e-GRO Alert

Ariana Torres
torres2@purdue.edu

Volume 9 Number #11 October 2024

Financial Tools for Leafy Green Growers

This publication highlights the development of an online tool **HortCalculator**. *The tool provides economic feasibility analyses of adopting integrated pest management in leafy greens production.*

The growth of local food movements offers small farmers economic opportunities to access attractive, high-value markets for sustainably and locally grown leafy greens (LGs), but farmers face a myriad of decisions regarding what markets to sell into and which technologies to invest in.

Photo Source: Stock Images Microsoft.

Yet, access to costs and financial information can hinder farmer's ability to set right prices and secure profit margins –an issue that, coupled with increasing input and technology costs, has impacted controlled environment operation in the country.

As consumers demand greater transparency regarding how and where LGs are produced, it is a common practice among producers to invest in biological control technologies and use sustainability labels to convey sustainable farming practices. However, these technologies tend to cause additional costs and risks.

Our team at Purdue Horticulture Business has developed an online tool, ***HortCalculator***, to provide crop- and farm-specific economic feasibility analyses to help farmers plan financial management of investments.

The ***HortCalculator*** aims to:

- Assess economic feasibility of adopting integrated pest management strategies.
- Increase financial knowledge on sensitivity, breakeven, BCR, and ROI analyses.
- Support informed decision-making towards LGs investments.

The online tool will be available by spring 2025. We are currently collecting farmers' data to evaluate the tool that will provide farmers with financial reports such as profitability, cost structure, sensitivity analysis, breakeven, marginal benefit-cost ratios (MBCR), and return on investment (ROI). In addition, we will deliver a tool guidebook, workshops at growers' conferences, online curricula, and monthly webinars.

Use the link below to join the mailing list to access the tool, as well as upcoming webinars and workshops.

Webinar Registration Link:
https://bit.ly/PurdueHortCalculator

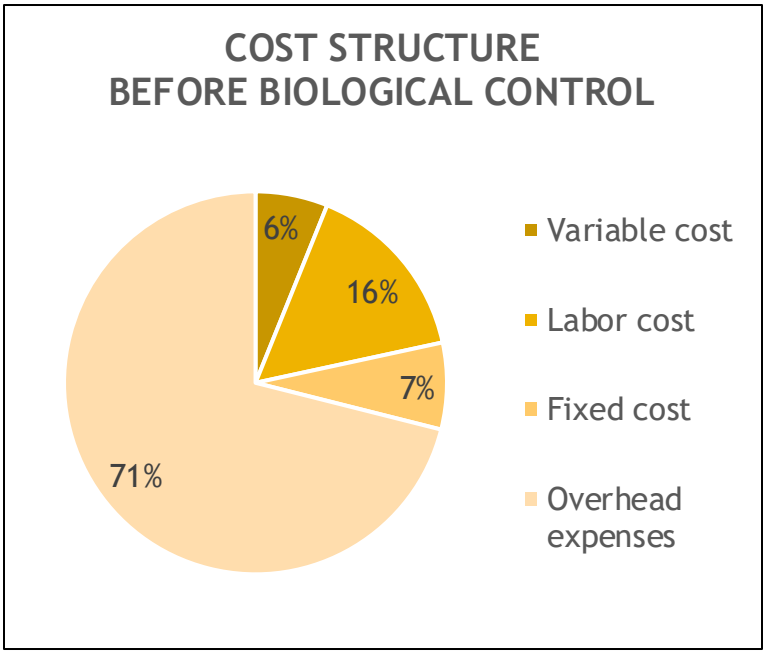
Photo Source: Stock Images Microsoft.

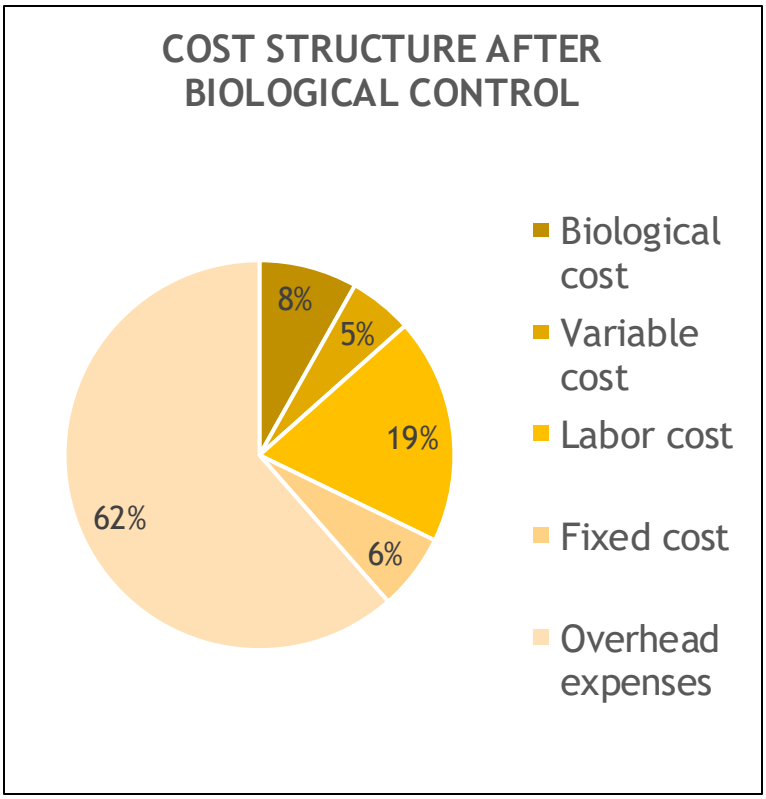
Our team has built case studies to shed light on the tool. The studies are focused on winter spinach production under high tunnels.

