



The Economics of Growing Sugarbeets in Southern Idaho: A Short Run Gross Margin Analysis

Prepared by
University of Idaho
Extension Agricultural Economist
Paul E. Patterson

**Agricultural Economics Extension Series No. 09-01
January 8, 2009**

University of Idaho
College of Agricultural and Life Sciences



Department of Agricultural Economics
and Rural Sociology
Moscow, Idaho 83844-2334

The Economics of Growing Sugarbeets in Southern Idaho: A Short Run Gross Margin Analysis

Prepared by:

Paul Patterson

pattersn@uidaho.edu

Extension Agricultural Economist

University of Idaho

Department of Agricultural Economics and Rural Sociology

<http://www.ag.uidaho.edu/aers>

January 8, 2009

Revised

This report can be found at the web site shown above.
Click on Resources and then Project Reports.

Overview

Sugarbeets are grown under irrigation in the three distinct production zones of southern Idaho: Southwest (Treasure Valley), Southcentral (Magic Valley), and Eastern Idaho's lower Snake River Plain. Sugarbeet planted acreage in Idaho has averaged just over 189,000 acres over the past ten years, ranging from a high of 212,000 to a low of 131,000 just this past year. Sugarbeet processing facilities are located in Nampa, Twin Falls and Paul, Idaho. Sugarbeets are traditionally the fourth most valuable crop grown in Idaho, behind potatoes (#1), wheat (#2) and hay (#3). Sugarbeets are an important cash crop and contributes to the overall economy of the state. A 2004 study of the sugarbeet industry in Idaho by University of Idaho agricultural economists showed a total contribution of the sugarbeet industry to Idaho's economy of \$1.08 billion in sales, \$338 million in value-added, and over 7,000 jobs. Maintaining a profitable and economically healthy sugarbeet industry is important not only to the growers, but to the state of Idaho.

Sugarbeet prices in recent years have been relatively stagnant, while input costs have increased. Sugarbeet prices over the past ten years averaged approximately \$39.60 per ton, ranging from a high of just over \$44 to a low of just over \$36 according to data from the USDA. A similar situation also existed for most other commodities grown in southern Idaho, with no crop having a consistent economic advantage. But when grain and forage prices spiked to unprecedented levels in 2007, the equilibrium was eliminated and growers saw an opportunity to capitalize on the high returns that these crops offered. Crops that were often viewed as money losing rotation crops by potato and sugarbeet growers had become the most profitable crop alternatives available to growers. But high grain prices were short-lived with grain prices declining rapidly after the 2008 harvest.

The objective of this study was to make an economic comparison between sugarbeets and other crops grown in the three production regions of southern Idaho where sugarbeets are produced for 2008 and 2009. The comparison is based on a modified gross margins analysis, using the University of Idaho's crop costs and returns estimates (enterprise budgets). The analysis uses variable costs based on 2008 input cost data collected by the University of Idaho and gross receipts for 2008 based on preliminary crop prices, and for 2009 based on forecast prices. The analysis does not show whether or not any of the alternative crops are profitable. The purpose of the study was not to tell growers what crops that they should produce. However, the gross margin analysis methodology used in this study is a tool that growers should find useful in comparing crop alternatives for their farm

Method

Gross margin is defined as the gross revenue of a crop minus the operating or variable costs of production. Its primary use is to compare crop alternatives in the short run, typically one year. The gross margin simply shows the contribution that each crop alternative makes to the farm's fixed costs. An example of using this technique would be to calculate whether growing hard red spring wheat is going to have a bigger gross margin, and therefore contribute more to the farms fixed costs, than growing malting barley for example. In addition, this technique can be used to calculate the breakeven price or yield of alternative crops needed to achieve the same gross margin as the base crop. Three items are needed for each crop to make this comparison: 1) price, 2) yield and 3) variable production costs. The fixed costs on a typical farm are not going to change based on what crop is grown. The land payment, debt service and

depreciation on machinery and irrigation systems, and permanent labor or management, the largest fixed costs, will be the same. Using a gross margin analysis based on University of Idaho enterprise budgets is not the same as a grower conducting the analysis using his/her farm specific data. Rather than using a constant dollar value that would reflect the average for the farm, the fixed or ownership machinery costs in the University of Idaho's enterprise budgets are calculated based only on the specific machinery used to produce that crop, not an average cost. Also, the University of Idaho crop budgets often use custom rates to cost some operations, rather than assuming that the grower owns and operates all the machinery. For example, we use a custom combining and hauling in all our southern Idaho grain budgets. These custom rates charges all show up as an operating or variable cost, even though part of the charge is technically for debt service and depreciation on equipment. To avoid a bias against crops where custom rates are used for some major field operations, the analysis in this report uses a modified gross margin by also subtracting the crop specific equipment ownership costs from the gross margin. The resulting modified gross margin value is a return to the land, irrigation system, general farm overhead and the owner-operators management and labor, and will be referred to as the Net Return.

Analysis

This report provides an analysis for each of the three primary growing regions of southern Idaho. Yield, production costs, and crop alternatives vary by region. The analysis presents five tables for each production region. Each table has a regional designation in addition to the table number. Eastern Idaho is A, the Magic Valley is B and the Treasure Valley is C. Table 1 lists the crops included in the analysis, the crop prices for 2008, and the projected crop prices for 2009. Table 2 shows the yield, price and the resulting gross margin for each crop for 2008. Table 2 also shows the operating expenses (variable costs) and the resulting gross margin when the operating cost is subtracted from the gross revenue. The next item shown in the table is the equipment ownership costs specific to each crop. This value is subtracted from the gross margin to derive a modified gross margin, or the net return to all the other fixed expenses.

