



**Sugarbeets Contribution to the Idaho Economy**

by

Neil Meyer and Marisa C. Guaderrama  
Agricultural Economics and Rural Sociology Department  
and

John J. Gallian, Department of Plant, Soil, and Entomological Sciences

All from the University of Idaho Cooperative Extension System

A. E. Extension Series No. 02-08

June 2002

*Departmental Working Paper Series*

**Department of Agricultural Economics  
and Rural Sociology**

College of Agricultural and Life Sciences

University of Idaho

Moscow, Idaho 83844-2334

Thanks to University of Idaho Cooperative Extension Critical Needs  
Fund for financing this work.

# **Sugarbeets Economic and Fiscal Contribution to the Idaho Economy<sup>1</sup>**

by

Neil Meyer and Marisa C. Guaderrama

Agricultural Economics and Rural Sociology Dept.

and

John J. Gallian, Dept. of Plant, Soil and Entomological Sciences

All from the University of Idaho Cooperative Extension System

## **Introduction**

Sugar beets have been grown in Idaho since 1903. It is an important cash crop in all irrigated areas of the Snake River Valley. In 2000, sugar beets generated a gross farm income of approximately \$241 million, or slightly more than 7% of gross farm receipts in Idaho. An additional \$161 million was generated by processing to refined sugar and by-products from the beets.

If the current sugar policy were unilaterally dismantled and other countries which subsidize the production of sugar did not lower their support levels, the sugar beet industry in Idaho would most likely not survive. This is because all major sugar producing countries help their producers and put excess production on the world market causing considerable world price fluctuation. This discussion addresses the contribution of the sugar beet production to Idaho's economy. It also looks at potential price changes of other crops that could replace sugar beets in Idaho.

This years production allocation, 2001, does not represent what would be considered normal because of the 2001 power buyout to save both water and power. However the power buyout did serve to emphasize the linkages between production agriculture and rural communities.

Opponents of the sugar provision of the farm bill argue that the U.S. should not have a sugar program that benefits only a handful of growers at the expense of all consumers. This argument ignores complex relationships in agriculture and rural communities. Loss of the sugar industry would be a severe blow to farmers, communities where processing occurs and to Idaho, in general, due to loss of employment, income and a reduction in tax revenue. In addition, loss of the sugar industry would severely impact growers of other crops as land is used to produce other crops.

## **Scenarios for Sugar Situation**

The effect of not planting sugar on other crops of Idaho agriculture is difficult to predict. There are several possible situations to be examined. First, lets look at the situation for each of the commodities that can potentially be produced on current sugar production area.

**Wheat:** Wheat in recent years has been heavily supported outside the market. If the price goes too low, various government programs such as Market Loss Assistance (MLA), Loan Deficiency Payment (LDP) and the Production Flexibility Payment (PFP) support prices. Also the operating

---

<sup>1</sup> Economic refers to business and employment activity and fiscal refers to contributions to local and state revenue.

costs to plant and grow wheat is considerably less which is important for producers with limited cash and credit availability. Price was assumed to not be effected by changed supply because it is a commodity with a world market and government supports.

**Barley:** All the factors that apply to wheat also apply to barley. In addition the potential for additional malt barley production was assumed not to exist because of limited malting capacity. Barley competes as a feed grain in a world market therefore production increases in Idaho will not effect the price.

**Potatoes:** Potatoes require significant operating costs, greater than sugar beets, to produce. Production also requires specialized equipment. As a result, for this analysis, it is assumed that only current potato producers would expand production. Many would be limited in expansion by cash flow, rotations and equipment. The demand price elasticity is assumed to be 0.2, which means for each 1% increase in supply, the price declines 5%. Two scenarios are described. First, with Idaho being part of a national market, the price change resulting from supply increases affects all potatoes. In this case, the proportional increased supply would be smaller and the effect on overall price would be less. In the second case of a local Idaho market, the proportional change in supply would be greater therefore the price depressing effects of increased supply would be greater.

**Dry Beans:** Dry beans are part of a world supply. The increase in beans would not be large enough to affect world prices. Therefore prices of dry beans were assumed to be unchanged with the increased production. In the 2001 production year, Idaho production was down mainly because of reduced acreage. Producers used their limited water supplies to grow higher value crops.

