2004 Cost of Potato Production Comparisons for Idaho Commercial Potato Production

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The Idaho Potato Commission, Potato Processors and Various Grower Organizations

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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 I receives from all segments of the Idaho potato industry, including the growers, the processors and the chemical and fertilizer dealers. I would also like to thank the Idaho Potato Commission for the funding I receive to support this project, BDK902.

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 southwestem 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 at University of Idaho county Extension offices, from the Agricultural Economics and Rural Sociology Department -- (208) 885-6263-- and from the Internet at the following URL: http://www.ag.uidaho.edu/aers Click on Resources.

2004 Crop Input Cost Background

The cost information used to produce the 2004 potato CAR estimates came from a variety of surveys. A summary of the data collected from many of these surveys was published as Agricultural Economics Extension Series no. 04-12, *Idaho Crop Input Price Summary for 2004.* 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 to the base seed potato prices.

Machinery and equipment prices were obtained from a survey of dealers conducted in August and September of 2000. Prices were adjusted to 2004 values using the UDDA Farm Machinery Price 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.

The last major survey of potato growers in each of the three production regions was conducted in February and March 2000. Information from these surveys was used to revise the existing potato CAR estimates.

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 vary, or within a region over time as the underlying assumptions have changed. The University of Idaho currently has eleven potato CAR estimates. Ten 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 4a 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. It can also be used to calculate break-even prices needed to cover various costs. Yield is also the basis for some costs, such as certain promotion or inspection fees paid by growers, as well as for storage and transloading costs. Table 5 shows the potato yields used in the commercial potato CAR estimates for each region for the last five updates. Not all the values shown in Table 5 are used in CAR estimates, only those shown in bold type. The budget categories shown in Table 5 illustrate the significant changes made in 2001, such as the addition of fumigation and non-fumigation 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-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 exponential smoothing with an alpha value of .20. This procedure proved superior to other estimating techniques that were evaluated at a time when potato yields were increasing rapidly, and removed the consistent negative bias in yield estimates based on longer time spans when the yield trend was so steep. In 2004, yields were based on a projected 3-year average. The yields for first two years are from IASS published data. The third year is a forecast yield. The forecast yield is calculated by multiplying the second year of data (the last year of published county-level data from IASS) by the percentage change in yield for the current year based on the November yields from IASS. This procedure was chosen to eliminate the counter-cyclical forecast yield produced in recent years using Exponential Smoothing. Yields used in the CAR estimates are rounded to the nearest 5 hundredweight. These base yields are then adjusted to account for fumigation, which is 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 the 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 the southern counties, Bannock, Bingham and Power, and the northern counties: Bonneville, Jefferson and Madison.

The 2003 yield data shown in Tables 6 and 7 is the most current county and regional yield data available. This data was released in September 2004. The county and regional data for 2004 will not be available until September of 2005. Table 6 shows the regional, and in the case of eastern Idaho, the sub regional potato yields for the three most recent years available, as well as a 3-year, 3-year weighted, 3-year projected and exponential smoothing estimates for comparison. These values are not rounded. The weights used in calculating the weighted- and projected 3-year averages are the percentage change in yields from the previous year for the 10 Southwestern Counties (used for the Southwestern Idaho potato budgets), Other Areas (used for the South Central and Southeastern Idaho potato budgets), and the All Idaho yield (used on the statewide yield shown in Table 6). Yield changes from 2003 to 2004 are shown below. The

3-year weighted average in Table 6 is the 3-year average multiplied by 1+ the percentage change from 2003 to 2004. The projected 3-year average forecasts a yield for 2004 by adjusting the 2003 yields by the percentage change from 2003 to 2004. This estimated yield for 2004 is than used with the published data for 2002 and 2003 to calculate a projected 3-year average.

Area	2003 Yield	2004 Yield	Percentage Change
All Idaho Counties	344	374	+8.7
10 SW Counties	465	490	+5.4
Other Areas	335	365	+9.0

Because of all the changes in the CAR estimates made in 2001, it is not always possible to make a direct comparison regarding the change in yield used in the various CAR estimates since the last revisions made. Both the Shepody and Russet Burbank 2001 and 2003 CAR estimates for southwestern Idaho include fumigation. In previous years the Shepody CAR estimate did not include fumigation and the Russet Burbank did, but both CAR estimates used the same southwest region yield shown in Table 5. For 2004, the Russet Burbank CAR estimate used a yield of 495 hundredweight, while the Shepody CAR estimate used 475, an increase of 15 cwt over 2003. The 20 cwt lower yield used in the 2003 and 2004 Shepody CAR estimates compared to the 2003 and 2004 Russet Burbank CAR estimate reflects yield differences reported by the limited number of growers who responded the cost of production survey in 2000 and who grew both varieties. Prior to 2001, there was no CAR estimate with fumigation for southcentral Idaho. The Russet Burbank potato CAR estimates used the region yield shown in Table 5. The 2004 southcentral Idaho Russet Burbank CAR estimates use 385 hundredweight without fumigation and 435 with fumigation, an increase of 5 cwt over 2003. The yield calculations for eastern Idaho have undergone the biggest changes. The 4-county yield average is no longer used in any CAR estimate. A distinction is drawn between the three commercial production counties in the southern part of the region: Bannock, Bingham and Power counties, and the commercial production counties in the northern part of the region: Bonneville, Jefferson and Madison counties. The south district 2004 CAR estimates use 325 hundredweight without fumigation and 365 hundredweight with fumigation, an increase of 5 cwt over 2003. The north district 2004 CAR estimate uses a 315-sack yield, the same yield as 2003. There is no CAR estimate that includes fumigation for the north district. The following section explains how the yield values used in the fumigation and non-fumigation CAR estimates are derived.

Fumigation Cost 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, handling the cost increase is not a problem when fumigation is included. There are, however, two yield issues that must be dealt with. The first issue is how much of a yield increase should be attributed to fumigation. The second issue is what should be the base yield in the non-fumigation CAR estimate. 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 typical costs where fumigation would be in or out. In addition, the methods we use 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 was used, as described previously, to derive a yield for each area . This value was 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 percent of potato acres in that area that are fumigated and not fumigate, respectively. The yield adjustment attributable to fumigation as well as the percent 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 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 325 cwt, with 31 percent of the potato acreage fumigated and a fumigation yield adjustmentof 40 hundredweight per acre:

.69Y	+	.31 (Y+40)	=	325		
1.0 Y	+	12.4	=	325		
		Y	=	312.6		
And		FY	=	352.6		
Check:		.69 x 312.6	+	.31 x 352.6	=	325

Fumigation yield equals 353 and non-fumigation yield equals 313. 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 data on which tobase fumigation estimates. While not perfect, this methodology reduced 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 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 39 percent of the potato acreage being fumigated. This falls within the ranges of values of 35-40 percent given by a knowledgeable industry source.

2004 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. Only minor procedural adjustments were made between 2003 and 2004.

Note, starting in 2003 the CAR estimates for the non-storage budgets 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. The assumption used in all three areas is that the semi-trailer is hired so this shows ups as a custom hauling charge. There is also labor to account for the crew operating or working on the trans-

loading equipment. This is identical to the crew used when potatoes are placed in storage. The labor shows up in the trans-loading operating expense. There is also an ownership cost in the non-storage CAR estimates to account for the depreciation, interest and insurance on the trans-loading equipment. The trans-loading equipment is essentially the same as that 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 available with the published CAR estimates.

Cost Summaries

Tables 9, 10 and 11 summarize the 2004 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 9 (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 10 (eastern Idaho) 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 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 more similar, making direct comparisons more meaningful. It's interesting to note that while the cost per acre difference between similar CAR estimates can vary by several hundred dollars, the cost on a per hundredweight are very similar.

Cost Comparisons and Adjustments

Tables 13-20 contain the detail 2004 CAR estimates and comparisons with cost of potato production from 2003, showing both the dollar change and the percentage change in costs for the major cost categories and for individual items. Table 13 and Table 14 contain the southwestern Idaho potato cost of production for Russet Burbank and Shepody, respectively. Tables 15, 16 and 17 contain the southcentral Idaho Russet Burbank non-storage, storage, and fumigation and storage potato cost of production, respectively. Tables 18, 19 and 20 contain the eastern Idaho Russet Burbank non-storage, storage, and fumigation and storage cost of production comparisons, respectively. Table 21 contains the eastern Idaho north district commercial potato CAR estimate for 2004 and Table 22 contains the G3 seed potato CAR estimate for 2004. Neither of these last two tables shows cost comparisons with 2003.

When significant procedural changes are made between years, the earlier CAR estimates must be re-run using the new procedures in order to make a valid comparison. In the 2003 CAR estimates, fees and assessments were charged on only 95 percent of the yield. This was changed back to 100 percent for the non-storage CAR estimates. The yield on which fees and assessments are charged in the storage CAR estimates is reduced by the percent shrink, which typically runs between 4 and 6 percent. There were no other adjustments made for major procedural changes.

Table 1. 2004 Idaho potato costs and returns estimates by region.

Region	Variety	Storage	Fumigation
Commercial			
Southwestern:	Russet Burbank	No	Yes
	Shepody	No	Yes
Southcentral:	Russet Burbank	No	No
	Russet Burbank	Yes	No
	Russet Burbank	Yes	Yes
Eastern – South Counties:	Russet Burbank	No	No
	Russet Burbank	Yes	No
	Russet Burbank	Yes	Yes
	Chipping	Yes	No
Eastern – North Counties:	Russet Burbank	Yes	No
Seed			
Eastern – Seed Counties	G3 Russet Burbank	Yes	No

Table 2. Farm size and potato acreage assumptions by region: 1998, 1999, 2001, 2003 and 2004.

	1998		1999		2001		2003		2004	
	Farm	Potato	Farm	Potato	Farm	Potato	Farm	Potato	Farm	Potato
Southwestern	800	200	800	200	1000	250	1000	250	1000	250
Southcentral	1200	300	1200	300	1500	375	1500	375	1500	375
Eastern	1200	400	1200	400	1500	500	1500	500	1500	500

Table 3. Interest rates & labor charges used in CAR estimates: 1998 - 1999, 2001, 2003 & 2004.

