

Professional Agricultural Workers Journal

Volume 1

Number 2 *Special Issue: Professional Agricultural Workers Journal*

7

4-17-2014

Case Study of a Food Safety/Good Agricultural Practices (GAPs) Educational Program for Small and Limited Resource Produce Farmers

Barrett Vaughan

Tuskegee University, btvaughan@mytu.tuskegee.edu

Audrey Zeigler

Tuskegee University, azeigler@mytu.tuskegee.edu

Gertrude D. Wall

Tuskegee University, gjwall@mytu.tuskegee.edu

Miles D. Robinson


Tuskegee University, miles@mytu.tuskegee.edu

William A. Hodge

Tuskegee University, whodge@mytu.tuskegee.edu

See next page for additional authors

Follow this and additional works at: <http://tuspubs.tuskegee.edu/pawj>

 Part of the [Agricultural Economics Commons](#), [Nutrition Commons](#), and the [Other Food Science Commons](#)

Recommended Citation

Vaughan, Barrett; Zeigler, Audrey; Wall, Gertrude D.; Robinson, Miles D.; Hodge, William A.; Bonsi, Conrad O.; Baharanyi, Ntam R.; and Hill, Walter A. (2014) "Case Study of a Food Safety/Good Agricultural Practices (GAPs) Educational Program for Small and Limited Resource Produce Farmers," *Professional Agricultural Workers Journal*: Vol. 1: No. 2, 7.

Available at: <http://tuspubs.tuskegee.edu/pawj/vol1/iss2/7>

This Article is brought to you for free and open access by Tuskegee Scholarly Publications. It has been accepted for inclusion in Professional Agricultural Workers Journal by an authorized editor of Tuskegee Scholarly Publications. For more information, please contact craig@mytu.tuskegee.edu.

Case Study of a Food Safety/Good Agricultural Practices (GAPs) Educational Program for Small and Limited Resource Produce Farmers

Authors

Barrett Vaughan, Audrey Zeigler, Gertrude D. Wall, Miles D. Robinson, William A. Hodge, Conrad O. Bonsi, Ntam R. Baharanyi, and Walter A. Hill

**CASE STUDY OF A FOOD SAFETY/GOOD AGRICULTURAL PRACTICES (GAPs)
EDUCATIONAL PROGRAM FOR SMALL AND LIMITED
RESOURCE PRODUCE FARMERS**

**Barrett Vaughan¹, Audrey Ziegler¹, Gertrude Wall¹, Miles D. Robinson¹, William Hodge¹,
Conrad Bonsi¹, Ntam Baharanyi¹, and Walter A. Hill¹**

¹Tuskegee University, Tuskegee, AL

***Email of lead author: btvaughan@mytu.tuskegee.edu**

Abstract

This case study examined methods used in a food safety/Good Agricultural Practices (GAPs) educational program with small and limited resource produce farmers in Alabama to assist them with obtaining certification. Two methods were used, namely, the identification of challenges to food safety certification and development of strategies to address the challenges, and the enlistment of educational methods to facilitate food safety certification. As a result, there were four challenges to food safety certification identified; needs for motivation, information, clarification, and resources. In addition, the educational methods enlisted included group meetings, instructional material distribution, individual farm instruction, and expert instruction. The program was found to be limitedly successful, producing ten GAPs certified operations; further evaluation of the methods is needed.

Key Words: Food Safety, Certification, Good Agricultural Practices, Produce

Introduction

Food safety/Good Agricultural Practices (GAPs) certification is, in most cases, a requirement for selling produce to larger commercial markets. The efforts undertaken by Extension and other outreach units to prepare farmers for certification are intended to deliver the required knowledge on critical areas such as worker health and hygiene, water quality, animal management, and record keeping. However, these food safety training efforts must be tailored to address the particular needs of the target farm managers and their workers (Kline et al., 2012; Mathiasen et al., 2012; Nolte et al., 2011). With this effort, there was an immediate need for the farmers to have food safety certification. Another study has also shown that having certification will soon be necessary for supplying all commercial markets (Tobin et al., 2011).

This case study examined the efforts made in this educational program and the results in terms of farm certification. It has been established that Extension efforts with small and limited resource and minority farmers require that Extension discover “what steps should be taken toward providing viable information and services” (Marshall, 2012). This study documents the steps taken in one such effort.

Background

Commercial Markets and Food Safety

In order to supply produce to most commercial buyers, such as Walmart, suppliers are required to adhere to commercial level standards. These standards pertain to elements such as logistics, packaging, insurance, and food safety. The standards for food safety have been established to make sure that the produce sold has been grown and handled in a manner that reduces the risk for

contamination. In addition, these standards also reduce the potential for incurring the legal liabilities associated with outbreaks of food-borne illness. Taken from a different standpoint, the consumer has a reasonable expectation that the produce they are purchasing is “safe”, and the retailer, that is the commercial buyer, has the responsibility to make sure that that is the case.

