

10-1-2011

## Developing GAP Training for Growers: Perspectives from Pennsylvania Supermarkets

Daniel Tobin

*Pennsylvania State University, dbt127@psu.edu*

Joan Thomson

*Pennsylvania State University, jst3@psu.edu*

Luke F. LaBorde

*Penn State University, lfl5@psu.edu*

Jessica Bagdonis

*Pennsylvania State University, jmb769@psu.edu*



This work is licensed under a [Creative Commons Attribution-Noncommercial-Share Alike 4.0 License](https://creativecommons.org/licenses/by-nc-sa/4.0/).

---

### Recommended Citation

Tobin, D., Thomson, J., LaBorde, L. F., & Bagdonis, J. (2011). Developing GAP Training for Growers: Perspectives from Pennsylvania Supermarkets. *The Journal of Extension*, 49(5), Article 23. <https://doi.org/10.34068/joe.49.05.23>

This Research in Brief is brought to you for free and open access by the Conferences at TigerPrints. It has been accepted for inclusion in The Journal of Extension by an authorized editor of TigerPrints. For more information, please contact [kokeefe@clemson.edu](mailto:kokeefe@clemson.edu).



**October 2011**  
**Volume 49 Number 5**  
**Article Number 5RIB7**

[Return to Current Issue](#)

# **Developing GAP Training for Growers: Perspectives from Pennsylvania Supermarkets**

**Daniel Tobin**

Master's Candidate

Department of Agricultural and Extension Education

[dbt127@psu.edu](mailto:dbt127@psu.edu)

**Joan Thomson**

Professor of Agricultural Communication

Department of Agricultural and Extension Education

[jst3@psu.edu](mailto:jst3@psu.edu)

**Luke LaBorde**

Associate Professor of Food Science

Department of Food Science

[lf15@psu.edu](mailto:lf15@psu.edu)

**Jessica Bagdonis**

Doctoral Candidate

Department of Agricultural and Extension Education

[jmb769@psu.edu](mailto:jmb769@psu.edu)

The Pennsylvania State University

University Park, Pennsylvania

---

**Abstract:** Major supermarket chains increasingly are requiring their produce suppliers to provide evidence of compliance with on-farm food safety standards, known as Good Agricultural Practices (GAPs). To develop a relevant GAP training curriculum that meets the needs of Pennsylvania growers, supermarkets that operate in the state were surveyed to determine their food safety policies and practices that will impact local produce growers. As supermarket food safety policies become more stringent, Extension can serve a valuable role in helping growers meet new food safety documentation challenges and in facilitating communication about the needs and interests of growers, supermarkets, and consumers.

---

## **Introduction**

An estimated 48 million foodborne illnesses, including 3,000 deaths, occur each year in the United States (Centers for Disease Control and Prevention [CDC], 2010). Research has documented fresh produce to be a rising cause of the foodborne outbreaks reported to the CDC (Doyle & Erickson, 2008; Sivapalasingam, Friedman, Cohen, & Tauxe, 2004). In response, supermarkets have been implementing food safety policies that require their fresh produce suppliers to attend farm food safety training workshops and/or to verify compliance

with food safety standards through fee-based, independent third-party certification (TPC) (Martinez & Thornsby, 2006).

TPC is a process in which an independent, third-party auditor conducts an on-site inspection to determine whether a supplier's practices and procedures comply with a certain set of standards, such as Good Agricultural Practices (GAPs) (Hatanaka, Busch, & Bain, 2005).

GAPs are food safety standards that reduce the risk of on-farm contamination of produce (Food and Drug Administration [FDA], 1998). GAPs include recommendations for safe irrigation methods, use of raw and composted animal manure, worker health and hygiene, post-harvest handling practices, and traceability procedures.

Produce growers who need to verify GAP compliance through TPC can select among several audit agencies. The United States Department of Agriculture Agricultural Marketing Service (USDA AMS, 2011), in association with state departments of agriculture, offers a voluntary audit program that produce growers can use to verify safe farming practices. Private companies also offer audit services, but their GAP standards and documentation requirements can vary from company to company, as well as from the USDA AMS audits.

The Food Safety Modernization Act, signed into law [P.L. 111-353] in early 2011 by President Obama, is the first federal mandate requiring minimum on-farm food safety practices. The specific regulations to implement this legislation, however, are not yet written by the FDA (United Fresh, 2011). Even after the specific requirements of the legislation are defined, supermarkets can still implement their own food safety policies that are more rigorous than the minimum federal standards. Food safety policies, therefore, are likely to vary among supermarket chains.

