and insurance) of the irrigation system. A machinery labor charge is made for all field operations except those performed on a custom basis. Custom operations are listed separately. The non-machine labor accounts for extra planting and harvesting field labor. Labor to operate machinery is valued at $14.10 per hour, while irrigation and non-machine labor are valued at $9.45 and $8.35, respectively. Labor rates include a base wage plus a percentage for Social Security, Medicare, unemployment insurance, and other labor overhead expenses. Labor overhead amounts to 15 percent for non-machine labor, 25 percent for irrigation labor, and 30 percent for machinery labor. A management fee, 5 percent of gross returns, is included as an ownership cost. Interest on operating capital is charged from the time an input is applied until the month of harvest and is calculated at a nominal rate of 9.5 percent. Interest on intermediate term capital is calculated using a rate of 8.75 percent. A general overhead charge of 2.5 percent of operating expenses is included to cover unallocated whole-farm costs such as office expenses, legal and accounting fees, and 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, and membership fees paid to grower organizations. The consultant fee, listed under custom operating costs, includes soil and petiole sampling and irrigation scheduling. VT Inspection, listed under Other Costs, is the certification and testing fee paid by the grower to the Idaho Crop Improvement Association.

Table 24. 2007 Irrigated Russet Burbank G3 Seed Potatoes With On-Farm Storage for Eastern Idaho: Caribou, Fremont and Teton Counties with Comparison to 2006.

Item	Quantity Per Acre	Unit	Price or Cost	Value or Cost/Acre	2006	Yield Change	
Gross Returns							
Seed	255	cwt	$7.50	$1,912.50	255	0	0.0%
Tops	20	cwt	$4.00	$80.00	20	0	0.0%
Total	275	cwt		$1,992.50	275		
Operating Inputs					**2005**	**$ Change**	**% Change**
Seed:				$278.30	$264.50	$13.80	5.2%
G-2 Potato Seed	23	cwt	$10.20	$234.60	$226.55	$8.05	3.6%
Seed Cut and Treat	23	cwt	$1.90	$43.70	$37.95	$5.75	15.2%
Fertilizer:				$150.65	$122.45	$28.20	23.0%
Nitrogen - Preplant	100	lb	$0.49	$49.00	$40.00	$9.00	22.5%
P2O5	80	lb	$0.37	$29.60	$20.00	$9.60	48.0%
K2O	75	lb	$0.25	$18.75	$17.25	$1.50	8.7%
Sulfur	30	lb	$0.15	$4.50	$4.50	$0.00	0.0%
Liquid Nitrogen	40	lb	$0.58	$23.20	$17.20	$6.00	34.9%
Liquid P2O5	20	ac	$0.38	$7.60	$6.00	$1.60	26.7%
Micronutrients	1	lb	$18.00	$18.00	$17.50	$0.50	2.9%
Pesticides:				$192.04	$184.26	$7.78	4.2%
Thimet 20G	15	lb	$2.35	$35.25	$38.25	-$3.00	-7.8%
Sencor DF	0.75	qt	$14.65	$10.99	$8.06	$2.93	36.3%
Eptam 7E	2.0	qt	$7.50	$15.00	$13.20	$1.80	13.6%
Bravo Ultrex	1.25	lb	$7.00	$8.75	$9.13	-$0.38	-4.2%
Monitor 4E	3.0	qt	$29.75	$89.25	$82.50	$6.75	8.2%
Dithane F45 Rainshield	3.2	qt	$4.00	$12.80	$13.12	-$0.32	-2.4%
Sulfuric Acid	25.0	gal	$0.80	$20.00	$20.00	$0.00	0.0%
Custom & Consultants:				$88.15	$80.30	$7.85	9.8%
Custom Fertilize	1	ac	$6.50	$6.50	$5.15	$1.35	26.2%
Custom Ground Spray	1	ac	$6.25	$6.25	$5.95	$0.30	5.0%
Custom Air Spray-10G	3	ac	$8.45	$25.35	$24.15	$1.20	5.0%
Sulfuric Acid Application	1	ac	$9.05	$9.05	$9.05	$0.00	0.0%
Consultant	1	ac	$17.00	$17.00	$16.00	$1.00	6.3%
Rogueing	2	ac	$12.00	$24.00	$20.00	$4.00	20.0%
Irrigation:				$39.62	$36.88	$2.74	7.4%
Water Assessment	1	ac	$10.25	$10.25	$9.55	$0.70	7.3%
Irrigation Power-CP	12	acin	$1.26	$15.12	$13.44	$1.68	12.5%
Irrigation Repairs	12	acin	$0.55	$6.60	$6.60	$0.00	0.0%
Irrigation Labor-CP	0.81	hr	$9.45	$7.65	$7.29	$0.36	5.0%
Other:				$335.50	$319.88	$15.62	4.9%
Crop Insurance	1	ac	$34.00	$34.00	$34.00	$0.00	0.0%
Certification	1	ac	$22.00	$22.00	$22.00	$0.00	0.0%
Tagging	1	ac	$26.00	$26.00	$26.00	$0.00	0.0%
Fees	262	cwt	$0.15	$39.30	$33.88	$5.42	16.0%
Storage Operating Costs	255	cwt	$0.84	$214.20	$204.00	$10.20	5.0%
Fuel & Lubricants				$89.34	$97.71	-$8.37	-8.6%
Machinery Repairs				$35.15	$33.63	$1.52	4.5%
Potato Storage System Repairs				$10.45	$9.95	$0.50	5.0%
Machinery Labor	5.84	hrs	$14.10	$82.34	$78.55	$3.79	4.8%
Other Labor	4.53	hrs	$8.35	$37.83	$36.01	$1.82	5.0%
Operating Interest				$33.40	$31.52	$1.88	6.0%