Towards that end, different sets of criteria have been developed to qualify certain farming procedures and activities as being those that reduce the risk of contamination. These criteria concern almost every aspect of farm production including the purchasing of planting materials and chemicals, worker hygiene and training, equipment use and maintenance, harvesting and storage, and transportation. The emphasis is not only on adopting and maintaining such procedures and activities, record keeping, with the ultimate goal of having full traceability of each unit of produce supplied. These sets of criteria for the procedures and activities, when adhered to, have been designated as Good Agricultural Practices (GAPs) and Good Handling Practices (GHPs).

Food Safety/GAP Certification

To support the need for determining whether a farm is properly implementing GAPs, third-party organizations (that is, not the supplier and not the farmer) offer the service of auditing the procedures and activities at a farm by a particular set of GAPs criteria. This audit includes a rigorous review of the records, interviews of workers to ascertain their understanding of their impact on food safety, and a detailed inspection of the farm as well as the harvesting and handling of produce. The passing of an audit verifies that the farm has adopted and maintained those procedures and activities that reduce the risk of contamination. Passing the audit then confers a certification upon the farm, that is to say, the farm is “GAP-Certified” or “Food Safety-Certified.”

This food safety certification assures buyers that the produce has been grown, harvested, and handled in a manner that minimizes the risk of contamination. In short, certification communicates that the farm has made a commitment to provide food that is safe. From the legal standpoint, buyers may consider having some form of food safety certification as important as having product liability insurance.

GAP Certification and Audit Preparation

For any farm, there are a number of major adjustments that must be made to prepare for food safety certification. Because the procedures and activities that are necessary to be modified concern almost all facets of the farm, it can be said that, “food safety is not just an aspect of the operation, it is the operation.” The preparation for an audit is a task that many medium and large farmers find a daunting task; for many small and limited resource or historically disadvantaged farmers, the task can seem insurmountable.

Records must be kept of most, if not all, farm activities; however, many small and limited resource farms do not have the personnel resources to dedicate to this task. Worker training and hygiene is a key component to keeping food safe, but the cost to provide training and facilities represent a significant expense at a small or limited resource farm. The changes, monitoring, and maintenance of the fields and grounds are extensive and often costly in time, wages, and the use of equipment for any farm, large, medium, or small. Therefore, due to the nature of the food

safety standards and the circumstances of most small and limited resource or historically disadvantaged farms, supplying to a commercial market has been, up until this time, unattainable to these farmers.

Methods

This study did not use any standard method for case study analysis; what is presented is an organized documentation of the measures taken in the effort to assist the farmers to become food safety/GAP certified. There was no explicit intent to “study” these efforts. In fact, the measures that were taken necessarily had to evolve as the project progressed. However, there were two aspects of the effort that were of interest and were chronicled. First, there was the identification of challenges to certification and development of strategies to address the challenges. Second, there was the enlistment of educational methods to facilitate preparation for certification. To gather this information, an outreach staff member was assigned to directly assist each farm in the program. The information was collected from the notes of meetings with farmers, and from weekly and quarterly meetings of the outreach staff on the project.

Results

Challenges and Strategies

In working with these farmers, Tuskegee University and the Sustainable Agriculture Consortium for Historically Disadvantaged Farmers Program addressed various challenges while assisting them in the process to becoming food safety certified. Each farm presented a number of challenges depending on the circumstances, and each farm had its own unique set. Fortunately, these various challenges can be classified into four categories, namely, (1) a need for motivation, (2) a need for information, (3) a need for clarification, and (4) a need for resources (financial). Though the challenges in a particular category may arise from different circumstances, the nature and remedy for each are very similar. A summary of these Needs is provided in Table 1 in the Appendix. However, a descriptive narrative is subsequently provided.

A Need for Motivation

Challenges related to a need for motivation involve beliefs held by a farm from which the progress in adopting food safe practices is hindered. These challenges include: a resistance to change in culture, or rather, agriculture; a resistance to change in lifestyle, i.e., to make long-term changes in the operation, and; a perceived lack of fairness in the commercial arena in its food safety requirements. All farms that are not supplying to commercial markets, regardless of size, will be presented with these challenges at some degree. The main strategy to deal with these challenges is encouragement through the presentation of the short- and long-term benefits of supplying to commercial markets.