Table 3 is similar to Table 2, except that the gross revenue is based on the 2009 projected prices. No adjustments were made to the production costs. Table 4 presents a modified breakeven comparison that uses sugarbeets as the base crop and shows what price the other crops would have to have in order to generate the same net return to land, irrigation system, overhead and management based on the projected 2009 sugarbeet price of \$45 per ton. Again, this analysis uses 2008 input costs. Table 5 presents a sensitivity analysis showing the breakeven prices of the alternative crops needed to generate the same net return as sugarbeets as the price of sugarbeets varies from \$45 down to \$40 per ton.

An appendix contains the 2008 sugarbeet costs and returns estimate, or enterprise budgets, for each of the three production regions. Appendix A-1 is for eastern Idaho, Appendix B-1 is for the Magic Valley and Appendix C-1 is for the Treasure Valley. The detailed enterprise budgets for alternative crops are not included in this report. They are available in the Excel spreadsheet, which is discussed later. The University of Idaho enterprise budgets are based on economic costs, not accounting or cash costs. All resources used in the production process are valued at a market rate, or opportunity cost. When all resources are valued in this manner, the bottom line shown is often negative. This does not necessarily mean that a grower would be losing money, however. It does, however, indicate that the grower is not receiving a market return on all the resource used in the production process.

Discussion

Commodity prices for all the crops shown in Table 1 except sugarbeets are based on the author's judgment. The sugarbeet prices were provided by the Amalgamated Sugar Company. Note that the alfalfa hay price used in the analysis is a blended price based of feeder quality and dairy quality hay.

The analysis shown in Tables 2 and 3 is a static analysis, based on set values for yield, price and expenses. The Net Return value shown at the bottom of Table 2 clearly shows the higher Net Return of the grain and forage crops compared to sugarbeets based on the high prices that were available to growers for their 2008 crop. While not every grower realized these prices, these prices were available. In contrast, the Net Return at the bottom of Table 3 shows sugarbeets with a higher return than any of the grain and forage crops, except alfalfa.

An issue just as important as the ranking of crops based on the Net Return is, how robust is this analysis? In other words, what happens when the price of these alternative crops change? The obvious answer is that at some point the ranking will change. Rather than going through a myriad of prices for each crop, a breakeven price can be calculated for each of the alternative crops that will generate the same net return as the base crop, sugarbeets. What is the likelihood that the breakeven prices shown in Table 4 will be achieved? Will we see soft white wheat prices in southern Idaho above \$6 per bushel for the 2009 crop? Will the price of hard red spring wheat exceed \$7? The breakeven prices shown at the bottom of Table 4 are higher than the 2009 projected prices for all commodities except potatoes and alfalfa hay in eastern Idaho and the Magic Valley. For the Treasure Valley, dry beans and field corn also have lower breakeven prices than the projected 2009 prices.

Another uncertainty that needs to be considered in this analysis is, how accurate or stable is the price of sugarbeets? What happens to the ranking of the crops in terms of generating net returns if the price of sugarbeets declines? Table 5 is designed to address this issue. Table 5 shows the breakeven prices needed to achieve the same Net Return as sugarbeets as the price of sugarbeets varies between \$45 and \$40. The first column, which is based on \$45 sugarbeets, shows the same breakeven values shown in Table 4. Again, the input costs used in this analysis are from 2008.

Conclusions

The modified gross margin analysis used in this report provides a simple short-run planning tool for growers to evaluate cropping alternatives. But the analysis is only as good as the underlying price, yield and cost data. The use of the University of Idaho's crop costs and returns estimates (enterprise budgets) provides a consistent base for making these comparisons. It should not be considered as an appropriate analysis for every grower, however. The analysis presented here does accurately depict the situation that growers faced in making cropping decisions for 2008 and helps explain why some growers opted not to grow sugarbeets. The analysis also shows that with the higher expected price of sugarbeets, at least for 2009, and the falling grain and forage prices, sugarbeets can compete with most alternative crops. The analysis is limited, however, to those crops for which the University of Idaho currently has a crop costs

and returns estimate. Growers may have other more viable cropping alternatives, but ones for which the University of Idaho does not have an enterprise budget.

Growers interested in running their own analysis can download the Excel spreadsheet that was used to create the tables presented in this report. There is an enterprise budget for each crop shown in this analysis, with a detailed listing of inputs, quantities and prices. These are similar to the sugarbeet enterprise budgets shown in the appendix of this report for the three production regions of southern Idaho. These enterprise budgets are automatically linked to the tables shown in this report. The Excel spreadsheet should be available in January 2009 at the Agricultural Economics and Rural Sociology Department's web site <http://www.ag.uidaho.edu> Click on Resources and then Crops.

Table A-1. Eastern Idaho crop prices used in the analysis.

12/13/2008

<u>Crop</u>	<u>2008</u>	<u>Projected 2009</u>
Sugarbeets	\$40.00	\$45.00
Potatoes: In-weight	\$5.95	\$8.00
Potatoes: Storage	\$6.75	\$9.00
Feed Barley	\$10.00	\$6.00
Malting Barley	\$16.00	\$12.50
Hard Red Spring Wheat	\$9.50	\$6.00
Soft White Wheat	\$8.00	\$5.25
Alfalfa Hay	\$152.00	\$142.00

Potato prices are pre-season contract prices for process potatoes, not fresh market.

Note: Alfalfa hay is a blended price, based on 30% feeder quality and 70% dairy quality.

	<u>2008</u>	<u>2009</u>
Dairy Quality	\$170	\$160
Feeder Quality	\$110	\$100
	\$152	\$142

Prices shown here are linked to the gross margin and breakeven sheets, but not to the individual crop budgets. Prices in the crop budgets can be changed without impacting the crop comparisons.

Table A-2. Eastern Idaho: Upper Snake River Valley. Gross margins summary and return to land, irrigation system, overhead & management by crop.
Crop prices are for 2008.