Table 24. 2007 Irrigated Russet Burbank G3 Seed Potatoes With On-Farm Storage for Eastern Idaho: Caribou, Fremont and Teton Counties with Comparison to 2006.

Item	Quantity Per Acre	Unit	Price or Cost	Value or Cost/Acre	2006		
Total Operating Costs				$1,372.77	$1,295.64	$77.13	6.0%
Operating Costs per Cwt Based on Total Yield				$4.99	$4.71	$0.28	6.0%
Operating Costs per Cwt Based on Seed Only & Adjusted Operating Costs*				$5.15	$4.85	$0.30	6.2%
Net Returns Above Operating Expenses				$619.73	$569.36	$50.37	
Ownership Costs:							
Potato Storage System				$109.00	$104.00	$5.00	4.8%
Tractors & Equipment Insurance				$4.20	$4.01	$0.19	4.7%
Tractors & Equipment Depreciation & Interest				$178.90	$171.20	$7.70	4.5%
Irrigation Equipment Depreciation & Interest							
Land **				$240.00	$200.00	$40.00	20.0%
Overhead				$34.00	$30.00	$4.00	13.3%
Management Fee				$100.00	$84.00	$16.00	19.0%
Total Ownership Costs				$666.10	$593.21	$72.89	12.3%
Ownership Costs per Cwt Based on Total Yield				$2.42	$2.16	$0.27	12.3%
Ownership Costs per Cwt Based on Seed Only & Adjusted Ownership Costs*				$2.53	$2.29	$0.25	10.8%
Total Costs per Acre				$2,038.87	$1,888.85	$150.02	7.9%
Total Cost per Cwt Based on Total Yield				$7.41	$6.87	$0.55	7.9%
Total Cost per Cwt Base on Seed Only and Adjusted Total Costs*				$7.68	$7.09	$0.59	8.3%
Returns to Risk				-$126.37	-$103.85	-$22.52	

Notes

* Costs are adjusted by subtracting revenue from tops before dividing by seed yield.
* Revenue from tops is apportioned as follows: 75% operating and 25% ownership
** Includes irrigation system ownership costs.
Blue font indicates an increase.
A red font indicates a decrease.
A green font indicates a change in product or procedure to derive the cost.
Procedureal changes can result in different costs than were published the previous year.

Seed Only

Breakeven Analysis:

	- 5%	Base Yield	+ 5%
Price	242.25	255	267.75
Operating Cost Breakeven	$5.42	$5.15	$4.90
Ownership Cost Breakeven	$2.67	$2.53	$2.41
Total Cost Breakeven	$8.09	$7.68	$7.32

		Price	
Yield	$7.13	$7.50	$7.88
Operating Cost Breakeven	184.2	175.0	166.7
Ownership Cost Breakeven	90.7	86.1	82.0
Total Cost Breakeven	274.9	261.2	248.7