## **Impact of GAP Requirements on Growers**

The effects of more rigorous food safety requirements on local produce growers remain to be seen. On the one hand, local produce growers are in an advantageous position, for supermarkets find value in selling local produce. Research has highlighted the product differentiation that local produce can provide. Consumers often prefer local produce because it is perceived as "fresher," "better eating quality," "safer," and "supports the local economy" (Onozaka, Nurse, & McFadden, 2010). Pirog (2004) reported that "freshness," "taste," and "quality" were among the most important attributes consumers expressed when shopping for locally grown foods.

On the other hand, many local growers have expressed concern that meeting supermarket food safety policies will be overly demanding (Eggers, Ackerlund, Thorne, & Butte, 2010). In Michigan, for example, some blueberry growers spent close to \$100,000 to pass TPC and were further burdened by the amount of time required each day to document their practices (Hatanaka et al., 2005).

Further grower frustration stems from the lack of uniformity regarding food safety expectations for growers among supermarkets (Eggers et al., 2010). Food safety policies among supermarkets are likely to vary even after the Food Safety Modernization Act has been implemented. Therefore, produce suppliers who sell to more than one supermarket might have to provide different forms of evidence for their on-farm food safety practices. While some supermarkets only require evidence of GAP training, others mandate a GAP audit, and some even specify their preferred audit companies (L. LaBorde, personal communication, August 3, 2010). Growers supplying multiple supermarkets, therefore, need to adapt to the food safety expectations of each of those markets.

Despite the challenges growers face, many are willing to comply with supermarket GAP policies in order to maintain them as clients. Not doing so could mean a loss of income. However, according to auditors and trainers, growers often have difficulty initially implementing and documenting GAPs on their farms. Training

and educational support, therefore, are required for growers to understand the practices necessary to pass a GAP audit so they may continue to sell their produce to supermarkets (Eggers et al., 2010).

## Value of GAPs for Supermarkets

While supermarket food safety policies may require time and financial investments by growers, GAP policies help to ensure a safer food supply and provide competitive advantages for supermarkets. Beyond reducing the risk of foodborne contamination, GAP policies help supermarkets protect their reputations. Should a foodborne outbreak occur, supermarkets can point to their GAP policies as evidence that they implemented precautionary measures (Hatanaka et al., 2005). Requiring growers to provide evidence of on-farm food safety practices also helps supermarkets instill greater consumer confidence in the safety of the produce they sell (Henson & Reardon, 2005).

A further benefit for supermarkets is product differentiation, which allows a supermarket to increase its own product diversity while distinguishing itself from other competing supermarkets (Henson & Reardon, 2005). Selling produce that has been third-party inspected for food safety provides more options for consumers beyond those such as organic and/or local certification programs.

Despite the potential benefits GAP policies can offer supermarkets, empirical research investigating supermarket practices and policies regarding food safety is scarce. Without such knowledge, educators will have difficulty developing educational programs that meet growers' specific needs, and grower frustration with the lack of consistency in food safety expectations across the industry will continue.

## Extension's Role in GAP Training

Examining the perspectives of both growers and supermarkets reveals differing needs and interests regarding food safety. GAP policies can potentially help improve supermarkets' competitive edge while compelling growers to seek educational programming that teaches how to implement and document GAPs. As a trusted source for educational programming, Extension can meet the needs of both growers and supermarkets. In a recent report to the FDA, Eggers et al. (2010) found that growers view Extension as one of the best sources for information on GAPs.

The same report also noted communication among key stakeholders is important to ensure a safer food supply (Eggers et al., 2010). Extension has long emphasized diverse stakeholder input to develop effective educational programming (Archer et al., 2007; Infante-Casella & Kline, 2003; Morse, Brown, & Warning, 2006). In order to provide relevant GAP training to growers, Extension must understand the food safety policies and practices that supermarkets require their local produce growers to implement.

Pennsylvania offers a unique example to understand how supermarket GAP policies will affect local produce growers. Fruit and vegetable growers in Pennsylvania tend to have diversified, small to medium-sized farms (USDA, 2009). Such growers, especially those who supply multiple crops to supermarkets, need to be prepared to fulfill the food safety policies of their wholesale buyers. To help growers meet these expectations, Penn State Extension surveyed major supermarkets in the Commonwealth to understand their current and planned food safety policies for their local produce suppliers.

## Objectives

The objectives of the exploratory study reported here were to collect information from Pennsylvania

supermarkets regarding their food safety policies and to understand how those policies will affect their local produce purchases. Specifically, the study asked:

- Pennsylvania supermarket current (2009) and projected (2012) audit requirements for growers,
- Pennsylvania supermarket perceptions of consumer preferences for local produce,
- The extent to which Pennsylvania supermarkets plan to continue purchasing produce from local growers in the future, and
- The extent to which Pennsylvania supermarkets indicate to consumers that their locally grown produce has been inspected for food safety.

