



Practical Information for Alberta's Agriculture Industry

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# Commercial Microgreens: Business Concept and Financial Analysis

**M**icrogreens have been seen as a fast-cycle, high value crop option both outside and within the horticulture industry.

As the local culinary industry continues to grow and adapt its menus to more intricate flavors and complex plate design, the demand for products like microgreens increases.

Along with restaurants, the general public is moving towards a healthier lifestyle making the nutritional aspect of microgreens popular among consumers.

But what do the financial numbers really say about microgreen production?

## Microgreens as a business

Outlined in this document is a concept business for microgreen production. Included are comparison scenarios in price setting, revenues based on final product decisions and a general financial forecast.

**DISCLAIMER:** Further research into your own market, start-up costs and operational costs must be conducted on an individual, case-by-case basis. This factsheet is a theoretical document to be used as information and cannot be relied on as your personal business plan.

The concept business set out in this factsheet was able to pay back its initial investment in approximately three years.

## Concept assumptions

At full production (three crop cycles per month), this concept business can produce 960 trays of microgreens per month.

*Microgreens can provide both a healthy alternative and be profitable*

Some assumptions around this concept business:

- growing facility includes a processing area, product storage and office space of at least 2,000 sq.ft (could be a greenhouse, indoor growing facility or hybrid of both)
- year-round production (50 weeks)
- soil-less medium-based production within standard "1020" greenhouse trays
- vertical farming techniques utilizing racks with 4 levels of growing
- 4 trays per level (16 trays per rack)

## Initial investment

The following table provides an example of the potential investment required to start producing microgreens on a commercial scale (Table 1).

**Table 1. Start-up expenses for microgreen production**

Growing Equipment	Cost	Qty.	Total
Growing facility	\$60,000	1	\$60,000
Racks	\$150	20	\$3,000
Lights (8 per rack)	\$120	160	\$19,200
Watering wand	\$30	2	\$60
Misting nozzles	\$20	2	\$40
'1020' growing trays	\$2	2000	\$4,000
Hoses and valves	\$110	2	\$220
Dehumidifiers	\$400	1	\$400
Ventilation fans	\$100	4	\$400
Heating system	\$2,000	1	\$2,000
Seed storage bins	\$12	8	\$96
<b>Processing Equipment</b>			
Harvesting tools	\$40	3	\$120
Harvesting bins	\$12	6	\$72
Washing bins	\$12	3	\$36
Product driers (spinners)	\$100	2	\$200
Work tables	\$150	3	\$450
Sinks	\$300	1	\$300
Scales	\$60	2	\$120
<b>Product Storage</b>			
Fridge	\$300	1	\$300
Walk-in cooler	\$5,000	1	\$5,000
Thermometers	\$30	2	\$60
<b>Office Space</b>			
Desks	\$300	2	\$600
Chairs	\$200	2	\$400
Filing cabinet	\$150	2	\$300
Computers	\$600	2	\$1,200
Office materials	\$200	1	\$200
<b>Delivery</b>			
Coolers	\$50	6	\$300
Thermometers	\$30	7	\$210
Delivery Vehicle	\$10,000	1	\$10,000
<b>Total</b>			<b>\$109,284</b>

## Operating costs

The calculation and proper management of the costs of production should become a regular habit to ensure you are operating a profitable and sustainable business. To determine your product pricing, all costs (fixed and variable) need to be accounted for and your profit goals set.

### Fixed costs

#### (expenses that do not change month to month)

Each business will differ in their fixed costs, but these costs must be accounted for. Because these costs are for overhead or may be indirect costs to production, producers may forget about working them into the final product price.

Here are some examples of fixed costs:

- management and sales salaries
- insurances (liability, property, crop etc.)

- facility or land costs (mortgages, leases, property taxes, etc.)
- repair and maintenance costs
- marketing (examples, website and social media expenses)
- yearly accounting and administrative fees
- debt interest payments

For this concept business, the assumption will be that the Fixed or Overhead costs account for approximately \$6,000/month to produce the products.

**Note:** To ensure covering all the fixed overhead costs in the final product price, a \$6.25 amount was added to the total tray cost within the Cost of Production charts. This figure was calculated by dividing the total monthly fixed costs of \$6,000 by the maximum output of 960 trays per month. This calculation would mean that for each tray produced, \$6.25 would be allotted to cover all overhead costs.