	RUR Sugarbeets	Potatoes: In- weight	Potatoes: Storage	Feed Barley	Malting Barley	Wheat: HRS	Wheat: SWS	Wheat: SWW	Alfalfa Hay
	ton	cwt	cwt	cwt	cwt	bu	bu	bu	ton
Yield	33	345	345	63	58	105	110	120	6
Price	\$40.00	\$5.95	\$6.75	\$10.00	\$16.00	\$9.50	\$8.00	\$8.00	\$152.00
Gross Revenue	\$1,320	\$2,053	\$2,329	\$630	\$928	\$998	\$880	\$960	\$912
Total Operating Expenses	\$918	\$1,642	\$1,749	\$395	\$384	\$431	\$401	\$408	\$420
Gross Margin	\$402	\$411	\$579	\$235	\$544	\$567	\$479	\$552	\$492
Equipment Ownership Costs	\$190	\$243	\$354	\$34	\$34	\$35	\$34	\$36	\$10
Net: Return to Land, Irrigation System, Overhead & Management	\$211	\$169	\$226	\$201	\$510	\$532	\$445	\$516	\$482

Note: Values are linked to other spreadsheets in this file. Changes must be made to the individual spreadsheets, not to this summary sheet, which is locked. Commodity prices should be changed in the prices sheet (tab) and expenses should be changed in the individual crop worksheets.

Operating and equipment ownership expenses are from 2008.

Ownership costs for most crops (except sugarbeets & potatoes) are low because all harvesting is done by a custom operator.

12/13/2008

Table A-3. Eastern Idaho: Upper Snake River Valley. Gross margins summary and return to land, irrigation system, overhead & management by crop.
Crop prices are for 2009.

	RUR Sugarbeets ton	Potatoes: In- weight cwt	Potatoes: Storage cwt	Feed Barley cwt	Malting Barley cwt	Wheat: HRS bu	Wheat: SWS bu	Wheat: SWW bu	Alfalfa Hay ton
Yield	33	345	345	63	58	105	110	120	6
Price	\$45.00	\$8.00	\$9.00	\$6.00	\$12.50	\$6.00	\$5.25	\$5.25	\$142.00
Gross Revenue	\$1,485	\$2,760	\$3,105	\$378	\$725	\$630	\$578	\$630	\$852
Total Operating Expenses	\$918	\$1,642	\$1,749	\$395	\$384	\$431	\$401	\$408	\$420
Gross Margin	\$567	\$1,118	\$1,356	-\$17	\$341	\$199	\$177	\$222	\$432
Equipment Ownership Costs	\$190	\$243	\$354	\$34	\$34	\$35	\$34	\$36	\$10
Net: Return to Land, Irrigation System, Overhead & Management	\$376	\$876	\$1,002	-\$51	\$307	\$165	\$143	\$186	\$422

Note: Values are linked to other spreadsheets in this file. Changes must be made to the individual spreadsheets, not to this summary sheet, which is locked.

Commodity prices should be changed in the prices sheet (tab) and expenses should be changed in the individual crop worksheets.

Operating and equipment ownership expenses are from 2008.

Ownership costs for most crops (except sugarbeets & potatoes) are low because all harvesting is done by a custom operator.

12/13/2008

Table A-4. Prices for alternative commodities needed to equal the 2009 projected net return to sugarbeets of \$376 per acre for Eastern Idaho, which is based on \$45 per ton sugarbeets.

Sensitivity analysis: Eastern Idaho	RUR Sugarbeets	Potatoes: In- weight	Potatoes: Storage	Feed Barley	Malting Barley	Wheat: HRS	Wheat: SWS	Wheat: SWW	Alfalfa Hay
Yield	33	345	345	63	58	105	110	120	6
Price	\$45	\$8.00	\$9.00	\$6.00	\$12.50	\$6.00	\$5.25	\$5.25	\$142
Gross Margin	\$1,485	\$2,760	\$3,105	\$378	\$725	\$630	\$578	\$630	\$852
Op. Expense + Mach. Own. Costs	\$1,109	\$1,884	\$2,103	\$429	\$418	\$465	\$435	\$444	\$430
Net Return to Land, Irrigation System, Overhead and Mngt.	\$376								
Price Required to Equal Sugarbeet Net Return to Land, etc., Given the Yield, Price and Expenses Shown Above.		\$6.55	\$7.19	\$12.78	\$13.69	\$8.01	\$7.37	\$6.84	\$134

Analysis is based on 2008 operating and machinery ownership expenses and the crop yields shown above.

Note: The yield, price and expense values shown above are linked to Gross Margin - 2009 Sheet. Do not make changes directly to this sheet. Make changes in the Prices sheet or the individual crop budget sheets, which will change the Gross Margin - 2009 sheet and this one as well.

12/13/2008

Table A-5. Prices required to achieve the same net return to land, irrigation system, overhead and management as sugarbeets at different sugarbeet prices. Eastern Idaho.

	Sugarbeet Price					
	<u>\$45</u>	<u>\$44</u>	<u>\$43</u>	<u>\$42</u>	<u>\$41</u>	<u>\$40</u>
<u>Crops</u>						
Potatoes: In-weight	\$6.55	\$6.46	\$6.36	\$6.26	\$6.17	\$6.07
Potatoes: Storage	\$7.19	\$7.09	\$6.99	\$6.90	\$6.80	\$6.71
Feed Barley	\$12.78	\$12.26	\$11.73	\$11.21	\$10.69	\$10.16
Malting Barley	\$13.69	\$13.12	\$12.55	\$11.98	\$11.41	\$10.84
Wheat: HRS	\$8.01	\$7.70	\$7.38	\$7.07	\$6.76	\$6.44
Wheat: SWS	\$7.37	\$7.07	\$6.77	\$6.47	\$6.17	\$5.87
Wheat: SWW	\$6.84	\$6.56	\$6.29	\$6.01	\$5.74	\$5.46
Alfalfa Hay	\$134	\$129	\$123	\$118	\$112	\$107

Note: values used in this calculation are from Table 4. The only price that varies is that of sugarbeets. If prices are below the values shown, the grower is better off growing sugarbeets at the price specified. These values are not linked to other sheets and will not automatically recalculate.