	1998	1999	2001	2003	2004
Operating Interest Rate	9.50%	9.75%	7.5%	5.5%	6.0%
Intermediate Interest Rate	9.00%	10.0%	8.0%	5.75%	6.5%
Labor Class (overhead)					
Machinery Labor (30%)	$12.85	$13.30	$11.70	$12.00	$12.15
Irrigation Labor (25%)	$ 8.40	$ 8.70	$7.80	$8.05	$8.15
Other Labor (15%)	$ 7.85	$ 8.20	$6.90	$7.15	$7.20
Power Rates: Idaho Power Irrigation Service Schedule 24					
Monthly Meter Charge	$10.00	$10.07	$10.07	$10.07	$12.00
Demand Charge: irrigation season	$3.55	$3.58	$3.58	$3.58	$ 4.02
Base Rate: per kWh	2.822	?	2.841¢	2.8416¢	3.2618¢
Power Cost Adjustment per kWh	0.1598	?	1.3415¢	1.3159¢	0.5054¢
Effective Rate: per kWh	2.9822	2.6273	4.1831¢	4.1575¢	3.7672¢
Pumping Cost per Acre Inch				$1.37	$1.26

Note: Labor overhead applied to machinery labor and other labor base wages prior to 2001 were 35% and 20%, respectively.
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 using IPC rates.

Table 4-a. Fuel, water assessment and fertilizer prices for southwestern Idaho: 1997 – 1999, 2001, 2003 and 2004.

	1998	1999	2001	2003	2004
Gasoline	$1.18	$1.45	$1.60	$1.70	$2.08
Diesel	$0.72	$0.85	$1.00	$1.17	$1.58
Water Assessment	$28.25/ac	$29.40/ac	$31.65	$36.05	$33.60
Dry Nitrogen (46-0-0)	$0.24	$0.21	$0.32	$0.28	$0.32
Liquid Nitrogen (32-0-0)	$0.29	$0.25	$0.34	$0.31	$0.35
P_2O_5 Dry (11-52-0)*	$0.25	$0.24	$0.22	$0.21	$0.22
P_2O_5 Liquid (10-34-0)*	$0.34	$0.37	$0.38	$0.32	$0.35
K_2O (0-0-60)	$0.16	$0.17	$0.16	$0.13	$0.16
Sulfur	$0.15	$0.15	$0.15	$0.12	$0.12

*Nitrogen in 11-52-0 and 10-34—0 was valued at the price of N in urea.
Note: No cost of production estimates were made in 2000 and 2002.

Table 4-b. Fuel, water assessment and fertilizer prices for southcentral Idaho: 1997-1999, 2001, 2003 and 2004.

	1998	1999	2001	2003	2004
Gasoline	$1.18	$1.44	$1.54	$1.65	$2.04
Diesel	$0.72	$0.89	$1.07	$1.25	$1.50
Water Assessment	$25.15	$27.60	$24.70	$26.40	$27.20
Pre-Plant N (46-0-0)	$0.23	$0.19	$0.31	$0.30	$0.29
Post Plant N (32-0-0)	$0.28	$0.24	$0.32	$0.33	$0.35
P_2O_5 Dry (11-52-0)*	$0.23	$0.23	$0.19	$0.20	$0.21
P_2O_5 Liquid (10-34-0)*	$0.34	$0.33	$0.32	$0.31	$0.33
K_2O (0-0-60)	$0.15	$0.16	$0.15	$0.15	$0.16
Sulfur	$0.13	$0.13	$0.13	$0.12	$0.13

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

Table 4-c. Fuel, water assessment and fertilizer prices for eastern Idaho: 1997-1999, 2001, 2003 & 2004.

	1998	1999	2001	2003	2004
Gasoline	$1.18	$1.38	$1.51	$1.60	$2.01
Diesel	$0.72	$0.82	$1.07	$1.18	$1.44
Water Assessment	$8.95	$9.40	$10.30	$11.65	$13.05
E. Idaho South District				$19.50	$25.00
E. Idaho North District				$9.50	$9.10
Pre-Plant N (46-0-0)	$0.23	$0.20	$0.33	$0.29	$0.30
Post Plant N (32-0-0)	$0.29	$0.24	$0.36	$0.32	$0.34
P_2O_5 Dry (11-52-0)*	$0.24	$0.24	$0.20	$0.20	$0.22
P_2O_5 Liquid (10-34-0)*	$0.31	$0.34	$0.32	$0.28	$0.27
K_2O (0-0-60)	$0.15	$0.16	$0.17	$0.14	$0.16
Sulfur	$0.16	$0.14	$0.10	$0.12	$0.12

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

Table 5. Potato yields for University of Idaho costs and returns estimates by region, both with and without fumigation: 1998-1999, 2001, 2003 and 2004. *

Area	1998	1999	2001	2003	2004
	cwt	cwt	cwt	cwt	cwt
Southwest Region	**460**	**450**	485	455	470
w/o fumigation: Russet Burbank	na	na	450	420	435
w/fumigation: Russet Burbank	na	na	**510**	**480**	**495**
w/o fumigation: Shepody	na	na	425	400	415
w/fumigation: Shepody	na	na	**485**	**460**	**475**
Southcentral Region: Russet Burbank	**405**	**395**	410	405	405
w/o fumigation	na	na	**390**	**380**	**385**
w/ fumigation	na	na	**440**	**430**	**435**
Eastern Region: Russet Burbank	315	305	330	325	330
4-County Area	**330**	**325**			
North Valley Counties			315	325	325
South Valley Counties			355	335	340
North w/o fumigation	na	na	**310**	**315**	**315**
North w/ fumigation	na	na	340	345	345
South w/o fumigation	na	na	**345**	**320**	**325**
South w/ fumigation	na	na	**385**	**360**	**365**

*Note: Values in bold were those used in published CAR estimates. There are not CAR estimates for all the yield categories listed.
Eastern Idaho 4-County area: Bannock, Bingham, Bonneville and Power counties
Eastern Idaho North: Bonneville, Jefferson and Madison counties.
Eastern Idaho South: Bannock, Bingham and Power counties.

Table 6. Idaho potato yields published by IASS for 2001-2003, and calculated 3-year averages, 3-year weighted, 3-year projected and exponential smoothing yield estimates.

Area	2001	2002	2003	3-Year Average	3-Year Weighted	**3-Year Projected**	Exponential Smoothing
Southwest Region	450	455	465	457	482	**470**	463
Southcentral Region	397	404	390	397	433	**406**	393
Eastern Region	314	329	314	319	348	328	317
North District	311	327	310	316	344	**325**	312
South District	331	336	326	331	361	**339**	328
Statewide	345	358	344	349	379	359	346

IASS is the Idaho Agricultural Statistics Service, USDA.

Table 7. Potato yields reported by IASS for the primary commercial potato counties in eastern Idaho for 2000-2003, and 3-year average.

Area	2001	2002	2003	3-Year Average
North District Counties:				
Bonneville	283	295	286	288
Jefferson	339	355	333	342
Madison	311	330	310	317
3-county Average	311	327	310	316
South District Counties:				
Bannock	322	315	310	316
Bingham	332	335	325	331
Power	339	359	344	347
3-county Average	331	336	326	331

IASS is the Idaho Agricultural Statistics Service, USDA.

Table 8. Fumigation yield adjustment factors.

Region	Acres Fumigated	Fumigation Adjustment
Southwest	60%	+ 60 cwt
Southcentral	45%	+ 50 cwt
Southeastern		
South District	40%	+ 40 cwt
North District	25%	+ 30 cwt

Table 9. 2004 Commercial non-storage potato cost of production summary for southwestern Idaho with fumigation.

	R. Burbank	Shepody
Seed - cut & treated	$221.95	$341.55
Fertilizer	$228.15	$186.85
Pesticides *	$366.13	$379.85
Custom & Consultants	$132.75	$129.55
Irrigation **	$104.77	$102.47
Other Costs ***	$ 94.35	$91.75
Transloading Operating Costs	$29.70	$28.50
Fuel & Lube	$ 73.76	$73.76
Machinery Repairs	$ 44.62	$44.95
Transloading Equipment Repairs	$ 6.41	$6.41
Labor: Machine & Non-Machine	$118.22	$118.22
Operating Interest	$ 38.99	$41.81
Total Operating Cost	$1,459.79	$1,545.67
Per CWT Operating Costs	$2.95	$3.25
Equipment Insurance	$ 7.61	$7.65
Transloading Equip. Ownership Costs	$ 64.18	$64.18
Equipment Ownership Cost	$209.38	$210.68
Land Charge ****	$425.00	$425.00
Overhead	$ 36.00	$38.00
Management Fee	$115.00	$115.00
Total Ownership Cost	$857.17	$860.51
Per CWT Ownership Costs	$1.73	$1.81
Total Cost***	$2,316.96	$2,406.18
Per CWT Total Costs	$4.68	$5.07
Yield	495	475

* 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. 2004 Commercial Russet Burbank potato cost of production summary for Southcentral Idaho.

	Non-Fumigated		Fumigated
	Non-Storage	Storage	Storage
Seed - cut & treated	$211.60	$211.60	$211.60
Fertilizer	$212.75	$212.75	$224.50
Pesticides *	$163.71	$163.71	$283.71
Custom & Consultants	$122.10	$60.50	$90.50
Irrigation **	$ 90.32	$ 90.32	$94.26
Other Costs ***	$86.05	$83.84	$89.95
Transloading Operating Costs	$23.10		
Storage Operating Costs		$200.20	$226.20
Fuel & Lube	$ 51.31	$ 50.50	$50.84
Machinery Repairs	$ 46.65	$ 46.52	$49.59
Transloading Equip. Repairs	$ 4.27		
Storage & Storage Equip. Repairs		$14.45	$14.45
Labor: Machine & Non-Machine	$105.57	$103.27	$112.77
Operating Interest	$ 25.79	$ 24.05	32.80
Total Operating Cost	$1,141.22	$1,261.71	$1,481.18
Per CWT Operating Costs	$2.96	$3.28	$3.41
Equipment Insurance	$ 4.55	$ 7.19	$ 7.33
Transloading or Storage Equipment Ownership Costs	$42.79	$64.70	$64.70
Storage Facility Ownership Costs		$62.94	$62.94
Equipment Ownership Cost	$112.11	$118.64	$123.13
Land Charge ****	$350.00	$350.00	$350.00
Overhead	$ 28.00	$31.00	$36.00
Management Fee	$ 93.00	$93.00	$106.00
Total Ownership Cost	$640.45	$727.47	$750.10
Per CWT Ownership Costs	$1.66	$1.89	$1.72
Total Cost***	$1,781.67	$1,989.18	$2,231.28
Per CWT Total Costs	$4.63	$5.17	$5.13
Yield	385	385	435

* 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. 2004 Commercial Russet Burbank potato cost of production summary for Eastern Idaho, southern counties.