### Variable costs

#### (expenses that change month to month)

These costs are typically influenced by the amount of labour, materials and miscellaneous expenses it takes to produce the product.

Here are some examples of variable costs:

- seed (cost varies by species)
- planting medium
- planting materials (examples, trays, paper towel, labels)
- packaging (examples, plastic bags, clamshells)
- labels
- shipping costs
- marketing (examples, price lists, advertising)
- labour (examples, grower, processor, delivery)
- utilities (heat, water, power)

## Profit goals

#### (margin on top of cost of production)

It is important to set profit goals to be in balance with the local market. Setting goals too high will create a product price that consumers may not be willing to pay. In this scenario, a 30 per cent profit margin was set as the goal.

For further information on setting prices, see the following Alberta Agriculture factsheets:

- Pricing Horticulture Products, Agdex 845-4 ([https://www1.agric.gov.ab.ca/\\$department/deptdocs.nsf/all/agdex918?opendocument](https://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/agdex918?opendocument))

- Essentials of Pricing, Agdex 845-1 ([https://www1.agric.gov.ab.ca/\\$department/deptdocs.nsf/all/agdex1141?opendocument](https://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/agdex1141?opendocument))
- Methods to Price Your Products, Agdex 845-2 ([https://www1.agric.gov.ab.ca/\\$department/deptdocs.nsf/all/agdex1133?opendocument](https://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/agdex1133?opendocument))

## Case scenarios

The four Cost of Production charts appearing on pages 5 through 8 will show a general breakdown of costs among 10 different crops. The charts will also compare revenues generated from the same facility, but with a change in how the final products are packaged and sold.

Cost of Production charts (on pages 5 to 8)

- Chart 1. Living microgreens as full trays
- Chart 2. Increased pricing on full tray microgreens
- Chart 3. Harvested microgreens in 60 g and 30 g clamshells
- Chart 4. Increased pricing on harvested microgreens

## Case scenario analysis

The productivity factor within the charts reflects the importance of accounting for lost products due to crop failure, damaged products, low sales and so forth.

### Pricing

Shown in Chart 1 is a profit margin goal of 30 per cent on top of the cost of production. However, the chart also reflects a price set too low, resulting in not meeting the profit goals with some varieties and even taking a loss on others.

Chart 2 highlights a price increase from \$25 per tray to \$30 per tray. The suggested sales price is based on the profit goal; however, the final sales price should be based on the local market and competitor research. With the price increase, all costs are covered and the majority of profit goals are being met or close to.

Using broccoli microgreens as an example, take note of the difference in revenue with only a \$5 adjustment. In Chart 1, broccoli microgreens were only generating \$6,297.60 in annual profit. But with a \$5 increase in the sale price, the broccoli microgreens are now generating almost double that amount (\$12,057.60) in annual profits.

Be aware of the effect that pricing has on the profits of your business, but be sure your markets will accept that pricing.

### Final product difference

Chart 3 and 4 focus on harvesting the microgreens and packaging them into smaller containers for sale. These charts highlight the additional costs of production, but also prove that changing the form the product in is sold in may drastically affect the business profitability.

Broccoli microgreens sold as a tray have an annual profit of \$12,057.60 (Chart 2). However, when harvested and sold in 60 g packages, the annual profit for this microgreen increases to \$14,361.60 (Chart 3). This result is positive, but the sale price may potentially be lower than the market would allow.

Further market research shows that consumers would allow for an increase of \$2 to the sale cost for the microgreens (Chart 4). At \$10 a package, the broccoli microgreens now earn an annual profit of \$25,881.60.

Utilizing the exact same growing facility, but adjusting the price and final product form can change annual profits from \$6,297.60 to \$25,881.60 with just one variety of microgreen.

Using the same four charts, compare the basil variety of microgreens. Often, the seed cost of basil is higher than most other varieties, but notice how the labour cost is much greater than all other varieties. This additional cost is mainly due to the extended crop cycle, nearly double that of other microgreens. Basil is also a very tender plant and requires careful handling and extra time during the harvesting and packaging processes.

With these extra costs, it may not be worthwhile to produce a crop of basil microgreens unless the crop assists in generating increased sales of other, more profitable varieties. Even with proper pricing to cover costs, Chart 2 proves that it is best to sell basil as a full tray, and the producer would still lose -\$9,323.52 each year. It may be that basil would be a better high value crop produced to full maturity instead of as a microgreen.