12/14/2008

Item	Quantity Per Acre	Unit	Price or Cost	Value or Cost/Acre
Gross Returns				
RUR Sugarbeets	33	ton	\$45.00	\$1,485.00
Operating Inputs				
Seed:				
RUR Beet Seed: Raw	0.45	unit	\$100.00	\$88.46
Technology Fee	0.41	unit	\$106.00	\$43.46
Fertilizer:				
Nitrogen - Preplant	20	lb	\$0.82	\$216.40
P2O5	100	lb	\$0.70	\$16.40
K2O	40	lb	\$0.50	\$70.00
Micronutrients	1	ac	\$8.00	\$20.00
Nitrogen - Liquid	120	lb	\$0.85	\$8.00
				\$102.00
				\$0.00
				\$0.00
Pesticides:				
Counter 15G L-N-L	14	lb	\$2.15	\$61.96
Roundup Original Max	54	oz	\$0.55	\$30.10
AMS	2.4	lb	\$0.90	\$29.70
				\$2.16
				\$0.00
				\$0.00
				\$0.00
Custom & Consultants:				
Custom Fertilize	1	ac	\$6.50	\$22.50
Consultant	1	ac	\$16.00	\$6.50
				\$16.00
				\$0.00
				\$0.00
				\$0.00
Irrigation:				
Water Assessment	1	ac	\$23.00	\$86.86
Irrigation Power - CP*	31	acin	\$1.48	\$23.00
Irrigation Repairs - CP*	31	acin	\$0.58	\$45.88
				\$17.98
Machinery:				
Fuel - Gas	3.19	gal	\$3.50	\$176.82
Fuel - Diesel	28.55	gal	\$3.70	\$11.17
Lube	1	ac	\$17.52	\$105.64
Machinery Repairs	1	ac	\$42.50	\$17.52
				\$42.50
Labor:				
Labor (machine)	6.15	hrs	\$14.95	\$115.96
Labor (irrigation - cp)	1.8	hrs	\$10.20	\$91.94
Labor (other)	0.65	hrs	\$8.70	\$18.36
				\$5.66
Other:				
Hauling Charge	33	cwt	\$2.35	\$119.55
Crop Insurance	1	ac	\$42.00	\$77.55
				\$42.00
				\$0.00
Operating Interest @ 7.0%				\$29.93
Total Operating Costs				\$918.44
Operating Costs per Unit				\$27.83
Net Returns Above Operating Expenses				\$566.56

Item	Quantity Per Acre	Unit	Price or Cost	Value or Cost/Acre
Ownership Costs:				
Tractors & Equipment Insurance				\$4.69
Tractors & Equipment Depreciation & Interest				\$185.78
Irrigation Equipment Depreciation & Interest				
Co-op Stock (Beet share rental value)				\$65.00
Land **				\$275.00
Overhead				\$22.00
Management Fee				\$60.00
Total Ownership Costs				\$612.47
Ownership Costs per Unit				\$18.56
Total Costs per Acre				\$1,530.91
Total Cost per Unit				\$46.39
Returns to Risk				-\$45.91

Notes:

* Center Pivot. **Includes irrigation system ownership costs.

Breakeven Analysis:

	- 10%	Base	+ 10%
		Yield	
<u>Price</u>	29.7	33	36.3
Operating Cost Breakeven	\$30.92	\$27.83	\$25.30
Ownership Cost Breakeven	\$20.62	\$18.56	\$16.87
Total Cost Breakeven	\$51.55	\$46.39	\$42.17
		Price	
<u>Yield</u>	\$40.50	\$45.00	\$49.50
Operating Cost Breakeven	22.7	20.4	18.6
Ownership Cost Breakeven	15.1	13.6	12.4
Total Cost Breakeven	37.8	34.0	30.9

Table B-1. Southcentral Idaho crop prices used in the analysis.

12/12/2008

	<u>2008</u>	Projected <u>2009</u>
Sugarbeets	\$40.00	\$45.00
Potatoes: In-weight	\$5.95	\$8.00
Potatoes: Storage	\$6.75	\$9.00
Dry Beans	\$36.00	\$30.00
Corn Silage	\$38.00	\$36.00
Field Corn	\$6.50	\$5.50
Feed Barley	\$10.00	\$6.50
Malting Barley	\$16.00	\$12.50
Wheat: Hard Red Spring	\$9.50	\$6.00
Wheat: Soft White	\$8.00	\$5.25
Alfalfa Hay	\$159.00	\$149.00

Potato prices are pre-season contract prices for process potatoes, not fresh market.

Note: Alfalfa hay is a blended price, based on 30% feeder quality and 70% dairy quality.

	<u>2008</u>	<u>2009</u>
Dairy Quality	\$180	\$170
Feeder Quality	\$110	\$100
	\$159	\$149

Prices shown here are linked to the gross margin and breakeven sheets, but not to the individual crop budgets. Prices in the crop budgets can be changed without impacting the crop comparisons.

Table B-2. Southcentral Idaho: Magic Valley. Gross margins summary and return to land, irrigation system, overhead & management by crop.

Crop prices are for 2008.