A Need for Information

Challenges related to a need for information entail either a lack of access to information, a lack of skills to assimilate the knowledge presented, or a lack of conditions that promote or permit the sharing of knowledge or training. These challenges include: a lack of access to food safety educational resources; literacy and ESL (English as a Second Language) issues, and; a transient labor pool. These challenges are very specific to each farm, depending on the resources available to and personnel at the farm. The strategy with these challenges is to supply the farm with access to information, assistance, or materials that will help them to overcome these deficiencies.

A Need for Clarification

Challenges related to a need for clarification come not from a lack of information, but from a preponderance of misinformation. These challenges include: a resistance to change in understanding, primarily of the potential for contamination; a lack of record keeping, disregarding the importance of it, and; doubt that it will be worth it, in essence not fully considering the benefits and costs. Many farms would present these types of challenges. The presentation of an argument to support adopting the food safety practices and supplying commercial markets along with valid information is the strategy used with these challenges.

A Need for Resources

Challenges related to a need for resources, mainly financial, pertain to the expenses related to adopting food safety practices. These challenges include: a lack of funds for making necessary changes to the farm procedures and activities; a lack of resources for food safety management and record keeping personnel, and; a lack of funds for certification audit. These challenges are common, if not present by definition, at small and limited resource or historically disadvantaged farms. To address these challenges, the strategy is to help the farm to eliminate unnecessary costs, reduce direct costs, and access additional funding.

Educational Methods

There were a variety of educational methods used in the effort to assist the farms to obtain food safety certification. Initially, the plan for implementing the educational program on GAP was based on large group trainings. As the program progressed, other methods were added to address the challenges presented by the farmers as well as to provide updated or more readily understandable information. All of the educational methods that were employed can be grouped into four modes. These four modes were group instruction, instructional materials distribution, individual farm instruction, and expert instruction.

Group Instruction

Group instruction methods included large group training, small group meetings, and weekly telephone conference calls. The large group trainings consisted of 20 to 30 attendees that represented a dozen or more farms. The training materials used--videos, presentations, and handouts--were from the USDA National Good Agricultural Practices (GAPs) Program at Cornell University. These materials were complemented with crop-specific factsheets and other instructional materials. The small group meetings normally consisted of less than a dozen attendees and focused on particular training needs such as record keeping and worker health and hygiene. The weekly conference calls were held in the early morning, with between 3 and 30 participants, including farm personnel and program staff. A variety of topics were discussed in these calls and they also acted as regular “question and answer” forums. These group instruction methods were the primary means of delivering general food safety and program information.

Instructional Materials Distribution

To complement the group instruction methods, a set of instructional materials was developed and distributed at the trainings and meetings or by electronic means. These instructional materials were created to further assist the farms to implement the food safety procedures and activities by offering more detailed instruction than the materials from the National GAPs Program. In

essence, the materials “filled in the gaps.” The principal instructional material that was developed was a template for the Standard Operating Procedures (SOP), also known as “the plan.” The development of the plan template was an iterative process; improvements were made as more information and feedback was received from experts in the industry, auditors, Extension and outreach personnel, and from the farms. Other materials that were developed complemented the plan template: a quick reference guide listing the conditions that trigger a record to be kept; a start-up guide offering instruction on pre-season assessments and activities, and; a pre-audit checklist detailing the steps needed to prepare the plan, workers, and fields for an audit.

Individual Farm Instruction

After the group instruction sessions were held and the instructional materials were distributed, it was found that they were not completely adequate in assisting the farms to prepare for food safety certification. Therefore, individual farm instruction was deemed to be necessary for the success of the program. In order to assist the farms in the certification process, each was assigned a specific Extension or outreach staff member as their contact person and program liaison. The primary function of the individual farm instruction was to guide the farms in developing their plan. This was done in plan consultations. Typically, two sessions with the farm was necessary; the first was to gather the information for customizing the template for their operation, the second was to go over the plan and the record keeping needs with the farmer. Before the certification audit, another set of two to three sessions was necessary to review the plan for completeness and to assist farmers with gathering any missing information. Also, farm visits were conducted by Extension and outreach staff to determine the readiness of the fields for the inspection; in some cases, a mock audit was conducted by Extension and outreach staff.

Expert Instruction

The other mode, expert instruction was the connection of the farms to food safety experts in the industry. The expert instruction was able to provide the farms with information from, interaction with, and real feedback on the progress that they were making from buyers and auditors. Educational audits were conducted by the food safety auditors in advance of the certification audit. Several food safety experts from the buyer companies toured and reviewed farms, inspected fields, and answered questions about food safety compliance. These visits were invaluable in providing the farms with the industry’s perspective on food safety and its importance. Also, out-of-state tours were arranged for the program farmers to see large, operating commercial farms and their food safety procedures and activities.

