



A SEASON OF SUGAR BEETS

FINANCIAL ACTIVITY



INTRO TO THE INDUSTRY

"Great food starts with great ingredients," right? Well, it actually begins with something much more complex. Great food, in reality, starts with a business who is successful in producing a quality product. And in the case of Canadian-grown sugar, this ingredient starts with the individual businesses of 200 Southern Alberta farm families.

These growers are responsible for providing 28,000 acres (840,000+ tonnes) of sugar beets to Canada's last beet refinery, the Rogers factory in Taber. Here, this white, tear-shaped root will be turned into granulated sugar, icing sugar, molasses, and beet pulp. The sugar produced (125,000+ tonnes) is the only source of 100% Canadian sugar, accounting for 8-10% of our country's market share. The other 90% is imported cane sugar.

However, despite Alberta having a smaller market share, the province's sugar beet industry is proud to provide over 2000 jobs, \$50 million in labor income, and nearly \$250 million in economic contribution.

And while these numbers are massively impressive, they may not be much of a surprise to our farmers. Sugar beets have been known to be a 'cash crop,' that can often see higher gains than other commodities. But with high reward also comes high risk. The following activities will put you in the place of an Alberta sugar beet farmer, looking at the expenses, profitability, and factors affecting the success of your farming business.



ACTIVITY 1 - CALCULATING PROFIT:

The following list shows the basic expenses and expected income from a growing season. Use this information to answer the following questions on the next page.

ACTIVITY REPORTS:

Expenses	Cost/Irrigated Acre (sugar beets)
Seed	\$200
Fertilizer	\$150
Roundup	\$30
Irrigation maintenance	\$35
Crop insurance	\$20
Machinery – seeding	\$15
Machinery – Discing	\$15 x 3 times
Machinery – Defoliating	\$20
Machinery – Digging	\$35
Trucking	\$3.5/MT (Self Trucking) \$6/MT (Custom Hauling)
Harvest Labor	\$23/hr, General worker \$30/hr, Experienced worker

Expenses - Owning vs Renting	Cost/Acre
Rent	\$325
Water rights (Owning only)	\$29
Taxes (Owning only)	\$10

Income	
Average Yield	31 Metric Tonnes (MT)/ Acre
Price	\$52.50 / adjusted MT

ADDITIONAL INFORMATION:

Cost/Irrigated Acres: One quarter section of land is made up of 160 acres. However, only 130 acres are irrigated.

Trucking: Two trucking expenses occur every harvest season. First, the beets are trucked from the field to the beet dump. Afterwards, the beets are trucked from the beet dump to the refinery. Each move incurs its own cost/MT (Metric Tonne).

Harvest Labor: An average harvest season will require four workers to put in 90 hours of labor each. An experienced seasonal worker will likely earn \$30/hour while unexperienced labor will average \$23/hour.

Price (Adjusted MT): Sugar beet farmers are paid by the beet processor. However, rather than just being paid by the metric tonnes (MT) that they deliver, a formula is used that 'adjusts' their tonnage based on the extractable sugar content of the beet. This means that two farmers could deliver the same amount/weight of beets, but if one farmer's beets test with a higher sugar content, their tonnage will be adjusted up and they will receive a higher paycheck.

QUESTIONS:

*Use self-trucking and general worker costs.

1) How much you will **gross** and **net** at the end of the year if you rent the land?

2A) The land comes for sale and you purchase it at \$2,500,000, a fair market value. You pay 5% down. How much will you **net** at the end of year 1?

2B) How much will you net at the end of year 2 if you have a fixed interest rate of 3% and the land is supposed to be paid off evenly over 25 years?

3) What other expenses occur aside of those listed? Ex: personal wages, farm vehicles/ insurance, tools/parts, shop/utilities, equipment payments, work phone, etc. In a small group, create a list of expenses and research costs. Re-calculate Q1 with the additional expenses.

ACTIVITY 2 - RISKS:

While the previous example provided numbers for an 'ideal year,' farming businesses see some of the highest levels of risk, directly impacting their profitability and the farmer's wage. In particular, the USDA outlines five areas risks:

- **Production risk** derives from the uncertain natural growth processes of crops and livestock. Weather, disease, pests, and other factors affect both the quantity and quality of commodities produced.
- **Price or market risk** refers to uncertainty about the prices producers will receive for commodities or the prices they must pay for inputs. The nature of price risk varies significantly from commodity to commodity.
- **Financial risk** results when the farm business borrows money and creates an obligation to repay debt. Rising interest rates, the prospect of loans being called by lenders, and restricted credit availability are also aspects of financial risk.
- **Institutional risk** results from uncertainties surrounding Government actions. Tax laws, regulations for chemical use, rules for animal waste disposal, and the level of price or income support payments are examples of government decisions that can have a major impact on the farm business.
- **Human or personal risk** refers to factors such as problems with human health or personal relationships that can affect the farm business. Accidents, illness, death, and divorce are examples of personal crises that can threaten a farm business.

For each following growing stages, roll a die twice. Associate the numbers you roll with the matching risk. Using your final numbers from Q3, re-calculate your expenses based on the six new situations. Then determine your net profit for the year. If you roll a six, select your own number from the list. The discussion questions below may be answered in a group.

	Stage 1: Field Prep	Stage 2: Seeding	Stage 3: Harvesting
1	Instead of cultivating your land, you decide to plant a cover crop. Eliminate your disking costs, but calculate another pass of seeding and spraying to your expenses.	A windstorm destroys 80 acres of young plants. Replant and calculate your machinery and seed costs. Reduce your final harvest yield by 1 tonne/acre	Muddy conditions from an early snowfall has prolonged harvest. Each worker is now needed for 120 hours. Recalculate your wage expenses.
2	Between a breakdown and wet conditions that prevent field work from being completed, your seeding is set back by two weeks. Reduce your yield by 1 tonne/acre and account for a \$3,500 equipment repair expense.	An equipment breakdown incurs a \$2,000 repair bill.	Halfway through harvest, one of your tandems breaks down. 100 acres of sugar beets, at 31 MT/acre, will now be custom trucked. It cost you \$3,000 to repair your own truck. Recalculate your trucking expenses.
3	Due to supply chain disruptions and shortages, your cost of fertilizer has increased to \$200/acre.	Due to supply chain disruptions and shortages, your cost of Roundup has increased to \$35/acre.	You hire two well-experienced workers. Instead of the usual wage, they make \$30/hour. Recalculate your wage expenses.
4	Land rent has increased to \$340/acre.	Due to increased fuel expenses, your seeding expenses now cost \$17/acre.	Dry conditions have impacted the growth of your crop. Reduce your final yield by 3 tonnes/acre.
5	You purchase a used tractor from a dealership at \$100,000. They offer in-house financing with a 5% interest rate. Your monthly payment is \$1220. Include one year of payment costs in your new expenses.	A hail storm hits all 130 acres in the last week of July, damaging the sugar beets at a 60% defoliation rate. This accounts for a 20% yield loss. However, you receive a \$290/acre crop insurance payout.	At the beginning of the year, the government imposed a 30% reduction in fertilizer. This has had a devastating impact on the growth and viability of your crop. Reduce your final yield by 20%.

1. What risks incurred the largest expense? Who in your group was most/least profitable and why?
2. With the price of land continuing to rise, how feasible is it for farmer's to buy and expand without losing their profit margin? Or for new farmer's to get started?
3. Irrigated land provides higher yields, and as a result, more income. However, a pivot costs \$250,000. Discuss the pros/cons of investing in a pivot versus keeping your land as dry land. (Some crops, especially 'cash crops' such as sugar beets, require irrigation).