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Economics of GAPs Certification

Jesse Strzok

Eastern New York Commercial Horticulture Program

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Variety of reasons for food safety (GAP, GHP, FSMA, etc.) implementation

Personal Commitment to Food Safety
Buyer Demand for Food Safety
Government Demand for Food Safety

Which farms will be impacted most by GAPs?

Economies of scale/scope
Benefits and costs
Decisions - ROI/NPR/BCR

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Objectives and Motivation

Assess costs that growers incur when implementing GAPs on their farms (C) – Total Annual Costs

Assess the extent to which the food safety improvements accordingly allowed growers to maintain existing market sales and/or expand market sales in existing or new markets (MES). – Maintained and Expanded Sales

- Maintained sales = dollar value of pre-GAPs sales that would have been lost if a food safety plan was not implemented following the GAPs training.
- Expanded sales = increased sales to new or existing markets as a result of implementing the GAPs food safety plan

Determine relationship of firm size on Benefit-Cost-Ratio (BCR = MES/C)

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New York data

Data used is from a long-term impact survey conducted in spring/summer 2014
GAP Training and Farm Food Safely Plan Writing Workshop – Elizabeth A. Bihn, Gretchen L. Wall, Elizabeth J. Newbold, Todd M. Schmit

Costs for certification varies greatly

2011 UVM study:
$37-$54 per acre on average (+ 7 hours labor/week)
No statistical difference between
- Single crop and diversified farms
- $500k or less rev./yr vs >$500k rev./yr
- 50% or less wholesale vs >50% wholesale

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Farm Data

- 52 fruit farms
- 25 fruit farms with 3rd-party audits (3PA)
- Divided into 4 categories
  - < 15 Acres (13 farms – 2 with 3PA)
  - 15 acres – 99 acres (18 farms – 10 with 3PA)
  - 100 acres – 499 acres (16 farms – 9 with 3PA)
  - > 499 acres (5 farms – 4 with 3PA)
- Cost of $352 per acre on average

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Total Annual Costs (C)

1. **Training Costs:** costs of training workers
2. **Implementation Costs Associated with Labor:** time per week workers spend on food safety practices
3. **New Staff Hired:** to develop or implement GAPs
4. **Testing:** water, soil and soil amendments testing
5. **Disposable Supplies:** soap, paper, rodent traps, etc.
6. **Modifications Costs:** for production, harvest, processing, or packing
7. **Additional Costs:** insurance, 3 party audit, etc.

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Maintained & Enhanced Sales (MES) Benefit-Cost-Ratio (MES/C)

Maintained Sales = dollar value of pre-GAPs sales that would have been lost if a food safety plan was not implemented following the GAPs training.

Expanded Sales = increased sales to new or existing markets as a result of implementing the GAPs food safety plan

Benefit-Cost-Ratio = MES/C

> 1 great!

= 1 a wash

< 1 ouch!

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Analysis

Estimated relationship of food safety costs, maintained and enhanced sales, and benefit cost ratio on farm size.[a]

	Total Annual Costs		Maintained and Enhanced Sales			Benefit-Cost-Ratio[b]		
Variable	OLS Full	OLS 3PA	OLS Full	Tobit Full	OLS 3PA	OLS Full	Tobit Full	OLS 3PA
Acres	156.712 **	226.346 *	2085.15 **	3323.7 **	3142.179 **	0.308	0.530	0.483
	(46.701)	(84.133)	(369.105)	(771.317)	(553.887)	(0.176)	(0.366)	(0.328)
Acres^2	-0.108 *	-0.165 *	-1.281 **	-2.063 **	-2.155 **	-0.000	-0.000	-0.000
	(0.047)	(0.078)	(0.368)	(0.655)	(0.516)	(0.000)	(0.000)	(0.000)
Prob > F	0.002	0.024	0.000	--	0.000	0.180	--	0.323
N	52	25	52	52	25	52	52	25
Prob > chi^2 (tobit)	--	--	--	0.000	--	--	0.253	--

[a] Intercept term is suppressed in all non-tobit regressions. Standard errors in parentheses. OLS = Ordinary least squares. 3PA=1 regressions only include farms with third party audits. ** and * represent statistical significance at the 99% and 95% significance levels, respectively.

[b] Benefit-Cost Ratio equals maintained plus expanded sales divided by total annual costs.

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Thank you!

Questions? Comments?

Jesse Strzok
ENYCH Team
js3234@cornell.edu
518.429.1464