Strategy to Empower Disadvantaged Blueberry Growers and Farm Workers through a Techno-Social IPM Training Curriculum

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Abstract

Blueberry production is a high-risk endeavor requiring knowledge and skills. The implementation of the 1996 Food Quality Protection Act (FQPA) (Public Law 104-170) (1967) further amplified this risk by eliminating and/or restricting many of the conventional insecticides relied upon for fruit production. However, successful implementation of the FQPA is highly dependent on comprehensive pest scouting services. Thus, we developed an IPM Scout training program with a bilingual technical curriculum alongside a “Cap Stone” social framework program replicable in other regions with other crops. This program set the stage for the successful transition of the blueberry industry to environmentally friendly production practices, providing the means for empowerment for disadvantaged growers and farm workers through job opportunities and awareness of pesticide health hazards.

Our Blueberry IPM Scout training program provided disadvantaged growers and farm workers with risk management skills necessary to succeed in their business and agricultural endeavors and provided Michigan’s blueberry industry with newly trained IPM scouts. Nine Latinos are self-employed and the IPM scouting skills for 20 employed trainees were enhanced. The “Cap Stone” component enhanced the social skills of disadvantaged blueberry growers and farm workers. Thanks to our training program the silent minority of the past now voices concerns and needs of Latinos and disadvantaged growers and farm workers. Finally, there are already four training programs developed after our model; apple, peach, cherry and grape IPM scout training programs offered at different places in Michigan. Ultimately, our goal is to integrate more crops with the same model.
**Introduction**

Blueberry production is a high-risk endeavor requiring knowledge and skills. In recent years, pest management has become critical because of the industry’s nearly zero tolerance for pest damage or fruit infestation. The implementation of the 1996 Food Quality Protection Act (FQPA) (Public Law 104-170) (1967) further amplified that risk. This law has eliminated and/or restricted many of the conventional insecticides relied upon for fruit production. As a result, blueberry growers must enhance their ability to scout for pests and expand their knowledge of how to effectively use Integrated Pest Management (IPM) practices and tools.

In comparison with the big commercial blueberry operations (>50 acres) it is difficult for Michigan’s small farmers with not enough cash capital to hire professional pest scouting services. Rather, they need to learn to scout their own farms. Unfortunately, the primary sources of information for learning about pest scouting and Integrated Pest Management (IPM), like University extension programs, do not effectively target small minority farmers.

A successful transitioning from conventional pesticide-based agriculture to integrated programs is highly dependent on comprehensive pest scouting services. In Michigan, there is a chronic need in the fruit industry for scouts, particularly among minority fruit growers unable to take full advantage of the scouting and Extension services. A key difficulty in meeting the demand for scouts in Michigan is that the growing season is only 4-6 months long. This limits the pool of candidates interested in making a career of IPM scouting.

Demographics in agriculture are shifting toward Latino and Asian immigrants (U.S. Dept. of Labor, Agriculture Labor Market Report to Congress, Dec 2000). Presently, approximately 90% of the farm workers in the blueberry industry are Latinos. In addition, many of these farm workers or newcomers Latinos are buying blueberry farms from their Caucasian employers. We have also observed an increase in number of females taking over farms or work in blueberry production. This has resulted in a significant increase in the number of small blueberry farms owned by disadvantaged growers. From 1991 to the year 2000, the number of small blueberry farms (from ½ acre to 50 acres) has increased from 490 to 3,700 farms (MDA Michigan Fruit Inventory 2000-2001). The Pew Hispanic Center, *(Hispanic Economic Prospects Depend on Education and a Strong Economy, Fact Sheet, Jan. 2002)* stated that skills training are essential to Latinos future progress to shorten the economic gap between Caucasian and Latinos.

Empowerment of disadvantaged growers requires teaching them not only technical but also social educational skills. However, a major obstacle is their educational level and their isolation from mainstream culture. The blueberry IPM scout certificate program provided disadvantaged growers and farm workers with an opportunity to become self-employed and the Michigan fruit industry with a much-needed source of IPM scouts. The purpose of this educational strategy is to:

1. Empower disadvantaged blueberry growers and farm workers with social skills through a “Cap Stone” program alongside a technical curriculum.
2. Provide disadvantaged growers and farm workers with the means to become self-employed by training them as IPM scouts for Michigan’s blueberry industry
3. Enhance risk management skills of disadvantaged blueberry growers and farm workers.
4. Provide a curriculum template that can be replicated for other crops and in other places.