**Corn Grain:** Corn grain is a feed grain and part of a world supply of feed grains. The increases resulting from more acres in Idaho would not affect world prices. Grains would be consumed locally by the livestock industry. Idaho is feed grain deficit. That means we use more feed grains than we produce. Therefore prices are unchanged for this analysis.

**Corn Silage:** Corn silage must be grown near where it will be used because of bulkiness in transport. It is always a local market. Loss of sugar beets would permit more land to be available for silage production. The question is "are their enough users in the area who are willing to expand use? For this analysis we assumed there are a limited number and the price paid would be unchanged. In 2001, with limited water and forage availability, there could be strong local demand for forage. However it is unpredictable and local, therefore we are assuming no price premium.

**Onions:** Onions are a small market, which is strongly influenced by changes in supply or demand. We assumed a price decrease of \$2.25/cwt for the increased acreage. The assumption was made after discussion with the Growers Association staff.

**Alfalfa Hay:** Recent growth in the dairy industry has opened the demand for high quality local hay. We assumed that local demand would purchase local hay production at current prices. In 2001, this demand was further strengthened by growth in the dairy industry. Limited water

availability increased quality hay prices. It was not a normal situation. Normally, a 1% increase in hay supply results in a .02% decline in prices (Parish,2000). This is the relationship assumed for the analysis.

In the following table, eight crops are considered that comprise nearly two-thirds of the 3,057,436 acres of irrigated crop acres in Idaho. All are commonly grown in the rotation with sugarbeets. These are wheat, barley, potatoes, dry beans, corn grain, corn silage, and onions. Table 1 identifies the total Idaho acreage, production and value in 1998. Sugarbeets were harvested from about 203,000 acres. The average gross income per acre from all of these crops was \$416.

**Table 1.** Acres harvested, total production and total value for selected crops in Idaho, 1998.

	<b>Acres Harvested</b>	<b>Total Production 1,000</b>	<b>Units</b>	<b>Total Value<sup>2</sup> \$</b>
Wheat	1,280,000	102,410	Bu.	220,952,000
Barley	760,000	59,280	Cwt.	139,308,000
Potatoes	413,000	139,650	Cwt.	544,635,000
Sugar beets	203,000	5,501	Ton	199,662,000
Dry Beans	103,000	2,112	Cwt.	37,594,000
Corn Grain	52,000	78,000	Bu.	19,500,000
Corn Silage	90,000	2,295	Ton	49,733,000
Onions	8,000	4,640	Cwt.	52,390,000
Alfalfa	1,130,000	4,859	Ton	415,445,000
Total	4,039,000	398,747		1,679,219,000
Total/Acre				416

The estimated increase in acres of eight other crops if sugarbeets were not grown are shown in Table 2. The acreage previously in beets would be distributed among other crops. Because beets are grown on the most productive land, essentially all of the land taken from beets would be

<sup>2</sup>Production value for sugarbeets and corn silage were estimated, they were not available from Idaho Ag. Statistics.

planted to crops such as potatoes, beans, grain, forages and onions. The differential effects, assuming national or local/regional markets, are shown in Table 3.

**Table 2.** Estimated acreage increase of selected crops without sugarbeets based on 1998 harvested acres reported by the Idaho Statistics Service, Boise.

	Acres Harvested in 1998	Change in Acres	Estimated Acres Harvested (No Beets)
Wheat	1,280,000	44,282	1,324,282
Barley	760,000	10,000	770,000
Potatoes	413,000	37,667	450,667
Sugarbeets	203,000	-203,000	0
Drumstick	103,000	10,000	113,000
Corn	52,000	20,000	72,000
Corn Silage	90,000	10,000	100,000
Onions	8,000	3,384	11,384
Alfalfa	1,130,000	67,667	1,197,667
Total	4,039,000	0	4,039,000

The estimated change in price received for these selected crops based on the acreage increase are given in Table 4. Because of increased production, price declines are anticipated for potatoes and onions based on previously published price elasticity of demand. Wheat and barley prices were not changed because they are more affected by the national markets and acreage changes in Idaho would exert only a small influence.