	RUR Sugarbeets	Potatoes: In- weight	Potatoes: Storage	Dry Beans	Corn Silage	Field Corn	Feed Barley	Malting Barley	Wheat: HRS	Wheat: SWS	Wheat: SWW	Alfalfa Hay
	ton	cwt	cwt	cwt	ton	bu	cwt	cwt	bu	bu	bu	ton
Yield	32	400	400	23	28	165	65	60	105	115	125	7
Price	\$40.00	\$5.95	\$6.75	\$36.00	\$38.00	\$6.50	\$10.00	\$16.00	\$9.50	\$8.00	\$8.00	\$159
Gross Revenue	\$1,280	\$2,380	\$2,700	\$828	\$1,064	\$1,073	\$650	\$960	\$998	\$920	\$1,000	\$1,113
Total Operating Expenses	\$946	\$1,874	\$2,005	\$476	\$798	\$634	\$435	\$442	\$467	\$442	\$469	\$544
Gross Margin	\$334	\$506	\$695	\$352	\$266	\$438	\$215	\$518	\$530	\$478	\$531	\$569
Equipment Ownership Costs	\$183	\$231	\$356	\$68	\$49	\$50	\$32	\$36	\$36	\$36	\$33	\$11
Net: Return to Land, Irrigation System, Overhead & Management	\$151	\$275	\$339	\$284	\$217	\$389	\$183	\$482	\$494	\$441	\$498	\$558

Note: Values are linked to other spreadsheets in this file. Changes must be made to the individual spreadsheets, not to this summary sheet, which is locked. Commodity prices should be changed in the prices sheet (tab) and expenses should be changed in the individual crop worksheets.

Operating and equipment ownership expenses are from 2008.

Ownership costs for most crops (except sugarbeets & potatoes) are low because all harvesting is done by a custom operator.

12/13/2008

Table B-3. Southcentral Idaho: Magic Valley. Gross margins summary and return to land, irrigation system, overhead & management by crop.

Crop prices are for 2009.

	RUR Sugarbeets	Potatoes: In- weight	Potatoes: Storage	Dry Beans	Corn Silage	Field Corn	Feed Barley	Malting Barley	Wheat: HRS	Wheat: SWS	Wheat: SWW	Alfalfa Hay
	ton	cwt	cwt	cwt	ton	bu	cwt	cwt	bu	bu	bu	ton
Yield	32	400	400	23	28	165	65	60	105	115	125	7
Price	\$45.00	\$8.00	\$9.00	\$30.00	\$36.00	\$5.50	\$6.50	\$12.50	\$6.00	\$5.25	\$5.25	\$149
Gross Revenue	\$1,440	\$3,200	\$3,600	\$690	\$1,008	\$908	\$423	\$750	\$630	\$604	\$656	\$1,043
Total Operating Expenses	\$946	\$1,874	\$2,005	\$476	\$798	\$634	\$435	\$442	\$467	\$442	\$469	\$544
Gross Margin	\$494	\$1,326	\$1,595	\$214	\$210	\$273	-\$12	\$308	\$163	\$161	\$187	\$499
Equipment Ownership Costs	\$183	\$231	\$356	\$68	\$49	\$50	\$32	\$36	\$36	\$36	\$33	\$11
Net: Return to Land, Irrigation System, Overhead & Management	\$311	\$1,095	\$1,239	\$146	\$161	\$224	-\$45	\$272	\$126	\$125	\$154	\$488

Note: Values are linked to other spreadsheets in this file. Changes must be made to the individual spreadsheets, not to this summary sheet, which is locked.
Commodity prices should be changed in the prices sheet (tab) and expenses should be changed in the individual crop worksheets.

Operating and equipment ownership expenses are from 2008.

Ownership costs for most crops (except sugarbeets & potatoes) are low because all harvesting is done by a custom operator.

12/13/2008

Table B-4. Prices for alternative commodities needed to equal the 2009 projected net to sugarbeets of \$311 per acre for Southcentral Idaho, based on \$45 per ton sugarbeets.

Sensitivity analysis: Southcentral Idaho	RUR Sugarbeets	Potatoes: In-weight	Potatoes: Storage	Dry Beans	Corn Silage	Field Corn	Feed Barley	Malting Barley	Wheat: HRS	Wheat: SWS	Wheat: SWW	Alfalfa Hay
Yield	32	400	400	23	28	165	65	60	105	115	125	7
Price	\$45	\$8.00	\$9.00	\$30.00	\$36.00	\$5.50	\$6.50	\$12.50	\$6.00	\$5.25	\$5.25	\$149
Gross Margin	\$1,440	\$3,200	\$3,600	\$690	\$1,008	\$908	\$423	\$750	\$630	\$604	\$656	\$1,043
Op Expense + Mach. Own. Costs	\$1,129	\$2,105	\$2,361	\$544	\$847	\$684	\$467	\$478	\$504	\$479	\$502	\$555
Net Return to Land, Irrigation System, Overhead and Mngt.	\$311											
Price Required to Equal Sugarbeet Net Return to Land, etc., Given the Yield, Price and Expenses Shown Above.		\$6.04	\$6.68	\$37.17	\$41.34	\$6.03	\$11.97	\$13.15	\$7.76	\$6.87	\$6.50	\$124

Analysis is based on 2008 operating and machinery ownership expenses and the crop yields shown above.

Note: The yield, price and expense values shown above are linked to Gross Margin - 2009 Sheet. Do not make changes directly to this sheet. Make changes in the Prices sheet or the individual crop budget sheets, which will change the Gross Margin - 2009 sheet and this one as well.

12/13/2008

Table B-5. Prices required to achieve the same net return to land, irrigation system, overhead and management as sugarbeets at different sugarbeet prices. Southcentral Idaho.