## Methods

To understand supermarket practices and policies regarding food safety for local produce, an online survey was administered to supermarkets in Pennsylvania via SurveyMonkey in September 2009. The survey included questions about current and future GAP policies, projected purchases of local produce, consumer produce preferences, and the extent to which supermarkets indicate if local produce has been inspected for food safety.

In identifying an appropriate population, the existence of different types of food retailers, such as supermarkets, natural product food stores, and convenience centers, complicated sample selection. As the literature indicates, supermarket chains are one of the most influential types of food retailers currently implementing GAP policies (Henson & Reardon, 2005). Therefore, those food retailers registered with the Pennsylvania Food Merchants Association (PFMA) as supermarkets for which either corporate produce buyers or food safety managers could be identified were selected. PFMA formally invited through email 28 supermarkets to participate in the survey. From this group, 15 replied for a response rate of 54%. Those responding collectively own an estimated 628 supermarkets across the state. For the exploratory study, descriptive statistics were used to analyze the survey results.

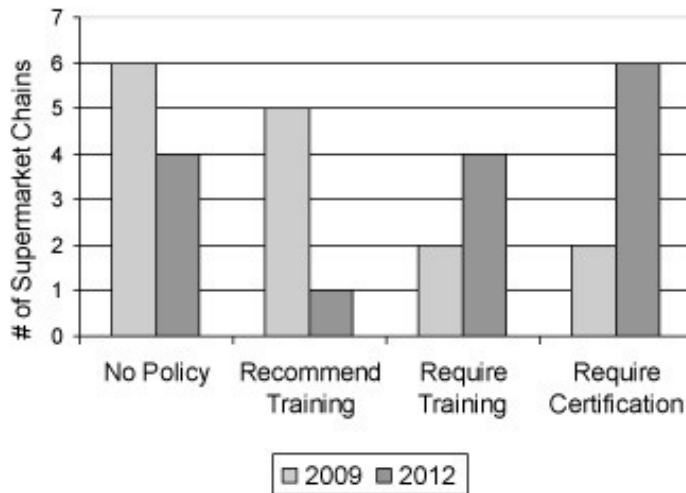
## Results

### GAP Policies of Supermarkets

To determine the supermarket food safety requirements for their local suppliers, a representative from each of the supermarkets was asked to indicate their current (2009) and projected (2012) policies on GAPs. Respondents indicated that food safety standards will become increasingly more stringent within the next 3 years (Figure 1). In 2009, only four of 15 (27%) supermarkets required either GAP training or certification. However, by 2012, 10 of the 15 (67%) supermarkets intend to require either GAP training or TPC.

**Figure 1.**

Current and Anticipated Supermarket GAP Policies (2009 and 2012)



### Supermarkets and Local Produce

To understand whether supermarkets value local produce, each was asked to identify reasons they believe consumers purchase local produce. The results indicate that supermarkets perceive that consumers purchase local produce because it is fresher (100%), more beneficial to the local economy (80%), has better flavor (73%), and is more environmentally friendly (53%) (Table 1). These findings reflect the same reasons reported by the Onozaka et al. (2010) and Pirog (2004) studies in which consumers expressed their reasons for preferring locally grown produce.

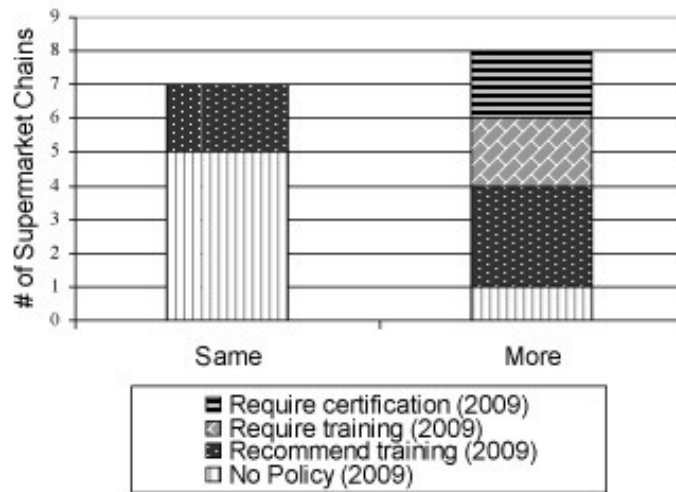
**Table 1.**  
Supermarket Perceptions on Why Consumers Purchase Local Produce

