



**COST OF PRODUCTION
FOR ORGANIC SALAD
GREENS**

ORGANIC COUNCIL OF ONTARIO
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The views expressed in the report and associated materials are the views of the Organic Council of Ontario and do not necessarily reflect those of the Canadian Agricultural Partnership.

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About the Author

David Cohlmeier is the first commercial producer of organic mixed salad greens in Ontario, and successfully produced these for 23 years. He and most other producers have widely shared their techniques throughout the province and North America.

Dave is very familiar with the seed varieties, cultivation techniques, harvesting methods, washing practices, and distribution systems being used for salad Green production. After 9-years of business consulting, primarily for organic market gardeners who produce mixed salad greens, he has become well versed in the full costs for all the production steps.

Ontario Cost of Production for Organic Salad Greens

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Introduction

Project Scope

This document is part of the 2020 series of organic cost of production (COP) models prepared by the Organic Council of Ontario. This particular model focuses on the organic production of salad greens based on financial data from 2018.

Who is This Resource For?

This resource enables a producer from a working market garden to use budget figures to determine their approximate full Costs of Production (COP) for organic salad greens. This can be used by either large or small-scale growers, for seasonal outdoor production, with or without season-extension hoop-houses, and/or year-round greenhouse production which includes microgreens. It could also be modified to work for additional market garden vegetables. The results can serve as a valuable guide for business decision-making, and understanding elements of profitability.

Reliability Disclaimer

This is a greatly simplified approximate calculation. For a more thoroughly accurate calculation, a full labour analysis, a whole-farm breakdown of its various enterprises, and a custom spreadsheet would need to be prepared by a qualified consultant. Government cost-share funding is generally available for this service.

The estimates provided do not necessarily indicate recommended practices. Given the sample size of ten producers, the COP model may not be statistically significant. Yet, we believe that it provides a relatively accurate representation of this industry sector. Samples were drawn from a variety of operations of varying sizes, geography, management and operational styles.

Furthermore, every farm is different in terms of climate, region, soil conditions, farm size, crop rotations, infrastructure, resources, debt level, management style, attributes of the finished product, and marketing channels (how the products are sold). Therefore, the model represents neither any farm in particular and operations could see a considerable variance from the model.

Environmental Scan

An Environmental Scan was conducted to determine resources available for producers of organic mixed salad greens to calculate their Costs of Production (COP). Although this is an important product for many Organic Market Gardeners, there are very few tools specifically for this important calculation. Most provincial and state departments of agriculture and many university schools of agriculture as well as the US Department of Agriculture ([ATTRA](#)) offer general advice about COP.

[The Organic Farmer's Business Handbook](#) by Richard Wiswall goes into great detail about setting up a system to track the full costs for each market garden enterprise. The book provides several sample Crop Enterprise Budgets.

Ontario's Ministry of Agriculture, Food and Rural Affairs ([OMAFRA](#)) has a series of [useful budgeting tools](#) with realistic benchmarks to quickly calculate a reasonably accurate approximation of the full COP for a farm enterprise. However, this series is primarily for conventional commodity crops and livestock. A few have been prepared for organic products, but there is not yet one for salad greens.

Methodology

Participant Overview

The data used to compile this COP resource was collected from ten organic producers, ranging in size from 2000 sq. ft. outdoor salad garden to 100,000 sq. ft. greenhouse. Farm revenues from salad greens ranged between \$1,700 to \$1.5 million per year and contributed between 20-100% to total farm revenues.

The participating farms provided financial data for an expected recent year to avoid yield peaks, crop failures, market fluctuations, and exceptional situations over the years. All participants have observed improvements in yields and production efficiencies as their experience grew through the years.

Detailed Assumptions

Management Costs

Due to so much variability in accounting practices, management costs have not been included. Producers should include manager (owner) hours as labour hours costed at the average labour rate, plus a fair allowance for any bookkeeping.

Labour Costs

The participating producers provided records for the hours attributable to different labour activities. This COP model uses the best-estimates for an average of the labour hours that were provided.

Land & Capital Costs

Due to so many options for tracking investment costs, these are not included. However, the capital equipment costs multiplied by the chosen interest rate (most people would choose the bank rate) account for both paid interest cost and the opportunity cost of the investment in a

farm operation. Depreciation is simplified by using a “straight-line” for the actual expected life of the equipment rather than the shortest life allowed by the government tax regulations.

Due to so many possibilities for the cost of land ownership, this cost is not included. However, land rent (or the rent for similar local land) is assumed to be the cost of land. If other enterprises are also using the land, prorate a portion of this to each enterprise.

Multiple Enterprises

Although this COP is designed for salad greens, many farms have multiple synergistic enterprises (eg. mixed vegetables). Therefore, whole farm and equipment costs need to be proportioned to the various enterprises. In this COP, equipment costs were apportioned based on the percentage of time the equipment is specifically used for salad green production. Marketing and certification costs are apportioned based on the percentage of sales volume of salad green production.