	Sugarbeet Price					
	<u>\$45</u>	<u>\$44</u>	<u>\$43</u>	<u>\$42</u>	<u>\$41</u>	<u>\$40</u>
<u>Crops</u>						
Potatoes: In-weight	\$6.04	\$5.96	\$5.88	\$5.80	\$5.72	\$5.64
Potatoes: Storage	\$6.68	\$6.60	\$6.52	\$6.44	\$6.36	\$6.28
Dry Beans	\$37.27	\$35.77	\$34.38	\$32.99	\$31.60	\$30.21
Corn Silage	\$41.34	\$40.20	\$39.05	\$37.91	\$36.77	\$35.62
Field Corn	\$6.03	\$5.83	\$5.64	\$5.45	\$5.25	\$5.06
Feed Barley	\$11.97	\$11.48	\$10.99	\$10.49	\$10.00	\$9.51
Malting Barley	\$13.15	\$12.62	\$12.09	\$11.55	\$11.02	\$10.49
Wheat: HRS	\$7.76	\$7.45	\$7.15	\$6.84	\$6.54	\$6.23
Wheat: SWS	\$6.87	\$6.59	\$6.31	\$6.03	\$5.75	\$5.48
Wheat: SWW	\$6.50	\$6.25	\$5.99	\$5.74	\$5.48	\$5.22
Alfalfa Hay	\$124	\$119	\$115	\$110	\$105	\$101

Note: values used in this calculation are from Table 4. The only price that varies is that of sugarbeets. If prices are below the values shown, the grower is better off growing sugarbeets at the price specified. These values are not linked to other sheets and will not automatically recalculate.

12/14/2008

Appendix B-1. 2008 Roundup Ready Sugarbeets, Southcentral Idaho.

Item	Quantity Per Acre	Unit	Price or Cost	Value or Cost/Acre
Gross Returns				
RUR Sugarbeets	32	ton	\$40.00	\$1,280.00
Operating Inputs				
Seed:				
RUR Beet Seed: Raw	0.5	unit	\$100.00	\$50.00
Technology Fee	0.48	unit	\$106.00	\$50.88
Fertilizer:				
Liquid Nitrogen	22	lb	\$0.85	\$18.70
Liquid P2O5	75	lb	\$0.94	\$70.50
Dry Nitrogen	110	lb	\$0.82	\$90.20
K2O	60	lb	\$0.46	\$27.60
Sulfur	50	lb	\$0.40	\$20.00
Micronutrients	1	ac	\$8.00	\$8.00
Pesticides:				
Temik 15G L-N-L	14	lb	\$3.60	\$50.40
Roundup Original Max	54.0	oz	\$0.50	\$27.00
AMS	2.40	lb	\$0.90	\$2.16
				\$0.00
				\$0.00
Custom & Consultants:				
Custom Fertilize	1	ac	\$7.50	\$7.50
Consultant	1	ac	\$16.00	\$16.00
				\$0.00
				\$0.00
				\$0.00
Irrigation:				
Water Assessment	1	ac	\$38.20	\$38.20
Irrigation Power-CP	33	acin	\$1.48	\$48.84
Irrigation Repairs-CP	33	acin	\$0.58	\$19.14
Machinery:				
Fuel - Gas	2.92	gal	\$3.60	\$10.51
Fuel - Diesel	28.46	gal	\$3.75	\$106.73
Lube	1	ac	\$17.58	\$17.58
Machinery Repairs	1	ac	\$44.85	\$44.85
Labor:				
Labor (machine)	6.04	hrs	\$14.95	\$90.30
Labor (irrigation - cp)	1.65	hrs	\$10.20	\$16.83
Labor (other)	1.3	hrs	\$8.70	\$11.31
Other:				
Crop Insurance	1	ac	\$39.00	\$39.00
Hauling Charge	32	ton	\$1.05	\$33.60
Storage:				
Operating Costs				\$0.00
Repairs				\$0.00
Operating Interest @ 7.0%				\$30.10
Total Operating Costs				\$945.92
Operating Costs per Unit				\$29.56
Net Returns Above Operating Expenses				\$334.08

Appendix B-1. 2008 Roundup Ready Sugarbeets, Southcentral Idaho.

Item	Quantity Per Acre	Unit	Price or Cost	Value or Cost/Acre
<u>Ownership Costs:</u>				
Tractors & Equipment Insurance				\$4.61
Tractors & Equipment Depreciation & Interest				\$178.57
Irrigation Equipment Depreciation & Interest				
Land *				\$300.00
Co-op Stock				\$25.00
Overhead				\$22.00
Management Fee				\$60.00
Total Ownership Costs				\$590.18
Ownership Costs per Unit				\$18.44
Total Costs per Acre				\$1,536.11
Total Cost per Unit				\$48.00
Returns to Risk				-\$256.11

Notes:

* Includes irrigation system ownership costs.

Breakeven Analysis:

	- 5%	Base Yield	+ 10%
<u>Price</u>	30.4	32	35.2
Operating Cost Breakeven	\$31.12	\$29.56	\$26.87
Ownership Cost Breakeven	\$19.41	\$18.44	\$16.77
Total Cost Breakeven	\$50.53	\$48.00	\$43.64
		<u>Price</u>	
<u>Yield</u>	\$38.00	\$40.00	\$44.00
Operating Cost Breakeven	24.9	23.6	21.5
Ownership Cost Breakeven	15.5	14.8	13.4
Total Cost Breakeven	40.4	38.4	34.9

Table C-1. Southwestern Idaho crop prices used in the analysis.

12/16/2008

	<u>2008</u>	Projected <u>2009</u>
Sugarbeets	\$40.00	\$45.00
Potatoes: In-weight	\$5.95	\$8.00
Potatoes: Storage	\$6.75	\$9.00
Dry Beans	\$36.00	\$30.00
Corn Silage	\$38.00	\$36.00
Field Corn	\$6.50	\$5.50
Feed Barley	\$10.00	\$6.50
Malting Barley	\$16.00	\$12.50
Wheat: Hard Red Spring	\$9.50	\$6.00
Wheat: Soft White	\$8.00	\$5.25
Alfalfa Hay	\$162.00	\$152.00

Potato prices are pre-season contract prices for process potatoes, not fresh market.