## Financial forecast

To conclude this concept microgreen business, a very simple financial outline with a strong focus on paying off all initial investment debts is provided below (Table 2).

In this ideal concept (which ignores the effect of working capital changes and inflation for the purposes of keeping things simple), the two staff of this business would each make their annual salaries as well as share the profits of \$79,813.02 after the first year.

In this scenario, during the fourth year in business, the business would be debt free, with the staff making their full salaries as well as sharing the full profits of \$127,813.02 generated throughout that year.

Although the above is an ideal concept assuming sales of market value products and a high productivity factor from the very start, it should still highlight the importance of proper planning, market research and cost of production management.

**Table 2. Financial outline for concept microgreen operation**

	Year 1	Year 2	Year 3	Year 4
2 staff full time @ \$20/hr				
960 trays per month @ \$25 each				
Revenue per year	\$288,000.00	\$288,000.00	\$288,000.00	\$288,000.00
Asset Investment	-\$109,584.00	\$0.00	\$0.00	\$0.00
Operational expenses per year	-\$227,109.36	-\$227,109.36	-\$227,109.36	-\$227,109.36
Revenue	\$60,890.64	\$60,890.64	\$60,890.64	\$60,890.64
Asset debt payment (\$4000/month)	-\$48,000.00	-\$48,000.00	-\$13,584.00	\$0.00
Net revenue	\$12,890.64	\$12,890.64	\$47,306.64	\$60,890.64

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### More information

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Website: [agriculture.alberta.ca](http://agriculture.alberta.ca)

**Chart 1. Living microgreens as full trays**

	Variety									
	Sunflower	Pea	Broccoli	Arugula	Mustard	Dill	Basil	Garlic Chive	Beet	Swiss Chard
<b>Unit size</b>	Tray	Tray	Tray	Tray						
<b>Seed per tray</b>	\$0.72	\$0.17	\$2.11	\$0.45	\$0.23	\$1.19	\$0.77	\$2.32	\$2.42	\$2.27
<b>Soil per tray</b>	\$0.45	\$0.45	\$0.45	\$0.45	\$0.45	\$0.45	\$0.45	\$0.45	\$0.45	\$0.45
<b>Tray cost</b>	\$2.00	\$2.00	\$2.00	\$2.00	\$2.00	\$2.00	\$2.00	\$2.00	\$2.00	\$2.00
<b>Label per tray</b>	\$0.10	\$0.10	\$0.10	\$0.10	\$0.10	\$0.10	\$0.10	\$0.10	\$0.10	\$0.10
<b>Labour per tray *</b>	\$8.17	\$7.17	\$6.67	\$6.67	\$6.67	\$10.17	\$19.00	\$10.17	\$10.17	\$10.17
<b>Overhead cost per tray**</b>	\$6.25	\$6.25	\$6.25	\$6.25	\$6.25	\$6.25	\$6.25	\$6.25	\$6.25	\$6.25
<b>Units produced per tray</b>	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
<b>Productivity factor</b>	95%	90%	75%	90%	90%	75%	85%	90%	90%	90%
<b>Total costs per tray</b>	\$18.62	\$16.99	\$19.53	\$21.23	\$17.44	\$22.40	\$38.09	\$25.05	\$23.77	\$23.60
<b>Profit margin goal</b>	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%
<b>Suggested sale price</b>	\$24.21	\$22.09	\$25.39	\$27.59	\$22.68	\$29.12	\$49.52	\$32.56	\$30.90	\$30.68
<b>Theoretical market sales price</b>	\$25.00	\$25.00	\$25.00	\$25.00	\$25.00	\$25.00	\$25.00	\$25.00	\$25.00	\$25.00
<b>Income per tray</b>	\$25.00	\$25.00	\$25.00	\$25.00	\$25.00	\$25.00	\$25.00	\$25.00	\$25.00	\$25.00
<b>Total profit per tray</b>	\$6.38	\$8.01	\$5.47	\$3.77	\$7.56	\$2.60	-\$13.09	-\$0.05	\$1.23	\$1.40
<b># trays produced per month</b>	96	96	96	96	96	96	96	96	96	96
<b>Revenue per month</b>	\$2,400.00	\$2,400.00	\$2,400.00	\$2,400.00	\$2,400.00	\$2,400.00	\$2,400.00	\$2,400.00	\$2,400.00	\$2,400.00
<b>Revenue per year</b>	\$28,800.00	\$28,800.00	\$28,800.00	\$28,800.00	\$28,800.00	\$28,800.00	\$28,800.00	\$28,800.00	\$28,800.00	\$28,800.00
<b>Costs per month</b>	\$1,787.62	\$1,630.99	\$1,875.20	\$2,037.76	\$1,674.67	\$2,150.40	\$3,656.96	\$2,404.52	\$2,281.60	\$2,265.60
<b>Costs per year</b>	\$21,451.45	\$19,571.87	\$22,502.40	\$24,453.12	\$20,096.00	\$25,804.80	\$43,883.52	\$28,854.21	\$27,379.20	\$27,187.20
<b>Profit per year</b>	\$7,348.55	\$9,228.13	\$6,297.60	\$4,346.88	\$8,704.00	\$2,995.20	-\$15,083.52	-\$54.21	\$1,420.80	\$26,816.22