	Non-Fumigated		Fumigated
	Non-Storage	Storage	Storage
Seed - cut & treated	$177.45	$177.45	$177.45
Fertilizer	$196.10	$196.10	$206.30
Pesticides *	$95.86	$95.86	$227.86
Custom & Consultants	$96.10	$44.10	$44.10
Irrigation **	$79.34	$79.34	$84.43
Other Costs ***	$72.25	$70.30	$75.37
Transloading Operating Costs	$19.50		
Storage Operating Costs		$169.00	$189.80
Fuel & Lube	$60.09	$59.49	$59.49
Machinery Repairs	$ 41.14	$ 41.77	$41.77
Transloading Equip. Repairs	$ 3.20		
Storage & Storage Equip. Repairs		$11.80	$11.57
Labor: Machine & Non-Machine	$102.25	$103.47	$105.12
Operating Interest	$ 21.23	$ 20.59	$29.16
Total Operating Cost	$ 964.51	$1,069.26	$1,252.42
Per CWT Operating Costs	$2.97	$3.29	$3.43
Equipment Insurance	$ 4.91	$ 7.17	$ 7.17
Transloading or Storage Equipment Ownership Costs	$32.09	$50.58	$50.58
Storage Facility Ownership Costs		$53.11	$53.11
Equipment Ownership Cost	$147.13	$145.11	$145.07
Land Charge ****	$270.00	$270.00	$270.00
Overhead	$ 24.00	$26.00	$31.00
Management Fee	$ 76.00	$79.00	$88.00
Total Ownership Cost	$554.13	$630.97	$634.93
Per CWT Ownership Costs	$1.71	$1.94	$1.77
Total Cost***	$1,518.64	$1,700.23	$1,897.35
Per CWT Total Costs	$4.67	$5.23	$5.20
Yield	325	325	365

* 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. 2004 Idaho potato costs and returns summary by region.

CAR Estimate	**Operating Cost**		**Ownership Costs**		**Total Cost**	
	Acre	Cwt	Acre	Cwt	Acre	Cwt
Southwestern Idaho:						
Russet Burbank: No Storage & Fumigation	$1,460	$2.95	$857	$1.73	$2,317	$4.68
Shepody: No Storage & Fumigation	$1,546	$3.25	$861	$1.81	$2,406	$5.07
Southcentral Idaho:						
Russet Burbank: No Storage	$1,141	$2.96	$640	$1.66	$1,782	$4.63
Russet Burbank: Storage	$1,262	$3.28	$727	$1.89	$1,989	$5.17
Russet Burbank: Storage & Fumigation	$1,481	$3.41	$750	$1.72	$2,231	$5.13
Eastern Idaho: South						
Russet Burbank: No Storage	$ 964	$2.97	$544	$1.71	$1,519	$4.67
Russet Burbank: Storage	$1,069	$3.29	$631	$1.94	$1,700	$5.23
Russet Burbank: Storage & Fumigation	$1,252	$3.43	$635	$1.77	$1,897	$5.20
Eastern Idaho: North						
Russet Burbank: Storage	$ 992	$3.15	$567	$1.80	$1,559	$4.95
Russet Burbank G3 Seed	$1,025	$4.10	$541	$2.16	$1,566	$6.26

Table 13. 2004 Irrigated Russet Burbank Commercial Potatoes: Fumigation and No Storage, Southwestern Idaho. Comparison with 2003.

Item	Quantity Per Acre	Unit	Price or Cost	Value or Cost/Acre			
Gross Returns							
Potatoes	495	cwt	$4.65	$2,301.75	480	15	3.1%
Operating Inputs					**2003**	**$ Change**	**% Change**
Seed:				$221.95	$253.00	-$31.05	-12.3%
G-3 Potato Seed	23	cwt	$8.10	$186.30	$215.05	-$28.75	-13.4%
Seed Cut and Treat	23	cwt	$1.55	$35.65	$37.95	-$2.30	-6.1%
Fertilizer:				$228.15	$198.10	$30.05	15.2%
Dry Nitrogen - Preplant	160	lb	$0.32	$51.20	$39.20	$12.00	30.6%
Dry P2O5	190	lb	$0.22	$41.80	$37.80	$4.00	10.6%
K2O	180	lb	$0.16	$28.80	$23.40	$5.40	23.1%
Sulfur	80	lb	$0.12	$9.60	$9.60	$0.00	0.0%
Micronutrients	2	ac	$12.50	$25.00	$24.00	$1.00	4.2%
Liquid Nitrogen	150	lb	$0.35	$52.50	$46.50	$6.00	12.9%
Liquid P2O5	55	lb	$0.35	$19.25	$17.60	$1.65	9.4%
Pesticides:				$366.13	$361.59	$4.54	1.3%
Vapam	50	gal	$3.60	$180.00	$170.00	$10.00	5.9%
Thimet 20G	15	lb	$2.20	$33.00	$41.25	-$8.25	-20.0%
Sencor DF	0.75	lb	$19.20	$14.40	$15.19	-$0.79	-5.2%
Eptam 7E	2.0	qt	$8.20	$16.40	$17.00	-$0.60	-3.5%
Dithane F45	3.2	qt	$3.30	$10.56	$5.76	$4.80	83.3%
Ridomil Gold/Bravo	2.0	lb	$17.35	$34.70	$32.60	$2.10	6.4%
Amistar	2.5	oz	$5.60	$14.00	$17.59	-$3.59	-20.4%
Monitor 4E	0.75	qt	$23.20	$17.40	$18.00	-$0.60	-3.3%
Bravo Weather Stik	0.66	lb	$11.60	$7.66	$7.72	-$0.06	-0.8%
Fulfill	2.75	oz	$5.35	$14.71	$15.13	-$0.42	-2.8%
Reglone	1	qt	$23.30	$23.30	$21.35	$1.95	9.1%
Custom & Consultants:				$132.75	$125.45	$7.30	5.8%
Custom Fertilize	2	ac	$6.30	$12.60	$13.00	-$0.40	-3.1%
Consultant	1	ac	$15.00	$15.00	$14.50	$0.50	3.4%
Custom Air Spray-10G	3	ac	$8.65	$25.95	$25.95	$0.00	0.0%
Custom Hauling	495	cwt	$0.16	$79.20	$72.00	$7.20	10.0%
Irrigation:				$104.77	$111.51	-$6.74	-6.0%
Water Assessment	1	ac	$33.60	$33.60	$36.05	-$2.45	-6.8%
Irrigation Power-CP	30	acin	$1.26	$37.80	$41.10	-$3.30	-8.0%
Irrigation Repairs	30	acin	$0.55	$16.50	$17.70	-$1.20	-6.8%
Irrigation Labor-CP	2.07	hr	$8.15	$16.87	$16.66	$0.21	1.3%
Other:				$124.05	$118.80	$5.25	4.4%
Fees & Assessments	495	cwt	$0.13	$64.35	$62.40	$1.95	3.1%
Crop Insurance	1	ac	$30.00	$30.00	$30.00	$0.00	0.0%
Transloading Costs	495	cwt	$0.060	$29.70	$26.40	$3.30	12.5%
Fuel & Lubricants				$73.76	$54.94	$18.82	34.3%
Machinery Repairs				$44.62	$41.95	$2.67	6.4%
Transloading Equipment Repairs				$6.41	$6.28	$0.13	2.1%
Machinery Labor	7.78	hrs	$12.15	$94.53	$93.36	$1.17	1.3%
Other Labor	3.29	hrs	$7.20	$23.69	$23.52	$0.17	0.7%
Operating Interest				$38.99	$34.80	$4.19	12.0%
Total Operating Costs				$1,459.79	$1,423.30	$36.49	2.6%
Operating Costs per Unit				$2.95	$2.97	-$0.02	-0.5%
Net Returns Above Operating Expenses				$841.96	$908.70	-$66.74	-7.3%

Table 13. 2004 Irrigated Russet Burbank Commercial Potatoes: Fumigation and No Storage, Southwestern Idaho. Comparison with 2003.

Item	Quantity Per Acre	Unit	Price or Cost	Value or Cost/Acre			
Ownership Costs:							
Tractors & Equipment Insurance				$7.61	$7.20	$0.41	5.7%
Transloading Equipment Depreciation & Interest				$64.18	$60.85	$3.33	5.5%
Tractors & Equipment Depreciation & Interest				$209.38	$184.49	$24.89	13.5%
Irrigation Equipment Depreciation & Interest							
Land *				$425.00	$400.00	$25.00	6.3%
Overhead				$36.00	$33.00	$3.00	9.1%
Management Fee				$115.00	$112.00	$3.00	2.7%
Total Ownership Costs				$857.17	$797.54	$59.63	7.5%
Ownership Costs per Unit				$1.73	$1.66	$0.07	4.2%
Total Costs per Acre				$2,316.96	$2,220.84	$96.12	4.3%
Total Cost per Unit				$4.68	$4.63	$0.05	1.2%
Returns to Risk				-$15.21	$111.16	-$126.37	-113.7%

Notes:
* Includes irrigation system ownership costs.
Blue font indicates an increase.
Red font indicates a decrease.

Breakeven Analysis:

	- 5%	Base Yield	+ 5%
Price	470.25	495	519.75
Operating Cost Breakeven	$3.10	$2.95	$2.81
Ownership Cost Breakeven	$1.82	$1.73	$1.65
Total Cost Breakeven	$4.93	$4.68	$4.46

		Price	
Yield	$4.42	$4.65	$4.88
Operating Cost Breakeven	330.5	313.9	299.0
Ownership Cost Breakeven	194.0	184.3	175.6
Total Cost Breakeven	524.5	498.3	474.5

Table 14. 2004 Irrigated Shepody Commercial Potatoes: With Fumigation and No Storage, Southwestern Idaho. Comparison With 2003.