**Table 3.** Changes in potato and onion production due to sugarbeet production changes.

Potatoes	Onions	Action Description
12,731,446	1,952,720	cwt with increased acreage
150,731,446	6,602,720	cwt grown in ID w/increase
138,000,000	4,640,000	cwt grown in ID w/o increase
9%	30%	percent change in ID
\$2.55	\$2.25	price with increase in production
488,502,446	NA	cwt produced nationally w/increase
475,771,000	NA	cwt produced nationally w/o increase
3%	NA	percent change nationally
\$3.94	NA	price with increase in production

**Table 4.** Estimated change in prices received for selected crops due to acreage increase from loss of sugar beets.

	Units	1998 % of U.S. Production	Ten Year Average Idaho Price	National Est. Price No Sugar beets	National Estimated Price Change	Idaho Est. Price No Sugar beets	Idaho Estimated Price Change
Wheat	Bu.	4	\$ 3.33	\$ 3.33	\$ -	\$ 3.33	\$ -
Barley	Cwt.	17	5.36	5.36	-	5.36	-
Potatoes	Cwt.	29	4.63	3.94	-0.69	2.55	2.08
Sugar beets	Ton	17	40.53	40.53	-	40.53	-
Dry Beans	Cwt.	7	19.72	19.72	-	19.72	-
Corn Grain	Bu.	NA	2.85	2.85	-	2.85	-
Corn Silage	Ton	NA	21.67	21.67	-	21.67	-
Onions	Cwt.	13	4.50	4.50	-	2.25	2.25
Alfalfa	Ton	6	78.00	78.00	-	77.22	-

Table 5 again gives the estimated acres of these crops without sugar beets, plus the estimated total production and three scenarios for estimated total value. "Total Value I" shows gross return to various crops assuming no price declines, 1998 average prices and average per acre production. Note that average gross returns per acre change from \$416 (Table 1) with sugar beets, to \$472 (Table 5) without.

The second scenario is shown in "Total Value II" of Table 5. Here the price declines using a 3% increase in national production of potatoes given in Table 3. Gross farm income per acre increases from the \$416 with beets to \$446 without beets and using national and Idaho prices. It is a 6.7 percent increase. This scenario assumes that all potatoes are for fresh use and will be in a national market. The increase is because gross revenue per acre for potatoes exceeds that of sugar beets.

The third scenario in Table 5 "Total Value III", which is the most likely scenario, assumes the increase in potatoes and onions are all used in the local market for processing. This scenario shows a greater impact on Idaho's agricultural commodities. Gross farm income per acre decreases from \$471 with beets to \$397 without beets, for a 14.8 percent decrease.

**Table 5.** Estimated acres harvested, total production and total value for selected crops in Idaho without sugarbeets.

	Acres Harvested	Yields per Acre	Units	Total Production	Total Value I (no change) \$	Total Value II (no change) \$	Total Value III (local) \$
Wheat	1,324,282	80	Bu.	105,942,560	352,788,725	352,788,725	352,788,725
Barley	770,000	78	Cwt.	60,060,000	321,921,600	321,921,600	321,921,600
Potatoes	450,667	338	Cwt.	152,325,446	705,266,815	600,162,257	388,429,887
Sugarbeets	0	27	Ton	-	-	-	-
Dry Beans	113,000	21	Cwt.	2,316,500	45,681,380	45,681,380	45,681,380
Corn Grain	72,000	150	Bu.	10,800,000	30,780,000	30,780,000	30,780,000
Corn Silage	100,000	26	Ton	2,550,000	55,258,500	55,258,500	55,258,500
Onions	11,384	580	Cwt.	6,602,720	29,712,240	29,712,240	14,856,120
Alfalfa	1,197,667	4	Ton	5,129,668	400,114,104	400,114,104	396,112,963
Total	4,039.00				1,900,423,36	1,836,418,806	1,605,829,17
Total/Acre					471	455	397

To point out the relationship among crops nationwide, a simplified, conservative example using potatoes is given in Table 6. Assuming that the sugarbeet industry is lost only in Idaho and the nationwide potato price decline is a result of the estimated 37,667 potato acreage increase in Idaho alone, there would be a significant reduction in cash receipts to potato growers in other states where potatoes are grown. The losses in the nine top potato producing states range from \$175.3 million in Washington to \$25.6 million in Colorado.



**Table 6.** Estimated reduction in cash receipts to potato growers in states other than Idaho with loss of the Idaho sugarbeet industry.