Yield Per Production Unit

The yield per production plot is the average of the participating farms. The production unit could be a greenhouse bench, a garden bed, or a field plot of an area (square feet or square metres).

Analysis and Observations

With about five crops of salad greens per year, the cash turnover of this enterprise can contribute to a healthy cash flow. Simply making a gross income claim for AgriInvest and SDRM government supports can make a tremendous improvement in net profit. Equipment, seed, soil health, and marketing investments (which may be eligible for a cost-shared CAP grant) can further benefit the overall farm resilience and profitability. Government supported crop insurance for an inherently self-insured organic farm is generally not worth the premiums. Below is a summary of trends observed in the operations in this study.

Equipment, Techniques, and Varieties

Generally, those with higher investments in equipment can expect lower labour costs. Tarping or multi-year cover crops are becoming popular, as these practices can reduce tedious weeding costs by 50%. Transplanting newly developed “multi-leaf” lettuce varieties can reduce harvesting costs by 30%.

Higher greenhouse investments can reduce energy costs. One producer found that by upgrading his greenhouse with an innovative covering, energy curtains, computer controls and hot water heat storage, total energy costs dropped by over 50%.

Labour and Marketing

It takes a lot of time each year to hire and train new workers, and switching from “free intern” labour to paying a premium wage for committed local or migrant workers can reduce total labour and management costs by 30%. Higher pay rates for more effective and experienced workers typically resulted in lower labour costs as a percentage of total costs.

Plus, those with increased marketing efforts can support at least 20% higher prices by developing relationships and building a brand based on market research to learn customer value propositions. In addition, it is good to see more producers charging higher prices than the imported US salad greens which continue to be dumped into Canada at prices lower than they are in the US.

Using this COP Model on Your Farm

Considerations When Estimating Your Own Costs

Like all other businesses, most farms report their operating costs in a tax return or income statement at the end of the year with all costs assigned to general operating accounts. However, there is important data that is not captured by tax filings, but is necessary to understand costs of production and help with business decision-making. For example, very few producers maintain a Balance Sheet, track specific labour activities, or record expenses by enterprise. Also, it is possible to over-estimate net profit if certain expenses are overlooked, such as depreciation, owner’s withdrawals, or opportunity costs (the return that could be earned by investing in another project). Beware of some seemingly cheap online book-keeping systems, which are not suitable in an effective cost accounting system.

A 2015 IPSOS farm management survey confirmed that the most successful farmers use an accounting system with information available to enable the calculation of a full COP that enables a farmer to knowledgeably make profitable business decisions. While it may be an additional cost, hiring a trained bookkeeper to help properly account for all your expenses is often a worthwhile investment.

Calculating Your Cost of Production

Calculating a COP is not an exact science; a ballpark estimate is better than nothing.

The accompanying budget spreadsheet will help you to determine your approximate full Costs of Production (COP). Begin by inputting your revenue data (production plots, selling units, average price, yield and other income). The benchmark numbers are in green. After you have entered all of your revenue numbers, the suggested blue numbers will automatically change to correspond to your own scale of production. If you lack some of the requested expenses or labour-hour

numbers, consider using the benchmarks suggested by the revised blue numbers. The results can serve as a valuable guide for business decision-making.

The following instructions accompany the budget spreadsheet and explain what you should include to complete your cost of production calculations:

From this basic data (the numbers in **blue**), the spreadsheet then calculates useful information such as: Expected annual sales, annual costs attributable to each category of capital equipment, actual percentage labour (and management) costs, the percentage for each expense category, overall profit margin, and of course Expected Net Profit. All the costs are conveniently presented as a percentage of the total enterprise sales. Breakeven cost per selling unit is also calculated.

Note that some costs are not included as mentioned above:

- Due to so much variability in accounting practices, management costs are not included. So, you should include manager (owner) hours as labour hours costed at the average labour rate, plus you might include a fair allowance for self-bookkeeping.
- Due to so many options for tracking investment costs, these are not included. But the capital equipment costs multiplied by the chosen interest rate accounts for both paid interest cost and the opportunity cost of your investment in a farm operation.
- Due to so many possibilities for the cost of land ownership, this cost is not included. But land rent (or the rent for similar local land) is assumed to be the cost of land. If other enterprises are also using the land, prorate a portion of this to each enterprise.

How to Complete the Budget Spreadsheet

Revenue	
<i>Revenue Category</i>	<i>Items Included</i>
<p>Product Sales <i>In order to properly modify the benchmark costs for your scale of production, please complete this section first.</i></p>	<ul style="list-style-type: none"> • Determine an easy-to-track production plot, then insert the annual number of these production plots. If there are multiple annual plantings on a single plot, count these as additional plots. • Determine an easy-to-track selling unit. If there are multiple selling units, convert these into a single average selling unit. • Insert the yield (in selling units) per production plot along with the average price per selling unit. • Assuming that everything produced is sold, total Annual Sales equals yield x production plots x price per selling unit. If not all harvested crops are expected to be sold, reduce the yield.