Note: Alfalfa hay is a blended price, based on 30% feeder quality and 70% dairy quality.

	<u>2008</u>	<u>2009</u>
Dairy Quality	\$180	\$170
Feeder Quality	\$120	\$110
	\$162	\$152

Prices shown here are linked to the gross margin and breakeven sheets, but not to the individual crop budgets. Prices in the crop budgets can be changed without impacting the crop comparisons.

Table C-2. Southwestern Idaho: Treasure Valley. Gross margins summary and return to land, irrigation system, overhead & management by crop.

Crop prices are for 2008.

	RUR Sugarbeets	Potatoes: In- Weight	Potatoes: Storage	Dry Beans	Corn Silage	Field Corn	Feed Barley	Wheat: SWS	Wheat: SWW	Alfalfa Hay
	ton	cwt	cwt	cwt	ton	bu	cwt	bu	bu	ton
Yield	38	505	505	22	30	180	62	110	125	7.5
Price	\$40.00	\$5.95	\$6.75	\$36.00	\$38.00	\$6.50	\$10.00	\$8.00	\$8.00	\$162
Gross Revenue	\$1,520	\$3,005	\$3,409	\$792	\$1,140	\$1,170	\$620	\$880	\$1,000	\$1,215
Total Operating Expenses	\$1,324	\$2,398	\$2,566	\$388	\$908	\$734	\$447	\$451	\$458	\$585
Gross Margin	\$196	\$606	\$843	\$404	\$232	\$436	\$173	\$429	\$542	\$630
Equipment Ownership Costs	\$218	\$355	\$515	\$93	\$75	\$77	\$57	\$56	\$53	\$20
Net: Return to Land, Irrigation System, Overhead & Management	-\$22	\$251	\$328	\$311	\$157	\$359	\$116	\$373	\$489	\$610

Note: Values are linked to other spreadsheets in this file. Changes must be made to the individual spreadsheets, not to this summary sheet, which is locked. Commodity prices should be changed in the prices sheet (tab) and expenses should be changed in the individual crop worksheets.

Operating and equipment ownership expenses are from 2008.

Ownership costs for most crops (except sugarbeets & potatoes) are low because all harvesting is done by a custom operator.

12/30/2008

Table C-3. Southwestern Idaho: Treasure Valley. Gross margins summary and return to land, irrigation system, overhead & management by crop.

Crop prices are for 2009.

	RUR Sugarbeets	Potatoes: In- Weight	Potatoes: Storage	Dry Beans	Corn Silage	Field Corn	Feed Barley	Wheat: SWS	Wheat: SWW	Alfalfa Hay
	ton	cwt	cwt	cwt	ton	bu	cwt	bu	bu	ton
Yield	38	505	505	22	30	180	62	110	125	7.5
Price	\$45.00	\$8.00	\$9.00	\$30.00	\$36.00	\$5.50	\$6.50	\$5.25	\$5.25	\$152
Gross Revenue	\$1,710	\$4,040	\$4,545	\$660	\$1,080	\$990	\$403	\$578	\$656	\$1,140
Total Operating Expenses	\$1,324	\$2,398	\$2,566	\$388	\$908	\$734	\$447	\$451	\$458	\$585
Gross Margin	\$386	\$1,642	\$1,979	\$272	\$172	\$256	-\$44	\$126	\$198	\$555
Equipment Ownership Costs	\$218	\$355	\$515	\$93	\$75	\$77	\$57	\$56	\$53	\$20
Net: Return to Land, Irrigation System, Overhead & Management	\$168	\$1,286	\$1,464	\$179	\$97	\$179	-\$101	\$71	\$145	\$535

Note: Values are linked to other spreadsheets in this file. Changes must be made to the individual spreadsheets, not to this summary sheet, which is locked. Commodity prices should be changed in the prices sheet (tab) and expenses should be changed in the individual crop worksheets.

Operating and equipment ownership expenses are from 2008.

Ownership costs for most crops (except sugarbeets & potatoes) are low because all harvesting is done by a custom operator.

12/30/2008

Table C-4. Prices for alternative commodities needed to equal the 2009 projected net to sugarbeets of \$323 per acre for Southwestern Idaho, based on \$45 per ton sugarbeets.

Sensitivity analysis: Southcentral Idaho	RUR Sugarbeets	Potatoes: In-Weight	Potatoes: Storage	Dry Beans	Corn Silage	Field Corn	Feed Barley	Wheat: SWS	Wheat: SWW	Alfalfa Hay
Yield	38	505	505	22	30	180	62	110	125	7.5
Price	\$45	\$8.00	\$9.00	\$30.00	\$36.00	\$5.50	\$6.50	\$5.25	\$5.25	\$152
Gross Margin	\$1,710	\$4,040	\$4,545	\$660	\$1,080	\$990	\$403	\$578	\$656	\$1,140
Op Expense + Mach. Own. Costs	\$1,542	\$2,754	\$3,081	\$481	\$983	\$811	\$504	\$507	\$511	\$605
Net Return to Land, Irrigation System, Overhead and Mngt.	\$168									
Price Required to Equal Sugarbeet Net Return to Land, etc., Given the Yield, Price and Expenses Shown Above.		\$5.78	\$6.43	\$29.51	\$38.36	\$5.44	\$10.83	\$6.13	\$5.43	\$103

Analysis is based on 2008 operating and machinery ownership expenses and the crop yields shown above.

Note: The yield, price and expense values shown above are linked to Gross Margin - 2009 Sheet. Do not make changes directly to this sheet. Make changes in the Prices sheet or the individual crop budget sheets, which will change the Gross Margin - 2009 sheet and this one as well.