Methods

This training program was designed as a template, so it could be duplicated with other crops and in other settings. It included a “Cap-Stone” program designed to provide the trainee with social skills necessary to succeed as a self-employed individual. The program consisted of three “Modules”. Each module served as a building block going from basic to more complex and specialized areas. Module I covered the basic concepts of insect, plant, disease and weed biology regardless of the fruit crop (apples, cherries, blueberries, grapes, etc.). Thus, this module can be used to train fruit growers in crops other than blueberries. Topics discussing pest and disease problems as well as horticultural practices specific of blueberry production were grouped in Module II. The third Module included the in field “hands-on” training sessions taking place during the blueberry growing season.

The tentative classroom and in-field “hands-on” training program was presented for consideration to a focus group of 12 persons representing both the blueberry growers and industry. The focus group evaluated the relevance of the topics included in the curriculum to meet the needs of blueberry growers and the industry, the growers’ willingness to pay for the program and whether this training program was designed for the right audience, mainly disadvantaged and minority growers and farm workers. Based on their considerations the training program was modified accordingly. The techno-social classroom training covered IPM theory, pesticides management and safety, horticultural basics, plant disease, insect, and weed scouting methods, record keeping, and basic business principles. The social component or “Cap-Stone” program included Leadership training, Cross-Cultural Education, Bookkeeping, Tax Preparation, and Immigration issues. Courses were taught in English with help sessions in Spanish, using bilingual materials designed specifically for this course. One of the requirements we imposed was that Latinos who enrolled in the course have at least a 5th grade reading and English comprehension levels. The techno-social classroom sessions were 50 minutes long and lasted for 6 weeks, on a once per week 9:00 AM to 3:00 PM schedule. Question and answers were encouraged during each of the participatory lectures.

A major difference of this program with other training programs offered to the fruit industry is that it is taught with educational materials developed at the audience’s level and in both Spanish and English. Another major difference is that it contains a “Cap Stone” program that includes Cross-Cultural Education and Leadership Training. We felt that Latinos needed to be made aware of the differences in cultural, mores, customs and expectations of the mainstream population. Caucasians also needed to become aware of these differences so there are fewer misunderstandings among employers and Latino workers. The leadership component was added to build self-confidence and self-esteem in both Latino and Caucasian trainees.

One unique feature of these lectures is that after each specialist presented a topic, the trainees were asked to evaluate the presentation. All evaluations were the same length and in the same format. The purpose of these evaluations was twofold: Clarity of wording in both the oral and written presentations and relevancy of all materials presented. Evaluations were
collected and were presented to each specialist during group meetings of all presenters. Suggestions from trainees have been taken into consideration and have been utilized to improve our curriculum. There were 4 hands-on field sessions from May to July to coincide with the early, mid and late insect pests, diseases and weeds development. Trainees received a "scout tool kit" for use in blueberry fields, including: a hand lens on a lanyard, a pocket knife, MSU Extension publications E-154 "Fruit Spraying Calendar", Blueberry IPM Scouting Fact sheets, NRAES-55 Highbush Blueberry Production Guide, Weed ID bulletins, a Pesticide Applicators Core Manual, and other pertinent materials as they are produced. The field sessions were also evaluated. The training was conducted at the MSU Trevor Nichols Research Complex (TNRC) located in Fennville, MI and surrounding blueberry farms.

Another component of our program was the Mentoring program offered to those who had completed the training program. This gave trainees the opportunity to undergo farmer-to-farmer and scout-to-scout training, with experienced blueberry growers or IPM scouts in the region. Mentoring is the relationship between an experienced and a less experienced person in which the mentor provides guidance, advice, support, and feedback to the trainees. Mentors serve in the roles of guide, advisor, coach, motivator, facilitator and role model within the context of applying IPM techniques and reducing farming risks. Two types of mentorships were offered to trainees: Production mentorship and Scout Training mentorship. Mentors were recruited from successful experienced blueberry growers and from experienced IPM scouts, based on their farming skills and ability to communicate. They functioned as experts, providing authentic, experiential learning opportunities as well as an interpersonal relationship through which social learning takes place. Trainees had at least 8 contact hours per week with their mentor during the crop growing season for learning critical skills through the one-on-one exposure. Incorporating mentoring in this project is consistent with the practice of mentoring to expand opportunities for those traditionally hampered by organizational or cultural barriers. In agriculture, this group includes female, minority, and small-scale farmers. Certificates were presented to participants who completed the training.