Item	Quantity Per Acre	Unit	Price or Cost	Value or Cost/Acre				
Gross Returns								
Potatoes	475	cwt	$4.85	$2,303.75	460	15	3.3%	
Operating Inputs					**2003**	**$ Change**	**% Change**	
Seed:				$341.55	$364.50	-$22.95	-6.3%	
G-3 Shepody Potato Seed	27	cwt	$11.10	$299.70	$319.95	-$20.25	-6.3%	
Seed Cut and Treat	27	cwt	$1.55	$41.85	$44.55	-$2.70	-6.1%	
Fertilizer:				$186.85	$166.10	$20.75	12.5%	
Dry Nitrogen - Preplant	145	lb	$0.32	$46.40	$39.20	$7.20	18.4%	
Dry P2O5	145	lb	$0.22	$31.90	$29.40	$2.50	8.5%	
K2O	160	lb	$0.16	$25.60	$20.80	$4.80	23.1%	
Sulfur	60	lb	$0.12	$7.20	$7.20	$0.00	0.0%	
Micronutrients	2	ac	$12.50	$25.00	$24.00	$1.00	4.2%	
Liquid Nitrogen	90	lb	$0.35	$31.50	$27.90	$3.60	12.9%	
Liquid P2O5	55	lb	$0.35	$19.25	$17.60	$1.65	9.4%	
Pesticides:				$379.85	$373.90	$5.95	1.6%	
Vapam	50	gal	$3.60	$180.00	$170.00	$10.00	5.9%	
Thimet 20G	15	lb	$2.20	$33.00	$41.25	-$8.25	-20.0%	
Treflan 4 HFP	0.5	qt	$6.05	$3.03	$3.50	-$0.48	-13.6%	
Dual Magnum	1.0	qt	$25.10	$25.10	$24.00	$1.10	4.6%	
Eptam 7E	2.0	qt	$8.20	$16.40	$17.00	-$0.60	-3.5%	
Dithane F45	3.2	qt	$3.30	$10.56	$5.76	$4.80	83.3%	
Ridomil Gold/Bravo	2.0	lb	$17.35	$34.70	$32.60	$2.10	6.4%	
Amistar	2.5	oz	$5.60	$14.00	$17.59	-$3.59	-20.4%	
Monitor 4E	0.75	qt	$23.20	$17.40	$18.00	-$0.60	-3.3%	
Bravo Ultrex	0.66	lb	$11.60	$7.66	$7.72	-$0.06	-0.8%	
Fulfill	2.75	oz	$5.35	$14.71	$15.13	-$0.42	-2.8%	
Reglone	1.0	qt	$23.30	$23.30	$21.35	$1.95	9.1%	
Custom & Consultants:				$129.55	$122.45	$7.10	5.8%	
Custom Fertilize	2	ac	$6.30	$12.60	$13.00	-$0.40	-3.1%	
Consultant	1	ac	$15.00	$15.00	$14.50	$0.50	3.4%	
Custom Air Spray-10G	3	ac	$8.65	$25.95	$25.95	$0.00	0.0%	
Custom Hauling	475	cwt	$0.16	$76.00	$69.00	$7.00	10.1%	
Irrigation:				$102.47	$109.07	-$6.60	-6.0%	
Water Assessment	1	ac	$33.60	$33.60	$36.05	-$2.45	-6.8%	
Irrigation Power-CP	29	acin	$1.26	$36.54	$39.73	-$3.19	-8.0%	
Irrigation Repairs	29	acin	$0.55	$15.95	$17.11	-$1.16	-6.8%	
Irrigation Labor-CP	2.01	hr	$8.15	$16.38	$16.18	$0.20	1.2%	
Other:				$120.25	$112.11	$8.14	7.3%	
Fees & Assessments	475	cwt	$0.13	$61.75	$56.81	$4.94	8.7%	
Crop Insurance	1	ac	$30.00	$30.00	$30.00	$0.00	0.0%	
Transloading Costs	475	cwt	$0.060	$28.50	$25.30	$3.20	12.6%	
Fuel & Lubricants				$73.76	$54.94	$18.82	34.3%	
Machinery Repairs				$44.95	$42.27	$2.68	6.3%	
Transloading Equipment Repairs				$6.41	$6.28	$0.13	2.1%	
Machinery Labor	7.78	hrs	$12.15	$94.53	$93.36	$1.17	1.3%	
Other Labor	3.29	hrs	$7.20	$23.69	$23.52	$0.17	0.7%	
Operating Interest				$41.81	$37.42	$4.39	11.7%	
Total Operating Costs				$1,545.67	$1,505.92	$39.75	2.6%	
Operating Costs per Unit				$3.25	$3.27	-$0.02	-0.6%	
Net Returns Above Operating Expenses				$758.08	$725.08	$33.00	4.6%	

Table 14. 2004 Irrigated Shepody Commercial Potatoes: With Fumigation and No Storage, Southwestern Idaho. Comparison With 2003.

Item	Quantity Per Acre	Unit	Price or Cost	Value or Cost/Acre			
Ownership Costs:							
Tractors & Equipment Insurance				$7.65	$7.23	$0.42	5.8%
Transloading Equipment Depreciation & Interest				$64.18	$60.85	$3.33	5.5%
Tractors & Equipment Depreciation & Interest				$210.68	$185.63	$25.05	13.5%
Irrigation Equipment Depreciation & Interest							
Land *				$425.00	$400.00	$25.00	6.3%
Overhead				$38.00	$36.00	$2.00	5.6%
Management Fee				$115.00	$112.00	$3.00	2.7%
Total Ownership Costs				$860.51	$801.71	$58.80	7.3%
Ownership Costs per Unit				$1.81	$1.74	$0.07	3.9%
Total Costs per Acre				$2,406.18	$2,307.63	$98.55	4.3%
Total Cost per Unit				$5.07	$5.02	$0.05	1.0%
Returns to Risk				-$102.43	-$76.63	-$25.80	33.7%

Notes:
* Includes irrigation system ownership costs.
Blue font indicates an increase.
Red font indicates a decrease.

Breakeven Analysis:

	- 5%	Base Yield	+ 5%
Price	451.25	475	498.75
Operating Cost Breakeven	$3.43	$3.25	$3.10
Ownership Cost Breakeven	$1.91	$1.81	$1.73
Total Cost Breakeven	$5.33	$5.07	$4.82

		Price	
Yield	$4.61	$4.85	$5.09
Operating Cost Breakeven	335.5	318.7	303.5
Ownership Cost Breakeven	186.8	177.4	169.0
Total Cost Breakeven	522.2	496.1	472.5

Table 15. 2004 Southcentral Idaho Irrigated Russet Burbank Commercial Potatoes: No Storage. Comparison With 2003.

Item	Quantity Per Acre	Unit	Price or Cost	Value or Cost/Acre				
Gross Returns								
Potatoes	385	cwt	$4.65	$1,790.25	380	5	1.3%	
Operating Inputs					**2003**	**$ Change**	**% Change**	
Seed:				$211.60	$236.90	-$25.30	-10.7%	
G-3 Potato Seed	23	cwt	$7.65	$175.95	$198.95	-$23.00	-11.6%	
Seed Cut and Treat	23	cwt	$1.55	$35.65	$37.95	-$2.30	-6.1%	
Fertilizer:				$212.75	$205.40	$7.35	3.6%	
Dry Nitrogen - Preplant	165	lb	$0.29	$47.85	$49.50	-$1.65	-3.3%	
Dry P2O5	200	lb	$0.21	$42.00	$40.00	$2.00	5.0%	
K2O	180	lb	$0.16	$28.80	$27.00	$1.80	6.7%	
Sulfur	80	lb	$0.13	$10.40	$9.60	$0.80	8.3%	
Micronutrients	2	ac	$12.50	$25.00	$24.00	$1.00	4.2%	
Liquid Nitrogen	130	lb	$0.35	$45.50	$42.90	$2.60	6.1%	
Liquid P2O5	40	lb	$0.33	$13.20	$12.40	$0.80	6.5%	
Pesticides:				$163.71	$154.88	$8.83	5.7%	
Thimet 20G	15	lb	$2.25	$33.75	$33.75	$0.00	0.0%	
Prowl	1	qt	$5.50	$5.50	$5.50	$0.00	0.0%	
Sencor DF	0.75	lb	$21.20	$15.90	$15.38	$0.52	3.4%	
Eptam 7E	2.0	qt	$9.15	$18.30	$17.50	$0.80	4.6%	
Dithane F45 Rainshield	3.2	qt	$3.30	$10.56	$11.52	-$0.96	-8.3%	
Bravo Ultrex WDG	2.5	lb	$7.10	$17.75	$8.94	$8.81	98.5%	
Fulfill WDG	2.75	oz	$5.80	$15.95	$16.36	-$0.41	-2.5%	
Monitor 4E	0.75	qt	$24.00	$18.00	$16.43	$1.57	9.6%	
Sulfuric Acid	1	ac	$28.00	$28.00	$29.50	-$1.50	-5.1%	
Custom & Consultants:				$122.10	$116.80	$5.30	4.5%	
Custom Fertilize	2	ac	$5.75	$11.50	$10.90	$0.60	5.5%	
Consultant	1	ac	$15.00	$15.00	$14.50	$0.50	3.4%	
Custom Air Spray-10G	4	ac	$8.50	$34.00	$34.40	-$0.40	-1.2%	
Custom Hauling	385	cwt	$0.16	$61.60	$57.00	$4.60	8.1%	
Irrigation:				$90.32	$93.32	-$3.00	-3.2%	
Water Assessment	1	ac	$27.20	$27.20	$26.40	$0.80	3.0%	
Irrigation Power-CP	26.5	acin	$1.26	$33.39	$36.31	-$2.92	-8.0%	
Irrigation Repairs	26.5	acin	$0.55	$14.58	$15.64	-$1.07	-6.8%	
Irrigation Labor-CP	1.86	hr	$8.15	$15.16	$14.97	$0.19	1.3%	
Other:				$109.15	$106.30	$2.85	2.7%	
Fees & Assessments	385	cwt	$0.13	$50.05	$49.40	$0.65	1.3%	
Crop Insurance	1	ac	$36.00	$36.00	$36.00	$0.00	0.0%	
Transloading Costs	385	cwt	$0.060	$23.10	$20.90	$2.20	10.5%	
Fuel & Lubricants				$51.31	$42.57	$8.74	20.5%	
Machinery Repairs				$46.65	$43.89	$2.76	6.3%	
Transloading Equipment Repairs				$4.27	$4.19	$0.08	1.9%	
Machinery Labor	6.89	hrs	$12.15	$83.77	$82.68	$1.09	1.3%	
Other Labor	2.75	hrs	$7.20	$19.80	$19.66	$0.14	0.7%	
Operating Interest				$25.79	$23.53	$2.26	9.6%	
Total Operating Costs				$1,141.22	$1,130.12	$11.10	1.0%	
Operating Costs per Unit				$2.96	$2.97	-$0.01	-0.3%	
Net Returns Above Operating Expenses				$649.03	$636.88	$12.15	1.9%	

Table 15. 2004 Southcentral Idaho Irrigated Russet Burbank Commercial Potatoes: No Storage. Comparison With 2003.

Item	Quantity Per Acre	Unit	Price or Cost	Value or Cost/Acre			
Ownership Costs:							
Tractors & Equipment Insurance				$4.55	$4.31	$0.24	5.6%
Transloading Equipment Depreciation & Interest				$42.79	$40.57	$2.22	5.5%
Tractors & Equipment Depreciation & Interest				$122.11	$107.65	$14.46	13.4%
Irrigation Equipment Depreciation & Interest							
Land *				$350.00	$310.00	$40.00	12.9%
Overhead				$28.00	$27.00	$1.00	3.7%
Management Fee				$93.00	$88.00	$5.00	5.7%
Total Ownership Costs				$640.45	$577.53	$62.92	10.9%
Ownership Costs per Unit				$1.66	$1.52	$0.14	9.5%
Total Costs per Acre				$1,781.67	$1,707.65	$74.02	4.3%
Total Cost per Unit				$4.63	$4.49	$0.13	3.0%
Returns to Risk				$8.58	$59.35	-$50.77	-85.6%

Notes:
* Includes irrigation system ownership costs.
Blue font indicates an increase.
Red font indicates a decrease.