Additional Revenue	<ul style="list-style-type: none"> • Add in any other expected income supports for the portion attributable for salad greens, such as crop insurance, AgriInvest, SDRM, or CAP cost-share grants.
Expenses	
<i>Expense Category</i>	<i>Items Included</i>
Capital Equipment	<p>These costs represent an investment in equipment that lasts more than a single year which increases production efficiency and quality.</p> <ul style="list-style-type: none"> • For each category, insert the total original costs (new or used) for the equipment. • For each category, insert the average years of actual expected life for this equipment. (Note that this is usually longer than the minimum expected life permitted by CRA for depreciation.) • Since much of the equipment is used in other garden enterprises, enter the percentage of time the equipment is specifically used for salad green production. • Note that Soil Remediation is an investment for multi-year improvement of general fertility, soil health, and weed prevention. This would be the cost of the input divided by the years of return.
Variable Costs	<p>These are expenses that can be specifically attributable to salad green production:</p> <ul style="list-style-type: none"> • Put in the total annual cost for each of these Expense Categories. • Shipping is for courier service directly to customers. (Shipping charges for purchases should be incorporated into purchase prices.) • Distributor Discounts are only for non-direct sales. • Note that if production expenses during summer, spring/fall hoop-houses, and winter greenhouses differ greatly, a separate analysis could be prepared for each of these enterprises.
Labour	<p><i>This is the primary variable cost, so it requires the most careful attention.</i></p> <ul style="list-style-type: none"> • To the nominal pay rate, the percentage of benefits needs to be added to determine the actual hourly labour rate.

	<ul style="list-style-type: none"> • For each Activity, carefully determine the average weekly minutes per plot per week used for one production unit. Also, remember to include management hours typically contributing to this labour work. <i>A simple (reasonably accurate) method to determine weekly labour hours for each activity is to periodically have all the staff track their time of every activity for a one-week period.</i> • Then determine how many weeks this activity is done each year. • Deliveries are the time a staff person is driving to and from customers and distributors.
Fixed Costs	<p>These are expenses that remain relatively constant no matter what the scale of production.</p> <ul style="list-style-type: none"> • Fill in the Total Cost per Year for each category. • Then insert the percent of each of these costs that is attributable to the production of salad greens. • Land cost can be either the actual rental cost; or it can be the presumed local land rental price for a similar property. • Interest (and opportunity cost) and Depreciation are calculated from data in the Capital Equipment section of this spreadsheet.

Considerations for New or Transitioning Operators

Becoming familiar with a market is an important first-step for any new or transitioning operators. It can be challenging to begin selling to a restaurant or supplying retailers, but these relationships generally stay with you.

Balanced soil fertility and active soil biology is needed for efficiently produced quality vegetable crops. An investment of time and money during the first few years of establishing such an operation may be necessary.

Business Decisions Based on Your Cost of Production

If the Expected Net Profit is low (*or negative*), the Average Selling Price could be increased to what the market will bear. Profit can be further improved by your own cost percentages with the benchmark cost percentages. Increasing consistency, quality or building your brand with additional marketing may be called for. Alternatively, production labour could be reduced with

more efficient management systems or more suitable capital equipment. Energy costs could be reduced with more advanced greenhouse equipment. The Delivery system could be altered.

If none of these options seem practical, consider shutting down this enterprise to transfer this labour and capital to a more profitable enterprise. You may also consider consulting with [an organic farm advisor](#). They can help you develop plans and reasonable expectations for your crops.

Glossary

Crop/production insurance - Crop insurance is a program administered by Agricorp which covers production loss and yield reductions caused by insured perils. The inherently self-insured nature of organic production generally makes this not worth the premiums.

Cover crops - Cover crops (a.k.a. plow-down or green-manure crops) are planted for the purposes of increasing soil organic matter and weed management, rather than for harvest. A three or four-year cover crop regimen can be quite effective for weed reduction, and building soil health. Examples of cover crops include rye and vetch (winter), oats and peas (fall and spring), mix of sunflower, peas, and sorghum (summer), or buckwheat (for unlocking phosphorus).

Tarping - The covering of the ground with an opaque material with the intention to smother (kill) weeds.

Production unit - The production unit is the area used to produce the product, such as a greenhouse bench, a garden bed, or a field plot, by area (square feet).

Risk Management Program - Helps producers manage risks beyond their control, including fluctuating costs and market prices.

Soil remediation - Activities that increase biological activity and balance fertility in the soil.

Selling unit - This is a convenient and standard unit to sell in, for example grams or ounces, bags or boxes.