Results

The evaluation of this new educational mode for training disadvantaged growers showed immediate success. This program attracted a total of 22 trainees, 6 Latinos and 16 Caucasians in 2003, and in 2004 a total of 38 trainees, 5 Latinos, 1 African American and 32 Caucasians. Enrollment of minority and disadvantaged growers increased from 33% in 2003 to 66% in 2004, and there were more female blueberry growers attending than before, 27.03% vs. 21.73% in 2003. The training benefited approximately 2,700 acres of blueberries during 2003 and 6,000 acres during 2004. In addition, 11 Latinos and 1 African-American upgraded their working skills or leaned how to apply new blueberry production practices and pest control tools. Also, under this IPM Scout training program a total of 16 growers/farm workers were certified to apply restricted use pesticides. Of those certified, five Latinos obtained their certification in 2003, and five Latinos and one African-American female in 2004. This alone benefited approximately 800 acres of blueberries. If we consider that contracting pest control with commercial applicators cost an average of $30.00/acre all certified growers saved approximately $24,000 per application. We were able to provide
mentorships to two trainees, one was a small blueberry grower taken under the guidance of a successful Latino blueberry grower and the other a Latina taken for further hands-on training as a scout with an experienced IPM scout from the Michigan Blueberry Growers Association.

**Enhance risk management skills.** Risk management in blueberry production includes pest control decision-making knowledge and skills. In order to be certified to apply restricted pesticides in their own farms, growers need to demonstrate their knowledge on pest control related subjects. But to succeed in blueberry production, growers need to combine their knowledge with their pest control decision-making skills. Some of the small blueberry growers (< 15 acres) had recently become involved in blueberry production. They had previously been employed in the food or service industries, and had little knowledge of how to farm. Most of these growers supplemented their income with part-time jobs in non-agriculture related areas.

One outstanding example of the impact of the blueberry IPM scout training was a Latino part-time grower (13 acres) who had bought his farm in 2000 without any knowledge of the legal requirements to apply restricted pesticides necessary to ensure a healthy crop. Thus, unable to apply pest control measures on his own, he lost the 2001 blueberry crop. In 2002 he contracted a commercial crop duster to conduct some critical applications against blueberry insect pests and diseases. However, due to his lack of understanding about pest control timing once again he lost most of his crop, although he paid approximately $300/acre for pest control. In 2003 after taking the Blueberry IPM Scout Training program, this grower obtained his “Private Pesticide Applicator” license and bought his own spraying equipment. With the knowledge gained through the training and the technical assistance of MSU Extension, his blueberry yield was increased to 2,700 lb/acre (State average = 3,700 lb/acre) in addition to a savings of $1,200.00 in pesticide application fees. The field season 2003 was the first time this grower had an income ($23,868 approximately) since he bought his farm.

Another example of enhanced risk management skills is the “Pesticide Applicator” Certification training. Being a certified pesticide applicator is an unavoidable requirement for those people involved in risk management in blueberry production. In 2003, four trainees obtained their “Private Pesticide Applicator” license through our training program, but this number increased to eleven during 2004. Thus, by virtue of the pesticide applicator certification training, risk management was greatly improved over approximately 800 acres of blueberries. Based on the number of acres owned by newly certified trainees and the crop duster fee, $30.00 per acre, the economic impact of this training in 2004 was approximately $24,000 per application.

**Means to become self-employed as IPM scouts for Michigan’s blueberry industry.** There is a continuous demand for IPM scouts for the blueberry industry. This is an opportunity for farm workers and disadvantaged blueberry growers to become self-employed and improve their livelihood by acquiring new skills as IPM scouts. In 2003, a Latino housewife and part-time blueberry picker, after taking our training, she obtained her “Private Pesticide Applicator” license and started her own scouting business. Presently, she scouts 60 acres of blueberries for a fee ($20.00/acre). Likewise, a Caucasian employee of an Agro-Chemical company became an IPM Scout for his company providing IPM scout services to approximately 25 blueberry growers. The average acreage per grower was 40 acres.
By the field season 2004, two female trainees were scouting blueberry fields; one was scouting for the Michigan Blueberry Growers Association and the other for a private consulting business. Presently, five graduates from our Blueberry IPM Scout training programs are providing IPM scouting services to Michigan’s blueberry industry.