Reason	% of Supermarket chains
Fresher	100%
More Beneficial to the Local Economy	80%
Better Flavor	73%
More Environmentally Friendly	53%
Healthier	47%
Safer to Eat	47%
More Nutritious	33%
No Particular Reason	13%

The supermarkets also indicated their continuing interest in purchasing local produce. When asked to identify projected purchases of local produce in 2012, seven of the 15 supermarkets (47%) indicated that they would buy the same amount of local produce in 2012 as they had in 2009, while eight of the 15 (53%) indicated that they

would purchase more local produce by 2012. Of the seven supermarkets intending to buy the same amount of local produce in 2012, five of them currently have no food safety policy. All of the supermarkets that currently require either training or certification intend to purchase more local produce by 2012. None of the 15 supermarkets plan to buy less local produce during the next three years (Figure 2).

**Figure 2.**  
Projected Purchases of Local Produce by Supermarkets by 2012



## Supermarket GAP Policies and Consumers

Only 1 of the 15 supermarkets (7%) communicates to consumers that the local produce it sells has been inspected for on-farm food safety. The supermarket does so by posting information at either the point of purchase or through distribution of marketing materials.

## Discussion and Implications

Responses indicate that within the next 3 years, Pennsylvania supermarkets increasingly will require GAP certification while continuing to purchase fresh produce from local growers. Yet, by not communicating to consumers that farms providing local produce have been inspected for on-farm food safety practices, supermarkets miss the marketing opportunities that their food safety policies may provide. The competitive benefits of product differentiation are likely to be enhanced for produce that is both local and GAP certified. Such produce may not only be perceived as fresher and more flavorful but also as safer to eat.

For Pennsylvania growers to maintain wholesale market opportunities, they will have to put forth substantial effort to comply with and verify their on-farm food safety practices. Growers, therefore, will need GAP training and educational materials. General training on potential on-farm food safety hazards and preventative measures will no longer be adequate. To achieve maximum impact, the curriculum must focus on implementing and documenting GAPs so growers will be prepared to pass a GAP audit.

Pennsylvania, however, cannot be assumed to be representative of all states. Regardless of location, food retailers can continue to require their own rigorous on-farm food safety policies for their produce suppliers beyond the minimum requirements mandated by the Food Safety Modernization Act. Chain-by-chain analysis

will help Extension better serve as a facilitator by communicating the needs and interests of growers, supermarkets, and consumers to one another.

Whether mandated by the Food Safety Modernization Act or the private sector, GAP compliance through TPC will likely become the norm for most growers, regardless of farm size, location, or financial status. To develop relevant educational programming for produce growers, future research needs to assess the practices, experiences, and perceptions of the multiple groups of stakeholders involved. Compiling growers' experiences in implementing GAPs will be necessary in order for Extension to adapt its programming to address specific grower challenges. Understanding supermarkets' changing GAP policies and practices for local produce is also critical in order to anticipate curriculum changes necessary to meet the educational needs of growers. Assessing consumer perceptions of food safety will help Extension adapt its programming to meet public demand.

Obtaining such information better prepares Extension to develop training that addresses the food safety challenges ahead while capitalizing on product differentiation opportunities that local produce and food safety certification can offer. The results from the exploratory study reported here provide an initial step in Extension's effort to collect and communicate supermarket food safety expectations to Pennsylvania growers. By doing so, growers will have a better understanding that other actors in the food system, such as supermarkets, have different food safety interests and concerns. As a result, growers can make more informed decisions regarding their on-farm food safety policies and practices.

As the Food Safety Modernization Act has only recently become law, its impacts on grower production practices and marketing strategies, particularly those of small-scale, highly diversified growers, are not yet clear. How the legislation will affect supermarkets' food safety policies also remains to be seen. These questions are relevant in both Pennsylvania and across the nation, given that the Food Safety Modernization Act is a federal mandate.

### Acknowledgments

Partial funding for the work reported here was provided by the USDA Sustainable Agriculture Research and Education Program.

### References

Archer, T. M., Warner, P. D., Miller, W., Clark, C. D., James, S., Cummings, S. R., & Adamu, U. (2007). Excellence in Extension: Two products for definition and measurement. *Journal of Extension* [On-line], 45(1) Article 1TOT1. Available at: <http://www.joe.org/joe/2007february/tt1.php>

Centers for Disease Control and Prevention (CDC). (2010). CDC 2011 Estimates: Findings. *CDC Estimates of Foodborne Illness in the United States*. Retrieved from: <http://cdc.gov/foodborneburden/2011-foodborne-estimates.html>.