Breakeven Analysis:

	- 5%	Base Yield	+ 5%
Price	365.75	385	404.25
Operating Cost Breakeven	$3.12	$2.96	$2.82
Ownership Cost Breakeven	$1.75	$1.66	$1.58
Total Cost Breakeven	$4.87	$4.63	$4.41

		Price	
Yield	$4.42	$4.65	$4.88
Operating Cost Breakeven	258.3	245.4	233.7
Ownership Cost Breakeven	145.0	137.7	131.2
Total Cost Breakeven	403.3	383.2	364.9

Table 16. 2004 Southcentral Idaho Irrigated Russet Burbank Commercial Potatoes: With On-Farm Storage. Comparison With 2003.

Item	Quantity Per Acre	Unit	Price or Cost	Value or Cost/Acre				
Gross Returns								
Potatoes	385	cwt	$4.85		$1,867.25	380	5	1.3%
Operating Inputs						**2003**	**$ Change**	**% Change**
Seed:				$211.60		$236.90	-$25.30	-10.7%
G-3 Potato Seed	23	cwt	$7.65		$175.95	$198.95	-$23.00	-11.6%
Seed Cut and Treat	23	cwt	$1.55		$35.65	$37.95	-$2.30	-6.1%
Fertilizer:				$212.75		$205.40	$7.35	3.6%
Dry Nitrogen - Preplant	165	lb	$0.29		$47.85	$49.50	-$1.65	-3.3%
Dry P2O5	200	lb	$0.21		$42.00	$40.00	$2.00	5.0%
K2O	180	lb	$0.16		$28.80	$27.00	$1.80	6.7%
Sulfur	80	lb	$0.13		$10.40	$9.60	$0.80	8.3%
Micronutrients	2	ac	$12.50		$25.00	$24.00	$1.00	4.2%
Liquid Nitrogen	130	lb	$0.35		$45.50	$42.90	$2.60	6.1%
Liquid P2O5	40	lb	$0.33		$13.20	$12.40	$0.80	6.5%
Pesticides:				$163.71		$154.88	$8.83	5.7%
Thimet 20G	15	lb	$2.25		$33.75	$33.75	$0.00	0.0%
Prowl	1.0	qt	$5.50		$5.50	$5.50	$0.00	0.0%
Sencor DF	0.75	lb	$21.20		$15.90	$15.38	$0.52	3.4%
Eptam 7E	2.0	qt	$9.15		$18.30	$17.50	$0.80	4.6%
Dithane F45 Rainshield	3.2	qt	$3.30		$10.56	$11.52	-$0.96	-8.3%
Bravo Ultrex WDG	2.5	lb	$7.10		$17.75	$8.94	$8.81	98.5%
Fulfill WDG	2.75	oz	$5.80		$15.95	$16.36	-$0.41	-2.5%
Monitor 4E	0.75	qt	$24.00		$18.00	$16.43	$1.57	9.6%
Sulfuric Acid	1	ac	$28.00		$28.00	$29.50	-$1.50	-5.1%
Custom & Consultants:				$60.50		$59.80	$0.70	1.2%
Custom Fertilize	2	ac	$5.75		$11.50	$10.90	$0.60	5.5%
Consultant	1	ac	$15.00		$15.00	$14.50	$0.50	3.4%
Custom Air Spray-10G	4	ac	$8.50		$34.00	$34.40	-$0.40	-1.2%
							$0.00	
Irrigation:				$90.32		$93.32	-$3.00	-3.2%
Water Assessment	1	ac	$27.20		$27.20	$26.40	$0.80	3.0%
Irrigation Power-CP	26.5	acin	$1.26		$33.39	$36.31	-$2.92	-8.0%
Irrigation Repairs	26.5	acin	$0.55		$14.58	$15.64	-$1.07	-6.8%
Irrigation Labor-CP	1.86	hr	$8.15		$15.16	$14.97	$0.19	1.3%
Other:				$284.04		$273.18	$10.86	4.0%
Fees & Assessments	368	cwt	$0.13		$47.84	$47.18	$0.66	1.4%
Crop Insurance	1	ac	$36.00		$36.00	$36.00	$0.00	0.0%
Storage Operating Costs	385	cwt	$0.52		$200.20	$190.00	$10.20	5.4%
Fuel & Lubricants					$50.50	$41.93	$8.57	20.4%
Machinery Repairs					$46.52	$43.77	$2.75	6.3%
Storage Facility & StorageEquipment Repairs					$14.45	$14.17	$0.28	2.0%
Machinery Labor	6.87	hrs	$12.15		$83.47	$82.44	$1.03	1.3%
Other Labor	2.75	hrs	$7.20		$19.80	$19.66	$0.14	0.7%
Operating Interest					$24.05	$22.01	$2.04	9.3%
Total Operating Costs					$1,261.71	$1,247.46	$14.25	1.1%
Operating Costs per Unit					$3.28	$3.28	-$0.01	-0.2%
Net Returns Above Operating Expenses					$605.54	$614.54	-$9.00	-1.5%

Table 16. 2004 Southcentral Idaho Irrigated Russet Burbank Commercial Potatoes: With On-Farm Storage. Comparison With 2003.

Item	Quantity Per Acre	Unit	Price or Cost	Value or Cost/Acre			
Ownership Costs:							
Tractors & Equipment Insurance				$7.19	$6.96	$0.23	3.3%
Storage Facilities Depreciation & Interest				$62.94	$58.40	$4.54	7.8%
Storage Equipment Depreciation & Interest				$64.70	$61.34	$3.36	5.5%
Tractors & Equipment Depreciation & Interest				$118.64	$104.61	$14.03	13.4%
Irrigation Equipment Depreciation & Interest							
Land *				$350.00	$310.00	$40.00	12.9%
Overhead				$31.00	$31.00	$0.00	0.0%
Management Fee				$93.00	$85.00	$8.00	9.4%
Total Ownership Costs				$727.47	$657.31	$70.16	10.7%
Ownership Costs per Unit				$1.89	$1.73	$0.16	9.2%
Total Costs per Acre				$1,989.18	$1,904.77	$84.41	4.4%
Total Cost per Unit				$5.17	$5.01	$0.15	3.1%
Returns to Risk				-$121.93	-$42.77	-$79.16	185.1%

Notes:
* Includes irrigation system ownership costs.
Blue font indicates an increase.
Red font indicates a decrease.

Breakeven Analysis:	- 5%	Base	+ 5%
		Yield	
Price	365.75	385	404.25
Operating Cost Breakeven	$3.45	$3.28	$3.12
Ownership Cost Breakeven	$1.99	$1.89	$1.80
Total Cost Breakeven	$5.44	$5.17	$4.92
		Price	
Yield	$4.61	$4.85	$5.09
Operating Cost Breakeven	273.8	260.1	247.8
Ownership Cost Breakeven	157.9	150.0	142.9
Total Cost Breakeven	431.7	410.1	390.6

Table 17. 2004 Southcentral Idaho Irrigated Russet Burbank Commercial Potatoes: With Fumigation and On-Farm Storage. Comparison With 2003.

Item	Quantity Per Acre	Unit	Price or Cost	Value or Cost/Acre			
Gross Returns							
Potatoes	435	cwt	$4.85	$2,109.75	430	5	1.2%
Operating Inputs					**2003**	**$ Change**	**% Change**
Seed:				$211.60	$236.90	-$25.30	-10.7%
G-3 Potato Seed	23	cwt	$7.65	$175.95	$198.95	-$23.00	-11.6%
Seed Cut and Treat	23	cwt	$1.55	$35.65	$37.95	-$2.30	-6.1%
Fertilizer:				$224.50	$216.90	$7.60	3.5%
Dry Nitrogen - Preplant	180	lb	$0.29	$52.20	$54.00	-$1.80	-3.3%
Dry P2O5	220	lb	$0.21	$46.20	$44.00	$2.20	5.0%
K2O	200	lb	$0.16	$32.00	$30.00	$2.00	6.7%
Sulfur	80	lb	$0.13	$10.40	$9.60	$0.80	8.3%
Micronutrients	2	ac	$12.50	$25.00	$24.00	$1.00	4.2%
Liquid Nitrogen	130	lb	$0.35	$45.50	$42.90	$2.60	6.1%
Liquid P2O5	40	lb	$0.33	$13.20	$12.40	$0.80	6.5%
Pesticides:				$283.71	$280.88	$2.83	1.0%
Metam Sodium	40	gal	$3.00	$120.00	$126.00	-$6.00	-4.8%
Thimet 20G	15	lb	$2.25	$33.75	$33.75	$0.00	0.0%
Prowl	1.0	qt	$5.50	$5.50	$5.50	$0.00	0.0%
Sencor DF	0.75	lb	$21.20	$15.90	$15.38	$0.52	3.4%
Eptam 7E	2.0	qt	$9.15	$18.30	$17.50	$0.80	4.6%
Dithane F45 Rainshield	3.2	qt	$3.30	$10.56	$11.52	-$0.96	-8.3%
Bravo Ultrex WDG	2.5	lb	$7.10	$17.75	$8.94	$8.81	98.5%
Fulfill WDG	2.75	oz	$5.80	$15.95	$16.36	-$0.41	-2.5%
Monitor 4E	0.75	qt	$24.00	$18.00	$16.43	$1.57	9.6%
Sulfuric Acid	1	ac	$28.00	$28.00	$29.50	-$1.50	-5.1%
Custom & Consultants:				$90.50	$89.80	$0.70	0.8%
Custom Fertilize	2	ac	$5.75	$11.50	$10.90	$0.60	5.5%
Consultant	1	ac	$15.00	$15.00	$14.50	$0.50	3.4%
Custom Air Spray-10G	4	ac	$8.50	$34.00	$34.40	-$0.40	-1.2%
Fumigation: Deep Injection	1	ac	$30.00	$30.00	$30.00	$0.00	0.0%
Irrigation:				$94.26	$97.46	-$3.20	-3.3%
Water Assessment	1	ac	$27.20	$27.20	$26.40	$0.80	3.0%
Irrigation Power-CP	28	acin	$1.26	$35.28	$38.36	-$3.08	-8.0%
Irrigation Repairs	28	acin	$0.55	$15.40	$16.52	-$1.12	-6.8%
Irrigation Labor-CP	2.01	hr	$8.15	$16.38	$16.18	$0.20	1.2%
Other:				$316.15	$304.43	$11.72	3.8%
Fees & Assessments	415	cwt	$0.13	$53.95	$53.43	$0.52	1.0%
Crop Insurance	1	ac	$36.00	$36.00	$36.00	$0.00	0.0%
Storage Operating Costs	435	cwt	$0.52	$226.20	$215.00	$11.20	5.2%
Fuel & Lubricants				$50.84	$42.41	$8.43	19.9%
Machinery Repairs				$49.59	$46.66	$2.93	6.3%
Storage Facility & StorageEquipment Repairs				$14.45	$14.17	$0.28	2.0%
Machinery Labor	7.35	hrs	$12.15	$89.30	$88.20	$1.10	1.2%
Other Labor	3.26	hrs	$7.20	$23.47	$23.31	$0.16	0.7%
Operating Interest				$32.80	$30.32	$2.48	8.2%
Total Operating Costs				$1,481.18	$1,471.44	$9.74	0.7%
Operating Costs per Unit				$3.41	$3.42	-$0.02	-0.5%
Net Returns Above Operating Expenses				$628.57	$635.56	-$6.99	-1.1%

Table 17. 2004 Southcentral Idaho Irrigated Russet Burbank Commercial Potatoes: With Fumigation and On-Farm Storage. Comparison With 2003.