**Empowerment of disadvantaged growers and farm worker through a “Cap Stone” program alongside a technical curriculum.** Axelson (1993) stated that in individualistic societies such as in our Western societies, one of the major aims of education is to help students reach independence and individual self-fulfillment. The combination of a technical curriculum and “Cap Stone” program was aimed to empower disadvantaged growers and farm workers by providing them with not only technical but also social educational skills. For example, a Latino housewife started college after being inspired by the female instructors she had in our course. She also organized a Latino blueberry growers association and during Michigan’s budget crisis, she testified in front of a House of Representatives Committee on the importance of funding for the MSU Agricultural Experiment Station and its educational programs. Also, two Caucasian females were able to enhance their production, business, and cross-cultural skills. In the first case a newcomer into the blueberry industry not only learned new crop management tools but also marketing and management skills to operate a small store to sell her blueberry products. The other woman became aware of the cultural differences between Latinos and Caucasians. This allowed her to manage Latino male crews in her blueberry farm that before the training seemed impossible to achieve. In another case, two Latinos, one a part-time blueberry grower, with no previous farming experience and the other one a farm worker, profited from the “Cap-Stone” program by learning about immigration laws, hiring of labor, and the cross-cultural differences when dealing with Caucasians. After the training, both were able to conduct business deals with Caucasian blueberry growers and were able to speak in public meetings about the needs and concerns of the Latino farming community.

**Provide a curriculum template replicable for other crops and in other places.** The Blueberry IPM Scout Training program was planned as a template to develop other IPM scout training programs to address the needs of both fruit growers and farm workers for Michigan and other fruit growing states. Thus, Module I included basic classroom courses necessary for the trainee to grasp the concept of Integrated Pest Management regardless the crop or pest. This module also included a basic training on Insect Growth and Development, Plant Disease Development, Plant Growth and Understanding Weed Development, and Soils. These general courses were used with minimal changes to train not just blueberry growers but apple, peach and cherry growers and farm workers as well. The second Module contained classroom courses specific for a particular fruit crop, blueberry, apple, peach or cherry. The third Module, hands-on field practices, was also specific for each fruit crop. Thus, three other scout training programs, Apple, Peach, and Cherry were developed taking the blueberry scout training program as a template; and presently, the new Grape IPM Scout training program. However, those training programs have been offered only in English because of limited funding to provide Spanish translated training manuals.
Conclusions:

A major accomplishment of the training program was to empower disadvantaged blueberry growers and farm workers by providing leadership skills through a “Cap Stone” program alongside a technical curriculum. In 2003, the Michigan’s budget crises provided the opportunity for minority growers and farm workers to express their support to the Michigan State University Agricultural Experiment Station and MSU Extension to avoid drastic budget cuts that would have eliminated educational programs such as ours. What before was a silent minority with no say has now thanks to our training program become an active voice expressing needs and concerns of Latinos and other disadvantaged growers and farm workers.

Our Blueberry IPM Scout training program has proved that a techno-social training curriculum is successful in providing disadvantaged growers and farm workers with risk management skills to succeed in their business and agricultural endeavors.

The goal of providing the Michigan’s blueberry industry with trained IPM scout is being met by our blueberry IPM scout training program. So far nine Latinos are self-employed as IPM scouts serving the blueberry industry. In addition, the scouting skills for 20 trainees already employed as farm workers or pest consultants were enhanced. This training resulted in better salaries and income for those individuals.

The goal of providing a curriculum template that can be replicated for other crops and in other places has also been successfully met. There are already four IPM scout training programs developed after our model; apple, peach, cherry and grape. Those trainings are offered in different locations throughout Michigan. Our ultimate goal is to include more crops that can utilize our model as a template.

In spite of these achievements some important challenges still need to be overcome. Latino workers are eager to be trained but there are not enough bilingual educational programs offered at their level of education.

Latino and disadvantaged farm workers and growers did not rush to take our training program in spite of having scholarships offered to them. One reason could be that many of them are still part-time farmers and can not take a morning or an afternoon from their non-agricultural jobs. Even though Caucasian growers recognized the importance of this training, due to harsh economic times they were not eager to pay their farm workers to come to be trained. Therefore, we have realized that to train farm workers, some form of economic assistance program has to be provided to offset their loss of hourly wages/income while in training, or to offer growers an incentive so they can send their farm workers to be trained. It is not enough to obtain a grant to develop just an educational training program.

The development of educational programs by University faculty or Extension specialists has to be edited for proper language and level by someone with a degree in agricultural and extension education to make sure the quality is maintained while the level of the materials is lowered to the level of education of disadvantaged growers and farm workers. Translation of presentations and manuals into Spanish from the English language is expensive and time-consuming. Also, technical translators are not readily available. To maintain the quality of our Spanish translations we believe that these types of translations should not be given to just any person who speaks the language.