Doyle, M. P., & Erickson, M. C. (2008). Summer meeting 2007 â the problems with fresh produce: An overview. *Journal of Applied Microbiology*, 105(2), 317-330.

Eggers, S., Ackerlund, S., Thorne, S., & Butte, G. (2010). *Growers' understanding and implementation of FDA's GAPs guidance* (Final Report for FDA Task Order No. 5, Contract Number HHSF223200510007I). Retrieved from: <http://www.fda.gov/downloads/Food/FoodSafety/ProductSpecificInformation/FruitsVegetablesJuices/FDAProduceSafetyActivities/UCM218641.pdf>

Food and Drug Administration (FDA), Center for Food Safety and Applied Nutrition. (1998). *Guidance for industry: Guide to minimize microbial food safety hazards for fresh fruits and vegetables*. Retrieved from:



<http://www.fda.gov/downloads/Food/GuidanceComplianceRegulatoryInformationGuidanceDocuments/ProduceandPlanProducts/UCM169112.pdf>.

Hatanaka, M., Bain, C., & Busch, L. (2005). Third-party certification in the global agrifood system. *Food Policy*, 30(3), 354-369.

Henson, S., & Reardon, T. (2005). Private agri-food standards: Implications for food policy and the agri-food system. *Food Policy*, 30(3), 241-253.

Infante-Casella, M. L., & Kline, W. L. (2003). Single commodity stakeholder groups as valuable advisors to comprehensive Extension programs for crop production in New Jersey. *Journal of Extension* [On-line], 41(4). Article 4TOT5. Available at: <http://www.joe.org/joe/2003august/tt5.php>

Martinez, L. R., & Thornsby, S. (2006). *U.S. Fresh produce wholesale sector trade practices: Initial survey results*. (Agricultural Economics Report, No. 626). Michigan State University, Department of Agricultural Economics. Retrieved from: <http://www.aec.msu.edu/aecreports/aec626.pdf>.

Morse, R. S., Brown, P. W., & Warning, J. E. (2006). Catalytic leadership: Reconsidering the nature of Extension's leadership role. *Journal of Extension* [On-line], 44(2) Article 2FEA9. Available at: <http://www.joe.org/joe/2006april/a9.php>

Onozaka, Y., Nurse, G., & McFadden, D. T. (2010). Local food consumers: How motivations and perceptions translate to buying behavior. *Choices*, 25(1). Retrieved from: <http://www.choicesmagazine.org/magazine/article.php?article=109>.

Pirog, R. (2004). *Ecolabel value assessment phase II: Consumer perceptions of local foods*. Iowa State University, Leopold Center. Retrieved from: [http://www.leopold.iastate.edu/pubs/staff/files/050504\\_ecolabels2.pdf](http://www.leopold.iastate.edu/pubs/staff/files/050504_ecolabels2.pdf)

Sivapalasingam, S., Friedman, C. R., Cohen, L., & Tauxe, R. V. (2004). Fresh produce: A growing cause of outbreaks of foodborne illness in the United States, 1973 through 1997. *Journal of Food Protection*, 67(10), 2342-2353.

United Fresh. (2011). *FDA Food Safety Modernization Act white paper*. Retrieved from: <http://www2.unitedfresh.org/forms/store/ProductFormPublic/>.

United States Department of Agriculture, Agricultural Marketing Service (USDA AMS). (2011). *Grading, certification, and verification*. Retrieved February from: <http://www.ams.usda.gov/AMSV1.0/ams.fetchTemplateData.do?template=TemplateN&page=GAPGHPAuditVerificationProgram>

United States Department of Agriculture (USDA), National Agriculture Statistics Service (2009). 2007 Census of Agriculture State Data: Pennsylvania [Data file]. Retrieved from: [http://www.agcensus.usda.gov/Publications/2007/Full\\_Report/Volume\\_1\\_Chapter\\_1\\_State\\_Level/Pennsylvania/pav1.pdf](http://www.agcensus.usda.gov/Publications/2007/Full_Report/Volume_1_Chapter_1_State_Level/Pennsylvania/pav1.pdf)

---

*Copyright* © by Extension Journal, Inc. ISSN 1077-5315. Articles appearing in the Journal become the property of the Journal. Single copies of articles may be reproduced in electronic or print form for use in educational or training activities. Inclusion of articles in other publications, electronic sources, or systematic large-scale distribution may be done only with prior electronic or written permission of the *Journal Editorial Office*, [joe-ed@joe.org](mailto:joe-ed@joe.org).

If you have difficulties viewing or printing this page, please contact [JOE Technical Support](#).