Item	Quantity Per Acre	Unit	Price or Cost	Value or Cost/Acre			
Ownership Costs:							
Tractors & Equipment Insurance				$7.33	$7.08	$0.25	3.5%
Storage Facilities Depreciation & Interest				$62.94	$58.40	$4.54	7.8%
Storage Equipment Depreciation & Interest				$64.70	$61.34	$3.36	5.5%
Tractors & Equipment Depreciation & Interest				$123.13	$108.55	$14.58	13.4%
Irrigation Equipment Depreciation & Interest							
Land *				$350.00	$310.00	$40.00	12.9%
Overhead				$36.00	$36.00	$0.00	0.0%
Management Fee				$106.00	$105.00	$1.00	1.0%
Total Ownership Costs				$750.10	$686.37	$63.73	9.3%
Ownership Costs per Unit				$1.72	$1.60	$0.13	8.0%
Total Costs per Acre				$2,231.28	$2,157.81	$73.47	3.4%
Total Cost per Unit				$5.13	$5.02	$0.11	2.2%
Returns to Risk				-$121.53	-$50.81	-$70.72	139.2%

Notes:
* Includes irrigation system ownership costs.
Blue font indicates an increase.
Red font indicates a decrease.

Breakeven Analysis:	- 5%	Base	+ 5%
		Yield	
Price	413.25	435	456.75
Operating Cost Breakeven	$3.58	$3.41	$3.24
Ownership Cost Breakeven	$1.82	$1.72	$1.64
Total Cost Breakeven	$5.40	$5.13	$4.89
		Price	
Yield	$4.61	$4.85	$5.09
Operating Cost Breakeven	321.5	305.4	290.9
Ownership Cost Breakeven	162.8	154.7	147.3
Total Cost Breakeven	484.3	460.1	438.1

Table 18. 2004 Irrigated Russet Burbank Commercial Potatoes With No Storage for Eastern Idaho: Bannock, Bingham and Power Counties with comparison to 2003.

Item	Quantity Per Acre	Unit	Price or Cost	Value or Cost/Acre				
Gross Returns								
Potatoes	325	cwt	$4.65		$1,511.25	320		1.6%
Operating Inputs						**2003**	**$ Change**	**% Change**
Seed:				$177.45		$200.55	-$23.10	-11.5%
G-3 Potato Seed	21	cwt	$6.90		$144.90	$165.90	-$21.00	-12.7%
Seed Cut and Treat	21	cwt	$1.55		$32.55	$34.65	-$2.10	-6.1%
Fertilizer:				$196.10		$185.35	$10.75	5.8%
Nitrogen - Preplant	145	lb	$0.30		$43.50	$42.05	$1.45	3.4%
P2O5	155	lb	$0.22		$34.10	$31.00	$3.10	10.0%
K2O	175	lb	$0.16		$28.00	$24.50	$3.50	14.3%
Sulfur	85	lb	$0.12		$10.20	$10.20	$0.00	0.0%
Liquid Nitrogen	140	lb	$0.34		$47.60	$44.80	$2.80	6.3%
Liquid P2O5	60	ac	$0.27		$16.20	$16.80	-$0.60	-3.6%
Micronutrients	1	lb	$16.50		$16.50	$16.00	$0.50	3.1%
					$0.00			
Pesticides:				$95.86		$100.33	-$4.47	-4.5%
Thimet 20G	15	lb	$2.25		$33.75	$37.50	-$3.75	-10.0%
Sencor 75DF	0.75	lb	$18.65		$13.99	$14.51	-$0.52	-3.6%
Eptam 7E	2.0	qt	$8.35		$16.70	$17.50	-$0.80	-4.6%
Bravo Ultrex	1.25	lb	$6.45		$8.06	$8.69	-$0.63	-7.2%
Dithane F45 Rainshield	3.2	qt	$2.40		$7.68	$6.00	$1.68	28.0%
Monitor 4E	0.75	qt	$20.90		$15.68	$16.13	-$0.46	-2.8%
Custom & Consultants:				$96.10		$84.15	$11.95	14.2%
Custom Fertilize	2	ac	$4.85		$9.70	$9.30	$0.40	4.3%
Consultant	1	ac	$15.00		$15.00	$14.50	$0.50	3.4%
Custom Ground Spray-Po	1	ac	$5.40		$5.40	$5.35	$0.05	0.9%
Custom Air Spray-10G	2	ac	$7.00		$14.00	$7.00	$7.00	100.0%
Custom Hauling	325	cwt	$0.16		$52.00	$48.00	$4.00	8.3%
Irrigation:				$79.34		$77.14	$2.20	2.9%
Water Assessment	1	ac	$25.00		$25.00	$19.50	$5.50	28.2%
Irrigation Power - CP*	23	acin	$1.26		$28.98	$31.51	-$2.53	-8.0%
Irrigation Repairs - CP*	23	acin	$0.55		$12.65	$13.57	-$0.92	-6.8%
Irrigation Labor - CP*	1.56	hr	$8.15		$12.71	$12.56	$0.15	1.2%
Other:				$91.75		$89.20	$2.55	2.9%
Fees & Assessments	325	cwt	$0.13		$42.25	$41.60	$0.65	1.6%
Crop Insurance	1	ac	$30.00		$30.00	$30.00	$0.00	0.0%
Transloading Costs	325	cwt	$0.060		$19.50	$17.60	$1.90	10.8%
Fuel & Lubricants					$60.09	$49.09	$11.00	22.4%
Machinery Repairs					$41.14	$38.68	$2.46	6.4%
Transloading Equipment Repairs					$3.20	$3.14	$0.06	1.9%
Machinery Labor	6.94	hrs	$12.15		$84.32	$83.28	$1.04	1.3%
Other Labor	2.49	hrs	$7.20		$17.93	$17.80	$0.13	0.7%
Operating Interest					$21.23	$19.33	$1.90	9.8%
Total Operating Costs					$964.51	$948.04	$16.47	1.7%
Operating Costs per Unit					$2.97	$2.96	$0.01	0.2%
Net Returns Above Operating Expenses					$546.74	$545.18	$1.56	0.3%

Table 18. 2004 Irrigated Russet Burbank Commercial Potatoes With No Storage for Eastern Idaho: Bannock, Bingham and Power Counties with comparison to 2003.

Item	Quantity Per Acre	Unit	Price or Cost	Value or Cost/Acre			
Ownership Costs:							
Tractors & Equipment Insurance				$4.91	$4.63	$0.28	6.0%
Transloading Equipment Depreciation & Interest				32.09	$30.43	$1.66	5.5%
Tractors & Equipment Depreciation & Interest				$147.13	$129.79	$17.34	13.4%
Irrigation Equipment Depreciation & Interest							
Land **				$270.00	$260.00	$10.00	3.8%
Overhead				$24.00	$22.00	$2.00	9.1%
Management Fee				$76.00	$74.00	$2.00	2.7%
Total Ownership Costs				$554.13	$520.85	$33.28	6.4%
Ownership Costs per Unit				$1.71	$1.63	$0.08	4.8%
Total Costs per Acre				$1,518.64	$1,468.89	$49.75	3.4%
Total Cost per Unit				$4.67	$4.59	$0.08	1.8%
Returns to Risk				-$7.39	$19.11	-$26.50	-138.7%

Notes:
* Center Pivot. **Includes irrigation system ownership costs.
Blue font indicates an increase.
A red font indicates a decrease.

Breakeven Analysis:

	- 5%	Base Yield	+ 5%
Price	308.75	325	341.25
Operating Cost Breakeven	$3.12	$2.97	$2.83
Ownership Cost Breakeven	$1.79	$1.71	$1.62
Total Cost Breakeven	$4.92	$4.67	$4.45

		Price	
Yield	$4.42	$4.65	$4.88
Operating Cost Breakeven	218.3	207.4	197.5
Ownership Cost Breakeven	125.4	119.2	113.5
Total Cost Breakeven	343.8	326.6	311.0

Date:
User's Name:
Address:

Table 19. 2004 Irrigated Russet Burbank Commercial Potatoes With On-Farm Storage for Eastern Idaho: Bannock, Bingham and Power Counties with comparison to 2003.