\* Labour includes the planting, growing, watering, processing, and packaging of the final product

\*\*Overhead costs are calculated as \$6,000 set fixed cost per month divided by maximum output of 960 trays per month

**Chart 2. Increased pricing on full tray microgreens**

	Variety					
	Sunflower	Pea	Broccoli	Arugula	Mustard	Dill
<b>Unit size</b>	Tray	Tray	Tray	Tray	Tray	Tray
<b>Seed per tray</b>	\$0.72	\$0.17	\$2.11	\$0.45	\$0.23	\$1.19
<b>Soil per tray</b>	\$0.45	\$0.45	\$0.45	\$0.45	\$0.45	\$0.45
<b>Tray cost</b>	\$2.00	\$2.00	\$2.00	\$2.00	\$2.00	\$2.00
<b>Label per tray *</b>	\$0.10	\$0.10	\$0.10	\$0.10	\$0.10	\$0.10
<b>Labour per tray *</b>	\$8.17	\$7.17	\$6.67	\$6.67	\$10.17	\$19.00
<b>Overhead cost per tray**</b>	\$6.25	\$6.25	\$6.25	\$6.25	\$6.25	\$6.25
<b>Units produced per tray</b>	1.00	1.00	1.00	1.00	1.00	1.00
<b>Productivity factor</b>	95%	95%	90%	90%	75%	85%
<b>Total costs per tray</b>	\$18.62	\$16.99	\$19.53	\$21.23	\$17.44	\$22.40
<b>Profit margin goal</b>	30%	30%	30%	30%	30%	30%
<b>Suggested sale price</b>	\$24.21	\$22.09	\$25.39	\$27.59	\$22.68	\$29.12
<b>Theoretical market sales price</b>	\$30.00	\$30.00	\$30.00	\$30.00	\$30.00	\$30.00
<b>Income per tray</b>	\$30.00	\$30.00	\$30.00	\$30.00	\$30.00	\$30.00
<b>Total profit per tray</b>	\$11.38	\$13.01	\$10.47	\$8.77	\$12.56	\$7.60
<b># trays produced per month</b>	96	96	96	96	96	96
<b>Revenue per month</b>	\$2,880.00	\$2,880.00	\$2,880.00	\$2,880.00	\$2,880.00	\$2,880.00
<b>Revenue per year</b>	\$34,560.00	\$34,560.00	\$34,560.00	\$34,560.00	\$34,560.00	\$34,560.00
<b>Costs per month</b>	\$1,787.62	\$1,630.99	\$1,875.20	\$2,037.76	\$1,674.67	\$2,150.40
<b>Costs per year</b>	\$21,451.45	\$19,571.87	\$22,302.40	\$24,453.12	\$20,096.00	\$25,804.80
<b>Profit per year</b>	\$13,108.55	\$14,988.13	\$12,057.60	\$10,106.88	\$14,464.00	\$8,755.20

\* Labour includes the planting, growing, watering, processing, and packaging of the final product

\*\*Overhead costs are calculated as \$6,000 set fixed cost per month divided by maximum output of 960 trays per month