In the Midwest, spinach can be grown in high tunnels from October and harvested approximately until May. Due to its cold tolerance, winter spinach grown under high tunnels can provide farmers with off-season revenue and access to new local markets. While high tunnels can provide spinach with higher marketable yield compared to open field production, it also presents unique challenges, particularly with pest pressure.

To combat pests, farmers typically rely on chemical pesticides or biological control agents (BCAs), each with varying effectiveness, costs, and risk factors. Using BCAs in leafy green production offers several advantages: reduction of chemical use, which in turn reduces pesticide residue on leafy greens and meet the growing consumer demand. Yet, there are also disadvantages of incorporating BCAs into a high tunnel production system, such increasing in pest control costs and variations in BCAs effectiveness based on environmental conditions.

The example below illustrates a cost structure analysis of adopting biological control for spinach high tunnel production. The distribution of cost categories before and after using biological controls shows a lower proportion of overhead expenses and an increased proportion of labor costs after adopting natural predators for aphid control on high tunnels.





The ***HortCalculator*** also provides farmers with breakeven yield (the minimum yield to be sold to cover all costs) and price (the price at which total revenue covers all costs) analyses. The tables below are snapshots of the tool breakeven yield analysis before and after adopting BCAs to control aphids on spinach. The tables also incorporate a sensitivity approach to show how changes in cost or price (by +/-10%) can impact breakeven yield.

At a $10/pound and a total cost of $1,697 for producing 440 pounds of spinach in 1,056 sq. ft. of a high tunnel, the minimum yield to be sold to cover all costs is 170 pounds. On the other hand, adopting BCAs increased the breakeven yield to 196 pounds. This increase may be due to increased total costs to $1,962 (due to BCAs and labor).

BREAKEVEN YIELD
BEFORE BIOLOGICAL CONTROL

		-10%	Price	10%
		$9.00	$10.00	$11.00
-10%	$1,527	170	153	139
Cost	$1,697	189	170	154
10%	$1,867	207	187	170

BREAKEVEN YIELD
AFTER BIOLOGICAL CONTROL

		-10%	Price	10%
		$9.00	$10.00	$11.00
-10%	$1,766	196	177	161
Cost	$1,962	218	196	178
10%	$2,158	240	216	196

Other tool analysis include benefit-cost ration, return on investment, and profitability projections. Understanding the economic feasibility of investments can help farmers make informed decisions and increase financial sustainability. For more information on ***HortCalculator*** and webinars, contact Dr. Ariana Torres, torres2@purdue.edu.

e-GRO Alert

www.e-gro.org

CONTRIBUTORS

Dr. Nora Catlin
Floriculture Specialist
Cornell Cooperative Extension
Suffolk County
nora.catlin@cornell.edu

Dr. Chris Currey
Assistant Professor of Floriculture
Iowa State University
ccurrey@iastate.edu

Dr. Ryan Dickson
Greenhouse Horticulture and
Controlled-Environment Agriculture
University of Arkansas
ryand@uark.edu

Dan Gilrein
Entomology Specialist
Cornell Cooperative Extension
Suffolk County
dog1@cornell.edu

Dr. Chieri Kubota
Controlled Environments Agriculture
The Ohio State University
kubota.10@osu.edu

Heidi Lindberg
Floriculture Extension Educator
Michigan State University
wolleage@anr.msu.edu

Dr. Roberto Lopez
Floriculture Extension & Research
Michigan State University
rglopez@msu.edu

Dr. Neil Mattson
Greenhouse Research & Extension
Cornell University
neil.mattson@cornell.edu

Dr. W. Garrett Owen
Sustainable Greenhouse & Nursery
Systems Extension & Research
The Ohio State University
owen.367@osu.edu

Dr. Rosa E. Raudales
Greenhouse Extension Specialist
University of Connecticut
rosa.raudales@uconn.edu

Dr. Alicia Rihn
Agricultural & Resource Economics
University of Tennessee-Knoxville
arihn@utk.edu

Dr. Debalina Saha
Horticulture Weed Science
Michigan State University
sahadeb2@msu.edu

Dr. Beth Scheckelhoff
Extension Educator - Greenhouse Systems
The Ohio State University
scheckelhoff.11@osu.edu

Dr. Ariana Torres-Bravo
Horticulture/ Ag. Economics
Purdue University
torres2@purdue.edu

Dr. Brian Whipker
Floriculture Extension & Research
NC State University
bwhipker@ncsu.edu

Dr. Jean Williams-Woodward
Ornamental Extension Plant Pathologist
University of Georgia
jwoodwar@uga.edu

Cooperating Universities

Cornell CALS College of Agriculture and Life Sciences

Cornell Cooperative Extension Suffolk County

UTIA Institute of Agriculture The University of Tennessee

Iowa State University

College of Agricultural & Environmental Sciences University of Georgia

UConn

UofA Division of Agriculture Research & Extension University of Arkansas System

Michigan State University

NC State University

Purdue University

The Ohio State University

In cooperation with our local and state greenhouse organizations

Maumee Valley Growers — Choose the Very Best.

Metropolitan Detroit Flower Growers Association — Metro Detroit Flower Growers Association

NC Flower Power

Western Michigan Greenhouse Association

Connecticut Greenhouse Growers Association

Indiana Flower Growers Association

LIFGA

Cincinnati Flower Growers Association

Michigan Greenhouse Growers Council

NYSFI New York State Flower Industries, Inc.