Item	Quantity Per Acre	Unit	Price or Cost	Value or Cost/Acre				
Gross Returns								
Potatoes	325	cwt	$4.85		$1,576.25	320		1.6%
Operating Inputs						**$ 2003**	**Change**	**% Change**
Seed:				$177.45		$200.55	-$23.10	-11.5%
G-3 Potato Seed	21	cwt	$6.90		$144.90	$165.90	-$21.00	-12.7%
Seed Cut and Treat	21	cwt	$1.55		$32.55	$34.65	-$2.10	-6.1%
Fertilizer:				$196.10		$185.35	$10.75	5.8%
Nitrogen - Preplant	145	lb	$0.30		$43.50	$42.05	$1.45	3.4%
P2O5	155	lb	$0.22		$34.10	$31.00	$3.10	10.0%
K2O	175	lb	$0.16		$28.00	$24.50	$3.50	14.3%
Sulfur	85	lb	$0.12		$10.20	$10.20	$0.00	0.0%
Liquid Nitrogen	140	lb	$0.34		$47.60	$44.80	$2.80	6.3%
Liquid P2O5	60	ac	$0.27		$16.20	$16.80	-$0.60	-3.6%
Micronutrients	1	lb	$16.50		$16.50	$16.00	$0.50	3.1%
					$0.00			
Pesticides:				$95.86		$100.33	-$4.47	-4.5%
Thimet 20G	15	lb	$2.25		$33.75	$37.50	-$3.75	-10.0%
Sencor DF	0.75	lb	$18.65		$13.99	$14.51	-$0.52	-3.6%
Eptam 7E	2.0	qt	$8.35		$16.70	$17.50	-$0.80	-4.6%
Bravo Ultrex	1.25	lb	$6.45		$8.06	$8.69	-$0.63	-7.2%
Dithane F45 Rainshield	3.2	qt	$2.40		$7.68	$6.00	$1.68	28.0%
Monitor 4E	0.75	qt	$20.90		$15.68	$16.13	-$0.46	-2.8%
					$0.00			
Custom & Consultants:				$44.10		$36.15	$7.95	22.0%
Custom Fertilize	2	ac	$4.85		$9.70	$9.30	$0.40	4.3%
Consultant	1	ac	$15.00		$15.00	$14.50	$0.50	3.4%
Custom Ground Spray	1	ac	$5.40		$5.40	$5.35	$0.05	0.9%
Custom Air Spray-10G	2	ac	$7.00		$14.00	$7.00	$7.00	100.0%
Irrigation:				$79.34		$77.14	$2.20	2.9%
Water Assessment	1	ac	$25.00		$25.00	$19.50	$5.50	28.2%
Irrigation Power - CP*	23	acin	$1.26		$28.98	$31.51	-$2.53	-8.0%
Irrigation Repairs - CP*	23	acin	$0.55		$12.65	$13.57	-$0.92	-6.8%
Irrigation Labor - CP*	1.56	hr	$8.15		$12.71	$12.56	$0.15	1.2%
Other:				$239.30		$229.52	$9.78	4.3%
Fees & Assessments	310	cwt	$0.13		$40.30	$39.78	$0.52	1.3%
Crop Insurance	1	ac	$30.00		$30.00	$30.00	$0.00	0.0%
Storage Operating Costs	325	cwt	$0.52		$169.00	$160.00	$9.00	5.6%
Fuel & Lubricants					$59.49	$48.59	$10.90	22.4%
Machinery Repairs					$41.77	$39.27	$2.50	6.4%
Storage Facility & Storage Equipment Repairs					$11.80	$11.57	$0.23	2.0%
Machinery Labor	7.04	hrs	$12.15		$85.54	$84.48	$1.06	1.3%
Other Labor	2.49	hrs	$7.20		$17.93	$17.80	$0.13	0.7%
Operating Interest					$20.59	$18.74	$1.85	9.9%
Total Operating Costs					$1,069.26	$1,049.49	$19.77	1.9%
Operating Costs per Unit					$3.29	$3.28	$0.01	0.3%
Net Returns Above Operating Expenses					$506.99	$518.76	-$11.77	-2.3%

Table 19. 2004 Irrigated Russet Burbank Commercial Potatoes With On-Farm Storage for Eastern Idaho: Bannock, Bingham and Power Counties with comparison to 2003.

Item	Quantity Per Acre	Unit	Price or Cost	Value or Cost/Acre			
Ownership Costs:							
Tractors & Equipment Insurance				$7.17	$6.89	$0.28	4.1%
Storage Facilities Depreciation & Interest				$53.11	$49.28	$3.83	7.8%
Storage Equipment Depreciation & Interest				$50.58	$47.96	$2.62	5.5%
Tractors & Equipment Depreciation & Interest				$145.11	$128.01	$17.10	13.4%
Irrigation Equipment Depreciation & Interest							
Land **				$270.00	$260.00	$10.00	3.8%
Overhead				$26.00	$26.00	$0.00	0.0%
Management Fee				$79.00	$78.00	$1.00	1.3%
Total Ownership Costs				$630.97	$596.14	$34.83	5.8%
Ownership Costs per Unit				$1.94	$1.86	$0.08	4.2%
Total Costs per Acre				$1,700.23	$1,645.63	$54.60	3.3%
Total Cost per Unit				$5.23	$5.14	$0.09	1.7%
Returns to Risk				-$123.98	-$77.63	-$46.35	59.7%

Notes:
* Center Pivot. **Includes irrigation system ownership costs.
Blue font indicates an increase.
A red font indicates a decrease.

Breakeven Analysis:

	- 5%	Base	+ 5%
		Yield	
Price	308.75	325	341.25
Operating Cost Breakeven	$3.46	$3.29	$3.13
Ownership Cost Breakeven	$2.04	$1.94	$1.85
Total Cost Breakeven	$5.51	$5.23	$4.98
		Price	
Yield	$4.61	$4.85	$5.09
Operating Cost Breakeven	232.1	220.5	210.0
Ownership Cost Breakeven	136.9	130.1	123.9
Total Cost Breakeven	369.0	350.6	333.9

Date:
User's Name:
Address:

Table 20. 2004 Irrigated Russet Burbank Commercial Potatoes With Fumigation & On-Farm Storage for Eastern Idaho:Bannock, Bingham and Power Counties with comparison to 2003

Item	Quantity Per Acre	Unit	Price or Cost	Value or Cost/Acre				
Gross Returns								
Potatoes	365	cwt	$4.85		$1,770.25	360		1.4%
Operating Inputs						**2003**	**$ Change**	**% Change**
Seed:				$177.45		$200.55	-$23.10	-11.5%
G-3 Potato Seed	21	cwt	$6.90		$144.90	$165.90	-$21.00	-12.7%
Seed Cut and Treat	21	cwt	$1.55		$32.55	$34.65	-$2.10	-6.1%
Fertilizer:				$206.30		$194.85	$11.45	5.9%
Nitrogen - Preplant	155	lb	$0.30		$46.50	$44.95	$1.55	3.4%
P2O5	165	lb	$0.22		$36.30	$33.00	$3.30	10.0%
K2O	185	lb	$0.16		$29.60	$25.90	$3.70	14.3%
Sulfur	85	lb	$0.12		$10.20	$10.20	$0.00	0.0%
Liquid Nitrogen	150	lb	$0.34		$51.00	$48.00	$3.00	6.3%
Liquid P2O5	60	ac	$0.27		$16.20	$16.80	-$0.60	-3.6%
Micronutrients	1	lb	$16.50		$16.50	$16.00	$0.50	3.1%
					$0.00			
Pesticides:				$227.86		$222.33	$5.53	2.5%
Vapam 42%	40	gal	$3.30		$132.00	$122.00	$10.00	8.2%
Thimet 20G	15	lb	$2.25		$33.75	$37.50	-$3.75	-10.0%
Sencor 75DF	0.75	lb	$18.65		$13.99	$14.51	-$0.52	-3.6%
Eptam 7E	2.0	qt	$8.35		$16.70	$17.50	-$0.80	-4.6%
Bravo Ultrex	1.25	lb	$6.45		$8.06	$8.69	-$0.63	-7.2%
Dithane F45 Rainshield	3.2	qt	$2.40		$7.68	$3.75	$3.93	1.048
Monitor 4E	0.75	qt	$20.90		$15.68	$16.13	-$0.46	-2.8%
Custom & Consultants:				$44.10		$36.15	$7.95	22.0%
Custom Fertilize	2	ac	$4.85		$9.70	$9.30	$0.40	4.3%
Consultant	1	ac	$15.00		$15.00	$14.50	$0.50	3.4%
Custom Ground Spray	1	ac	$5.40		$5.40	$5.35	$0.05	0.9%
Custom Air Spray-10G	2	ac	$7.00		$14.00	$7.00	$7.00	100.0%
Irrigation:				$84.43		$82.51	$1.92	2.3%
Water Assessment	1	ac	$25.00		$25.00	$19.50	$5.50	28.2%
Irrigation Power - CP*	25	acin	$1.26		$31.50	$34.25	-$2.75	-8.0%
Irrigation Repairs - CP*	25	acin	$0.55		$13.75	$14.75	-$1.00	-6.8%
Irrigation Labor - CP*	1.74	hr	$8.15		$14.18	$14.01	$0.17	1.2%
Other:				$265.17		$254.46	$10.71	4.2%
Fees & Assessments	349	cwt	$0.13		$45.37	$44.72	$0.65	1.5%
Crop Insurance	1	ac	$30.00		$30.00	$30.00	$0.00	0.0%
Storage Operating Costs	365	cwt	$0.52		$189.80	$180.00	$9.80	5.4%
Fuel & Lubricants					$59.49	$48.59	$10.90	22.4%
Machinery Repairs					$41.77	$39.27	$2.50	6.4%
Storage Facility & Storage Equipment Repairs					$11.57	$11.57	$0.00	0.0%
Machinery Labor	7.04	hrs	$12.15		$85.54	$84.48	$1.06	1.3%
Other Labor	2.72	hrs	$7.20		$19.58	$19.45	$0.13	0.7%
Operating Interest					$29.16	$25.98	$3.18	12.2%
Total Operating Costs					$1,252.42	$1,220.19	$32.23	2.6%
Operating Costs per Unit					$3.43	$3.39	$0.04	1.2%
Net Returns Above Operating Expenses					$517.83	$543.81	-$25.98	-4.8%

Table 20. 2004 Irrigated Russet Burbank Commercial Potatoes With Fumigation & On-Farm Storage for Eastern Idaho:Bannock, Bingham and Power Counties with comparison to 2003

Item	Quantity Per Acre	Unit	Price or Cost	Value or Cost/Acre			
Ownership Costs:							
Tractors & Equipment Insurance				$7.17	$6.89	$0.28	4.1%
Storage Facilities Depreciation & Interest				$53.11	$49.28	$3.83	7.8%
Storage Equipment Depreciation & Interest				$50.58	$47.96	$2.62	5.5%
Tractors & Equipment Depreciation & Interest				$145.07	$127.98	$17.09	13.4%
Irrigation Equipment Depreciation & Interest							
Land **				$270.00	$260.00	$10.00	3.8%
Overhead				$31.00	$30.00	$1.00	3.3%
Management Fee				$88.00	$88.00	$0.00	0.0%
Total Ownership Costs				$644.93	$610.11	$34.82	5.7%
Ownership Costs per Unit				$1.77	$1.69	$0.07	4.3%
Total Costs per Acre				$1,897.35	$1,830.30	$67.05	3.7%
Total Cost per Unit				$5.20	$5.08	$0.11	2.2%
Returns to Risk				-$127.10	-$66.30	-$60.80	91.7%

Notes:
* Center Pivot. **Includes irrigation system ownership costs.
Blue font indicates an increase.
A red font indicates a decrease.