12/30/2008

Table C-5. Prices required to achieve the same net return to land, irrigation system, overhead and management as sugarbeets at different sugarbeet prices. Southwestern Idaho.

	Sugarbeet Price					
	<u>\$45</u>	<u>\$44</u>	<u>\$43</u>	<u>\$42</u>	<u>\$41</u>	<u>\$40</u>
<u>Crops</u>						
Potatoes: In-weight	\$5.78	\$5.71	\$5.63	\$5.56	\$5.48	\$5.41
Potatoes: Storage	\$6.43	\$6.36	\$6.28	\$6.21	\$6.13	\$6.06
Dry Beans	\$29.51	\$27.78	\$26.05	\$24.32	\$22.60	\$20.87
Corn Silage	\$38.36	\$37.10	\$35.83	\$34.56	\$33.30	\$32.03
Field Corn	\$5.44	\$5.23	\$5.02	\$4.80	\$4.59	\$4.38
Feed Barley	\$10.83	\$10.22	\$9.61	\$9.00	\$8.38	\$7.77
Wheat: SWS	\$6.13	\$5.79	\$5.44	\$5.10	\$4.75	\$4.41
Wheat: SWW	\$5.43	\$5.13	\$4.82	\$4.52	\$4.22	\$3.91
Alfalfa Hay	\$103	\$98	\$93	\$88	\$83	\$78

Note: values used in this calculation are from Table 4. The only price that varies is that of sugarbeets. If prices are below the values shown, the grower is better off growing sugarbeets at the price specified. These values are not linked to other sheets and will not automatically recalculate.

1/8/2008

Appendix C-1. 2008 Irrigated Sugarbeets, Southwestern Idaho.

Item	Quantity Per Acre	Unit	Price or Cost	Value or Cost/Acre
Gross Returns				
RUR Sugarbeets	38	ton	\$40.00	\$1,520.00
Operating Inputs				
Seed:				\$90.58
RUR Beet Seed: Raw	0.45	unit	\$100.00	\$45.00
Technology Fee	0.43	unit	\$106.00	\$45.58
Fertilizer:				\$217.90
Dry Nitrogen	100	lb	\$0.82	\$82.00
Liquid Nitrogen	35	lb	\$0.84	\$29.40
Dry P2O5	50	lb	\$0.83	\$41.50
K2O	100	lb	\$0.57	\$57.00
Micronutrients	1	ac	\$8.00	\$8.00
Pesticides:				\$381.11
Telone II	20	gal	\$11.95	\$239.00
Temik 15G	15	lb	\$3.45	\$51.75
Roundup Original Max	54	oz	\$0.52	\$28.08
AMS	2.40	lb	\$0.90	\$2.16
Eptam 7EC	3.70	pints	\$4.45	\$16.47
Treflan 4HFP	1	pints	\$2.75	\$2.75
Tilt	4	oz	\$2.35	\$9.40
Gem 25WG	6	oz	\$5.25	\$31.50
Custom & Consultants:				\$103.00
Custom Fertilize	1	ac	\$8.50	\$8.50
Custom Fumigate - Deep	1	ac	\$36.00	\$36.00
Consultant	1	ac	\$16.00	\$16.00
Custom Air Spray - 5G	1	ac	\$8.50	\$8.50
Custom Sidedress	2	ac	\$17.00	\$34.00
Irrigation:				\$43.35
Water Assessment	1	ac	\$40.60	\$40.60
Irrigation Repairs - CD*	1	ac	\$2.75	\$2.75
Machinery:				\$203.84
Fuel - Gas	2.5	gal	\$3.65	\$9.13
Fuel - Diesel	30.92	gal	\$3.80	\$117.50
Lube	1	ac	\$18.99	\$18.99
Machinery Repairs	1	ac	\$58.23	\$58.23
Labor:				\$196.25
Labor (machine)	8.55	hr	\$14.95	\$127.82
Labor (irrigation - cd)	5.6	hr	\$10.20	\$57.12
Labor (other)	1.3	hr	\$8.70	\$11.31
Storage:				\$0.00
				\$0.00
Other:				\$24.00
Crop Insurance	1	ac	\$24.00	\$24.00
				\$0.00
Operating Interest @ 7.0%				\$64.29
Total Operating Costs				\$1,324.32
Operating Costs per Unit				\$34.85
Net Returns Above Operating Expenses				\$195.68

Appendix C-1. 2008 Irrigated Sugarbeets, Southwestern Idaho.

Item	Quantity Per Acre	Unit	Price or Cost	Value or Cost/Acre
Ownership Costs:				
Tractors & Equipment Insurance				\$5.39
Tractors & Equipment Depreciation & Interest				\$212.46
Irrigation Equipment Depreciation & Interest				
Land **				\$250.00
Co-op Stock				\$12.50
Overhead				\$30.00
Management Fee				\$65.00
Total Ownership Costs				\$575.35
Ownership Costs per Unit				\$15.14
Total Costs per Acre				\$1,899.67
Total Cost per Unit				\$49.99
Returns to Risk				-\$379.67

Notes:

* Includes irrigation system ownership costs.

Breakeven Analysis:

	-	Base	+
	10%	Yield	10%
<u>Price</u>	34.2	38	41.8
Operating Cost Breakeven	\$38.72	\$34.85	\$31.68
Ownership Cost Breakeven	\$16.82	\$15.14	\$13.76
Total Cost Breakeven	\$55.55	\$49.99	\$45.45
		<u>Price</u>	
<u>Yield</u>	\$36.00	\$40.00	\$44.00
Operating Cost Breakeven	36.8	33.1	30.1
Ownership Cost Breakeven	16.0	14.4	13.1
Total Cost Breakeven	52.8	47.5	43.2