Discussion

These various efforts in the 2013 season produced a total of nine (9) farms and one (1) processing facility that were certified; four (4) farms were actively preparing at the time of this writing. These nine farms were approved or passed fifteen (15) audits, because some farms were audited for summer and fall crops. The farms were certified under the USDA Produce GAPs Harmonized Food Safety Standard Audit. The farms were also approved under the Global Markets Primary Production Assessment (GMPPA), a set of optional additional questions beyond the Harmonized Audit. Conformance with the questions in the Global Markets Addendum (within the GMPPA) was required by Walmart for all suppliers to meet the standards of the international Global Food Safety Initiative. All of the certified farms were approved for both audits.

Though the 2013 season saw many crop failures, about half of the certified farms were able to supply produce to Walmart, beginning in August. In most cases, these were from replanted fields. However, many of the certified farms lost most of their crops; there was enough to harvest for an audit, but barely enough to ship commercially. Those certified farms that lost their crops were able to carry their certification into the fall crops (with an auditor visit) and/or over into next year's season.

Also, through this educational endeavor, Tuskegee University developed relationships with the USDA Agricultural Marketing Service Audit Division. Staff from Washington, DC visited Alabama to observe the audits of farms and discuss the certification program. The program also created relationships between Extension and outreach staff and staff of the Alabama Department of Agriculture and Industries Audit Division.

Conclusion

The efforts to assist these small and limited resource farmers to become food safety/GAP certified were successful where the particular challenges to certification were adequately addressed. These challenges were not insurmountable for most of the farmers in the program, and were common to the majority of small and limited resource farmers. The most important lesson learned was that it is necessary to accurately assess the capability and situation of the farmer, and to be able to adapt and utilize the educational method that will be most effective. It will be necessary to ascertain the relative effectiveness of the strategies and the educational methods used in a much more scientific way. Such a study would assist with determining the most appropriate methods for future seasons. This study may not have followed such methods, but it offers a qualitative insight into the challenges faced and educational methods suitable for food safety/GAP outreach to small and limited resource farmers.

References

- Kline, T.R., H. Kneen, E. Barrett, A. Kleinschmidt, and D. Doohan. (2012). "Adapting Extension Food Safety Programming for Vegetable Growers to Accommodate Differences in Ethnicity, Farming Scale, and Other Individual Factors." *Journal of Extension* 50 (1). <http://www.joe.org/joe/2012february/iw1.php> [Retrieved January 14, 2014].
- Marshall, R.W. (2012). "The Impact of the Extension Service on Minority-Owned Small Farm Operations." *Journal of Extension* 50 (1). <http://www.joe.org/joe/2012february/comm1.php> [Retrieved January 14, 2014].
- Mathiasen, L., K. Morley, B. Chapman, and D. Powell. (2012). "Using a Training Video to Improve Agricultural Workers' Knowledge of On-Farm Food Safety." *Journal of Extension* 50 (1). <http://www.joe.org/joe/2012february/a6.php> [Retrieved January 14, 2014].
- Nolte, K.D., C.A. Sanchez, and J.M. Fonseca. (2011). "Assessing the Culture of Fresh Produce Safety Within a Leafy Green Producing Community." *Journal of Extension* 49 (6). <http://www.joe.org/joe/2011december/iw4.php> [Retrieved January 22, 2014].
- Tobin, D, J, Thomson, L. LaBorde, and J. Bagdonis. (2011). "Developing GAP Training for Growers: Perspectives from Pennsylvania Supermarkets." *Journal of Extension* 49 (5). <http://www.joe.org/joe/2011october/rb7.php> [Retrieved January 22, 2014].

Appendix

Table 1. Challenge Areas, General and Specific Issues, and Pre- and Post-Intervention Statuses

Challenge Area	General and Specific Issues	Pre-Intervention Status	Post-Intervention Status
A Need for Motivation	Resistance to change in agriculture; resistance to change in lifestyle; or a perceived lack of fairness in the commercial arena.	Minimal tracking of expenses	Better management of finances
A Need for Information	Lack of access to information; lack of skills to assimilate the knowledge presented; or a lack of conditions that promote or permit the sharing of knowledge or training.	Untrained workers Lack of farmer communication	Workers trained on food safety Regular group discussion
A Need for Clarification	Resistance to change in understanding the potential for contamination; a lack of record keeping; and doubt that it will be worth it.	Animals in proximity to fields No pest control for building Minimal record keeping	Livestock and pets excluded Pest control for buildings Detailed records kept
A Need for Resources	Lack of funds for making necessary changes to procedures and activities; a lack of resources for food safety management personnel; and a lack of funds for certification audit.	No restroom facilities Minimal family involvement	Portable restrooms at fields Family members keeping records