	Production Cwt. (1,000)	Estimated Loss (\$Mil.)
Washington	93,225	175.3
Wisconsin	30,895	58.1
North Dakota	28,670	53.9
California	27,985	52.6
Oregon	26,229	49.3
Minnesota	21,170	39.8
Maine	18,060	34.0
Michigan	14,648	27.5
Colorado	13,612	25.6

If the sugarbeet industry were to fail due to a change in national policy, it is unlikely that such failure would only occur in Idaho. The estimates in Table 5, therefore, are probably very low compared with the market depression that would result from a nationwide loss of the industry.

The top five sugarbeet producing states in the U.S. comprise 79% of the total acreage. These same five states have 50% of the U.S. potato acreage and 72% of the dry bean acreage. Loss of sugarbeets could result in significant price effects on potatoes in sugarbeet producing states, and a destabilization of all U.S. agriculture for many years.

### **Economic implications for Idaho of the loss of the Sugar Beet Industry**

When the local economy loses the production of a high value crop such as sugar beets, effects are felt in a number of areas of the economy. The backward linked industries (suppliers of the resources needed to produce sugar beets) may be able to adapt to supplying other types of production. Less intensive production requires fewer resources and results in lower business volumes. That would mean fewer employees. The forward linked industries (those handling the product after it leaves the farm) are particularly important in the case of sugar beets. This includes the manufacture of sugar from beets. In this case, the 2,300 jobs paying over \$20,000 annually would be at risk. In addition to production, manufacturing, and marketing of sugar and other products, there is the processing, storage, and shipping of the manufactured product. These jobs provide additional purchasing power to the local economy which fuels local and regional retail trade. These employees also contribute to the states overall revenues. There are direct income taxes, sales taxes paid on purchases, property taxes paid and contributions to workman's compensation fund. In a study by Meyer et al. called the "Idaho Fiscal Project," the authors analyzed the links between economic activity in both urban (Ada and Canyon Counties) and rural (all other Idaho Counties) and the effects on tax revenue for Idaho. In that study, they found 59% of the total output was produced in the rural counties and 41% in the urban counties. Every dollar increase in final demand, (i.e. sugar manufacturing) leads to a \$3.50 increase in output for Idaho. In a fiscal sense, a one dollar increase in rural food manufactured exports

created 11.3 cents in taxes in the rural region and 1.0 cents in the urban region; for a total of 13.2 cents (these included all taxes, property taxes, sales taxes, corporate taxes, and state income taxes).

Looking at the value of processed sugar (\$503,594,242), and assuming all is exported from Idaho, we see that the multiplier is 3.5 for economic activity in rural Idaho. If we assume that 20% is in Oregon, then the Idaho contribution is \$402,875,394. That means each dollar of product exported from Idaho stimulates a total of \$3.50 economic activity (the \$1 of sugar export plus through linkages \$2.50 to other parts of Idaho's economy). The total economic activity resulting from sugar beet growing and processing is \$1,410,063,879.

A second important factor is the fiscal effects. One dollar increase in processed sugar exports creates 13.2 cents in state tax revenue. In this example that would be \$53,179,552 to tax revenue. Of that, 11.3 cents per dollar export or \$45,524,919 will be generated in rural Idaho and 1.9 cents or 7,654,632 will be generated in urban Idaho. The important point here is that rural economic activity generates economic activity and tax revenues in both rural and urban Idaho. All areas would be effected by the loss of the industry. The level of effect would be determined by what replaced the lost sugar production and processing.

In studying local economies, the direct impact or effect is the sale of manufactured sugar to a market outside the local area. That brings dollars, the fuel for the local economy, which permits it to run the linkages.

#### References

Gallian, John J., and Russel V. Withers. 1988. *Sugarbeets and the Idaho Economy*. University of Idaho, Moscow.

IASS, IDA. 2000. *1999 Idaho Agricultural Statistics*. Idaho Agricultural Statistics Service, Boise.

Agricultural Statistics Board, NASS. 2000. *Crop Production 1999 Summary*. United States Department of Agriculture.

Meyer, N.L., G.Taylor, S. Peterson and M.C.Guaderrama, *IDAHO FISCAL PROJECT*, AEE Series 99-12, Department of Agricultural Economics, University of Idaho, November 2, 1999.

Meyer, N.L., M. Guaderrama, and J. Gallian, 2000, *Sugarbeets and the Idaho Economy*, Department of Ag Economics, University of Idaho, Moscow.

Parish, T., *Price Analysis Idaho Alfalfa Hay*, Department of Agricultural Economics and Rural Sociology, University of Idaho, Moscow, April, 2000.