**Chart 3. Harvested microgreens in 60 g and 30 g clamshells**

	Variety									
	Sunflower	Pea	Broccoli	Arugula	Mustard	Dill	Basil	Garlic Chive	Beet	Swiss Chard
<b>Unit size</b>	60 g	30 g	30 g	30 g	30 g	30 g				
<b>Seed per tray</b>	\$0.72	\$0.17	\$2.11	\$0.45	\$0.45	\$1.19	\$0.77	\$2.32	\$2.42	\$2.27
<b>Soil per tray</b>	\$0.45	\$0.45	\$0.45	\$0.45	\$0.45	\$0.45	\$0.45	\$0.45	\$0.45	\$0.45
<b>Tray cost</b>	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
<b>Labels per tray</b>	\$0.50	\$0.40	\$0.50	\$0.30	\$0.30	\$0.40	\$0.40	\$0.60	\$0.50	\$0.50
<b>Unit container cost per tray</b>	\$2.15	\$1.72	\$2.15	\$1.29	\$1.29	\$1.72	\$1.72	\$2.58	\$2.15	\$2.15
<b>Labour per tray *</b>	\$12.70	\$13.70	\$13.32	\$13.32	\$16.82	\$28.97	\$16.82	\$23.48	\$23.48	\$23.48
<b>Overhead cost per tray**</b>	\$6.25	\$6.25	\$6.25	\$6.25	\$6.25	\$6.25	\$6.25	\$6.25	\$6.25	\$6.25
<b>Units produced per tray</b>	5.00	4.00	5.00	3.00	3.00	4.00	4.00	6.00	5.00	5.00
<b>Productivity factor</b>	95%	95%	90%	75%	90%	75%	75%	85%	90%	90%
<b>Total costs per tray</b>	\$23.97	\$23.88	\$27.53	\$29.41	\$24.27	\$29.81	\$51.41	\$34.14	\$39.17	\$39.00
<b>Total unit cost</b>	\$4.79	\$5.97	\$5.51	\$9.80	\$8.09	\$7.45	\$12.85	\$5.69	\$7.83	\$7.80
<b>Profit margin goal</b>	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%
<b>Suggested sale price</b>	\$6.23	\$7.76	\$7.16	\$12.75	\$10.52	\$9.69	\$16.71	\$7.40	\$10.18	\$10.14
<b>Theoretical market sales price</b>	\$8.00	\$8.00	\$8.00	\$8.00	\$8.00	\$8.00	\$8.00	\$8.00	\$8.00	\$8.00
<b>Income per tray sold as units</b>	\$40.00	\$32.00	\$40.00	\$24.00	\$24.00	\$32.00	\$32.00	\$48.00	\$40.00	\$40.00
<b>Total profit per unit</b>	\$3.21	\$2.03	\$2.49	-\$1.80	-\$0.09	\$0.55	-\$4.85	\$2.31	\$0.17	\$0.20
<b>Total profit tray</b>	\$16.03	\$8.12	\$12.47	-\$5.41	-\$0.27	\$2.19	-\$19.41	\$13.86	\$0.83	\$1.00
<b># trays produced month</b>	96	96	96	96	96	96	96	96	96	96
<b># units produced per month</b>	480	384	480	288	288	384	384	576	480	4128
<b>Revenue per month</b>	\$3,840.00	\$3,072.00	\$3,840.00	\$2,304.00	\$2,304.00	\$3,072.00	\$3,072.00	\$3,840.00	\$3,840.00	\$33,024.00
<b>Revenue per year</b>	\$46,080.00	\$36,864.00	\$46,080.00	\$27,648.00	\$27,648.00	\$36,864.00	\$36,864.00	\$55,296.00	\$46,080.00	\$396,288.00
<b>Costs per month</b>	\$2,300.97	\$2,292.88	\$2,643.20	\$2,823.68	\$2,329.60	\$2,861.87	\$4,335.68	\$3,277.55	\$3,760.00	\$3,744.00
<b>Costs per year</b>	\$27,611.62	\$27,514.61	\$31,718.40	\$33,388.16	\$27,955.20	\$34,342.40	\$39,330.64	\$45,120.00	\$44,928.00	\$371,633.19
<b>Profit per year</b>	\$18,468.38	\$9,349.39	\$14,361.60	-\$6,236.16	-\$307.20	\$2,521.60	-\$22,364.16	\$10,643.58	\$1,152.00	\$28,741.02

\* Labour includes the planting, growing, watering, processing, and packaging of the final product

\*\*Overhead costs are calculated as \$6,000 set fixed cost per month divided by maximum output of 960 trays per month

**Chart 4. Increased pricing on harvested microgreens**

\* Labour includes the planting, growing, watering, processing, and packaging of the final product

\*\* Overhead Costs are calculated as \$6 000 set fixed cost per month divided by maximum output of 960 trays per month.