Breakeven Analysis:

	- 5%	Base Yield	+ 5%
Price	346.75	365	383.25
Operating Cost Breakeven	$3.61	$3.43	$3.27
Ownership Cost Breakeven	$1.86	$1.77	$1.68
Total Cost Breakeven	$5.47	$5.20	$4.95

		Price	
Yield	$4.61	$4.85	$5.09
Operating Cost Breakeven	271.8	258.2	245.9
Ownership Cost Breakeven	140.0	133.0	126.6
Total Cost Breakeven	411.8	391.2	372.6

Date:
User's Name:
Address:

Table 21. 2004 Irrigated Russet Burbank Commercial Potatoes With On-Farm Storage for Eastern Idaho: Bonneville, Jefferson and Madison Counties with comparion to 2003.

Item	Quantity Per Acre	Unit	Price or Cost	Value or Cost/Acre				
Gross Returns								
Potatoes	315	cwt	$4.75		$1,496.25	315		0.0%
Operating Inputs						**2003**	**$ Change**	**% Change**
Seed:				$162.00		$184.00	-$22.00	-12.0%
G-3 Potato Seed	20	cwt	$6.55		$131.00	$151.00	-$20.00	-13.2%
Seed Cut and Treat	20	cwt	$1.55		$31.00	$33.00	-$2.00	-6.1%
Fertilizer:				$162.50		$154.90	$7.60	4.9%
Nitrogen	150	lb	$0.30		$45.00	$43.50	$1.50	3.4%
P2O5	100	lb	$0.22		$22.00	$20.00	$2.00	10.0%
K2O	140	lb	$0.16		$22.40	$19.60	$2.80	14.3%
Sulfur	65	lb	$0.12		$7.80	$7.80	$0.00	0.0%
Liquid Nitrogen	80	lb	$0.34		$27.20	$25.60	$1.60	6.3%
Liquid P2O5	80	ac	$0.27		$21.60	$22.40	-$0.80	-3.6%
Micronutrients	1	lb	$16.50		$16.50	$16.00	$0.50	3.1%
					$0.00			
Pesticides:				$89.83		$94.50	-$4.67	-4.9%
Thimet 20G	15	lb	$2.25		$33.75	$37.50	-$3.75	-10.0%
Sencor DF	0.75	lb	$18.65		$13.99	$14.51	-$0.52	-3.6%
Eptam 7E	2.0	qt	$8.35		$16.70	$17.50	-$0.80	-4.6%
Bravo Ultrex	1.25	lb	$6.45		$8.06	$8.69	-$0.63	-7.2%
Dithane F45 Rainshield	3.2	qt	$2.40		$7.68	$6.00	$1.68	28.0%
Furadan	0.5	qt	$19.30		$9.65	$10.30	-$0.65	-6.3%
Custom & Consultants:				$73.70		$60.80	$12.90	21.2%
Custom Fertilize	2	ac	$4.85		$9.70	$9.30	$0.40	4.3%
Consultant	1	ac	$15.00		$15.00	$14.50	$0.50	3.4%
Custom Air Spray-10G	3	ac	$7.00		$21.00	$14.00	$7.00	50.0%
Sulfuric Acid Application	1	ac	$28.00		$28.00	$23.00	$5.00	21.7%
					$0.00			
Irrigation:				$57.45		$60.79	-$3.34	-5.5%
Water Assessment	1	ac	$9.10		$9.10	$9.50	-$0.40	-4.2%
Irrigation Power - CP*	20.5	acin	$1.26		$25.83	$28.09	-$2.26	-8.0%
Irrigation Repairs - CP*	20.5	acin	$0.55		$11.28	$12.10	-$0.82	-6.8%
Irrigation Labor - CP*	1.38	hr	$8.15		$11.25	$11.11	$0.14	1.2%
Other:				$230.93		$226.45	$4.48	2.0%
Fees & Assessments	301	cwt	$0.13		$39.13	$39.13	$0.00	0.0%
Crop Insurance	1	ac	$28.00		$28.00	$28.00	$0.00	0.0%
Storage Operating Costs	315	cwt	$0.52		$163.80	$157.50	$6.30	4.0%
Fuel & Lubricants					$55.35	$45.19	$10.16	22.5%
Machinery Repairs					$38.68	$36.37	$2.31	6.4%
Storage Facility & Storage Equipment Repairs					$10.84	$10.63	$0.21	2.0%
Machinery Labor	6.53	hrs	$12.15		$79.34	$78.36	$0.98	1.3%
Other Labor	2.18	hrs	$7.20		$15.70	$15.59	$0.11	0.7%
Operating Interest					$15.34	$14.19	$1.15	8.1%
Total Operating Costs					$991.66	$981.77	$9.89	1.0%
Operating Costs per Unit					$3.15	$3.12	$0.03	1.0%
Net Returns Above Operating Expenses					$504.59	$498.73	$5.86	1.2%

Table 21. 2004 Irrigated Russet Burbank Commercial Potatoes With On-Farm Storage for Eastern Idaho: Bonneville, Jefferson and Madison Counties with comparion to 2003.

Item	Quantity Per Acre	Unit	Price or Cost	Value or Cost/Acre			
Ownership Costs:							
Tractors & Equipment Insurance				$6.63	$6.37	$0.26	4.1%
Storage Facilities Depreciation & Interest				$47.21	$43.80	$3.41	7.8%
Storage Equipment Depreciation & Interest				$48.53	$46.01	$2.52	5.5%
Tractors & Equipment Depreciation & Interest				$134.78	$118.89	$15.89	13.4%
Irrigation Equipment Depreciation & Interest							
Land **				$230.00	$200.00	$30.00	15.0%
Overhead				$25.00	$24.00	$1.00	4.2%
Management Fee				$75.00	$74.00	$1.00	1.4%
Total Ownership Costs				$567.15	$513.07	$54.08	10.5%
Ownership Costs per Unit				$1.80	$1.63	$0.17	10.5%
Total Costs per Acre				$1,558.81	$1,494.84	$63.97	4.3%
Total Cost per Unit				$4.95	$4.75	$0.20	4.3%
Returns to Risk				-$62.56	-$14.34	-$48.22	336.2%

Notes:
* Center Pivot. **Includes irrigation system ownership costs.
Blue font indicates an increase.
A red font indicates a decrease.

Breakeven Analysis:

	- 5%	Base Yield	+ 5%
Price	299.25	315	330.75
Operating Cost Breakeven	$3.31	$3.15	$3.00
Ownership Cost Breakeven	$1.90	$1.80	$1.71
Total Cost Breakeven	$5.21	$4.95	$4.71

		Price	
Yield	$4.51	$4.75	$4.99
Operating Cost Breakeven	219.8	208.8	198.8
Ownership Cost Breakeven	125.7	119.4	113.7
Total Cost Breakeven	345.4	328.2	312.5

Date:
User's Name:
Address:

Table 22. 2004 Irrigated Russet Burbank G3 Seed Potatoes With On-Farm Storage for Eastern Idaho: Caribou, Fremont and Teton Counties.

Item	Quantity Per Acre	Unit		Price or Cost	Value or Cost/Acre
Gross Returns					
Potatoes	250	cwt		$6.25	$1,562.50
Operating Inputs					
Seed:					$219.65
G-2 Potato Seed	23	cwt		$8.00	$184.00
Seed Cut and Treat	23	cwt		$1.55	$35.65
Fertilizer:					$98.70
Nitrogen - Preplant	100	lb		$0.30	$30.00
P2O5	80	lb		$0.22	$17.60
K2O	75	lb		$0.16	$12.00
Sulfur	30	lb		$0.12	$3.60
Liquid Nitrogen	40	lb		$0.34	$13.60
Liquid P2O5	20	ac		$0.27	$5.40
Micronutrients	1	lb		$16.50	$16.50
Pesticides:					$170.88
Thimet 20G	15	lb		$2.25	$33.75
Sencor DF	0.8	qt		$18.65	$13.99
Eptam 7E	2.0	qt		$8.35	$16.70
Bravo Ultrex	1.25	lb		$6.45	$8.06
Monitor 4E	3.0	qt		$20.90	$62.70
Dithane F45 Rainshield	3.2	qt		$2.40	$7.68
Sulfuric Acid	1.0	lb		$28.00	$28.00
Custom & Consultants:					$64.25
Custom Fertilize	1	ac		$4.85	$4.85
Custom Ground Spray	1	ac		$5.40	$5.40
Custom Air Spray-10G	3	ac		$7.00	$21.00
Consultant	1	ac		$15.00	$15.00
Rogueing	2	ac		$9.00	$18.00
Irrigation:					$37.42
Water Assessment	1	ac		$9.10	$9.10
Irrigation Power-CP	12	acin		$1.26	$15.12
Irrigation Repairs	12	acin		$0.55	$6.60
Irrigation Labor-CP	0.81	hr		$8.15	$6.60
Other:					$216.19
Fees & Assessments	238	cwt		$0.13	$30.94
Crop Insurance	1	ac		$32.50	$32.50
Storage Operating Costs	250	cwt		$0.54	$135.00
Virus Test Inspection & Tag	1	ac	#	$17.75	$17.75
Fuel & Lubricants					$53.13
Machinery Repairs					$32.78
Storage Facility & Storage Equipment Repairs					$11.86
Machinery Labor	5.84	hrs		$12.15	$70.96
Other Labor	4.53	hrs		$7.20	$32.62
Operating Interest					$16.31
Total Operating Costs					$1,024.74
Operating Costs per Unit					$4.10
Net Returns Above Operating Expenses					$537.76

Table 22. 2004 Irrigated Russet Burbank G3 Seed Potatoes With On-Farm Storage for Eastern Idaho: Caribou, Fremont and Teton Counties.

Item	Quantity Per Acre	Unit	Price or Cost	Value or Cost/Acre
Ownership Costs:				
Tractors & Equipment Insurance				$6.99
Storage Facilities Depreciation & Interest				$43.01
Storage Equipment Depreciation & Interest				$64.09
Tractors & Equipment Depreciation & Interest				$139.97
Irrigation Equipment Depreciation & Interest				
Land *				$185.00
Overhead				$26.00
Management Fee				$76.00
Total Ownership Costs				$541.06
Ownership Costs per Unit				$2.16
Total Costs per Acre				$1,565.80
Total Cost per Unit				$6.26
Returns to Risk				-$3.30

Notes

* Includes irrigation system ownership costs.

Breakeven Analysis:	- 5%	Base	+ 5%
		Yield	
Price	237.5	250	262.5
Operating Cost Breakeven	$4.31	$4.10	$3.90
Ownership Cost Breakeven	$2.28	$2.16	$2.06
Total Cost Breakeven	$6.59	$6.26	$5.96
		Price	
Yield	$5.94	$6.25	$6.56
Operating Cost Breakeven	172.6	164.0	156.2
Ownership Cost Breakeven	91.1	86.6	82.4
Total Cost Breakeven	263.7	250.5	238.6