

## **FINAL REPORT**

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**Lancaster, MA  
978-534-5411**

### **“Education about Sustainable Pest Management with Hmong Farmers” Project # FNE 01-386**

#### **What do you want to do? Briefly state the problem your project will address and what you propose to do about it.**

I would like to focus the remaining resources available from my existing grant to do follow up monitoring of pesticide use by the Hmong farmers. I propose hiring a student from the Hmong community who is proficient in both English and Hmong and who can communicate and monitor the importance of safe pesticide use. I realize that this is a long-term education and monitoring effort, much more so than I thought in my original proposal. Frank Mangan, our extension agent, has worked with me and the Hmong growers to identify the need for education about pest control issues. We face not only language barriers but also cultural differences in the way they understand pests, diseases, science, and government regulations. Their beliefs are part of their culture. I'm convinced that the only way that we can share the information on pest management is to present the information in a culturally sensitive manner which will lead to the understanding and of safe pesticide use.

This proposal will monitor the pesticide use at the farm.

#### **Timeline**

##### **June-October**

- Search within the Hmong community and the Youth group for qualified applicants.
- Identify and document challenges faced by Hmong growers.
- Daily pest scouting at all of the Hmong farm sites.
- Conduct interviews with Hmong farmers having pest issues.
- Compile information from interviews.
- Contact experts for pesticide recommendations.
- Monitor and document any and all pesticide use.
- Conduct grower interviews at the end of the season.

#### **Results:**

We will be able to measure the results of the project by assessing Hmong knowledge and practices of pesticide use at the beginning and end of this season.

I will be regularly visiting the Hmong acreage and will continue to monitor pest control techniques. In addition, we will measure our success by the participation that we achieve from the Hmong in our daily pest scouting interviews.



This change to my original proposal is due to my experience with different methods of communicating with immigrant farmers. Our hope is that we build a relationship based on trust and honest communication, which will make a difference on how they treat the land and their farming enterprise in general.

#### ACTUAL RESULTS:

The goal of this project was to educate Hmong on safe pesticide use and to monitor the progress that this new knowledge has promoted.

At the end of the 2003 season, the result was significant decrease in the use of pesticides; furthermore, all but one of the pesticides used was organic. Our goal to encourage farmers to understand the importance of safe pesticide use was better than expected. Farmers were eager to grasp the new concepts and were very pleased with the crops they produced, due to their new efforts. Our continuous goal throughout this project, was to introduce these new procedures in a way that would blend with their already traditionally methods. We feel that the person whom we chose to be the mediator and translator for these affairs was crucial in how the Hmong farmers accepted these new methods of farming which were different than they had been accustomed. With this in mind, I hired Sheng Lor who is a Student at Fitchburg State College, and also a member of the Hmong community. She attended several pesticide trainings with Ruth Hazzard to increase her knowledge of the information that she would be using. Her job was to translate, frequently scout for pests, and assist farmers with any problems those pests could incur. The focus and intent of this effort was not to emphasize organic but to increase general awareness of different pest control techniques, which included the use of organic pesticides. We accomplished what we set out to do.

We increased general awareness of different pest control techniques, which include the use of organic pesticides. After working meetings with Hmong farmers, Ruth Hazzard and Frank Mangan from Umass Extension, the farmers decided that using organic products would be preferable. Umass provided some of the organic materials and Sheng and I made frequent visits to the farm. We worked out a schedule in which someone was at the farm for at least two hours per day. With our constant presence at the farm, we educated farmers at what point in the plant's life cycle to use pesticides, personal application safety, they learned and understood the life cycle of the pests.

These farmers are now better equipped to compete in the market place as a result of their ability to control crop pests. I personally worked with four individual at the Farmers Markets, which included Brookline, Dorchester, Lowell and Newton. Quality of the crops produced created value at the markets. Farmers realized, first hand, the relationship between safe pesticide use, food safety, and how it all affects their ability to benefit financially from farming.

Farmers were very satisfied with their sense of control over such pests as Flee Beetle, striped cucumber beetle, and the Colorado potato beetle, just to name a few.











Northeast Sustainable Agriculture Research and Education Program  
Farmer/Grower Grant Report

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“Education about Sustainable Pest Management with Hmong Farmers”  
Project # FNE 01-386

The goals of this project were to develop methods to reduce pesticide use among non-native English speaking Hmong immigrant farmers. While a lot of research has been done about ways to educate conventional farmers about the risks of pesticides and the benefits of Integrated Pest Management, there remains much to learn about how to communicate these issues effectively to immigrant farmers. In working with immigrant farmers we face language and cultural differences in the ways we understand pests, diseases, science, and government regulations. In order to reduce barriers to mainstream markets, Hmong farmers must be able and willing to adhere to pesticide regulations or engage in low-input or Organic techniques. To this end the specific goals of this project were to study Hmong farmers' agricultural practices and the historical and cultural aspects of them and to plant and maintain a demonstration garden of sustainable pest management for Southeast Asian crops. The goals were to:

- Demonstrate non-chemical pest management for common plant pests including Brassica flea beetle, striped cucumber beetle, eggplant flea beetle, and other pests;
- Demonstrate the use of cover crops for various purposes;
- Demonstrate the use of a flame-weeder for small-scale weed control;
- Demonstrate seed varieties particularly suited to growing conditions in the Northeast;
- Allow ample work time during which we could interact with Hmong farmers;
- Work with Frank Mangan, Ruth Hazzard, and Natalia Clifton of the University of Massachusetts Extension to provide support for resolving pest problems, providing pesticide safety information, and developing methods for ongoing communication about pest management and pesticide safety.

This project took place on a portion of my dairy farm that I rent to Hmong farmers who grow vegetables for sale to other Southeast Asian immigrants. My husband and I milk about 200 cows and sell milk and cheese. We grow corn silage and hay on 140 acres that we own and about 300 acres that we rent. Over the last fourteen years we have rented between ten and thirty acres of our land to Hmong immigrants. In 2001 we rented about fifteen acres to several families.

This project was a collaborative effort between myself, April Merleaux, a graduate student at Tufts University, Frank Mangan of the University of Massachusetts Extension, and Ruth Hazzard, also of the University of Massachusetts, and the New Entry Farmer Project. April conducted interviews with Hmong farmers and coordinated the demonstration garden along with Nandy Vang, Hmong translator and liaison. Ruth Hazzard and Frank Mangan both made site visits during which they learned about Hmong practices, offered suggestions, and helped develop materials to distribute to Hmong farmers. The New Entry Farmer Project offered in-kind services including filmmaking services, materials and mileage reimbursements.



In June 2001 we planned and planted a 1/5 acre demonstration garden on my property where several Hmong families farm. The garden was near the entrance to the site, and thus drew a lot of attention throughout the summer. Many Hmong farmers stopped by to chat and learn about the use of row covers, cover crops, flame weeding, and seed sources. The plot required tending about four times per week, and each time someone was there to tend it they had at least one conversation with another farmer about how these techniques were working. This proved to be an excellent way to get to know the farmers and learn about their practices and their needs. The crops in the garden were similar to those grown by most Hmong farmers on site. Chinese broccoli, mustard greens, eggplant, bitter melon, yard-long beans, cilantro, Asian basil, saw-toothed herb, pac choy, napa cabbage, cucumbers, pumpkins, and corn were among the vegetables grown. Brassica crops were grown with and without row covers and with and without a stale seed bed technique. The stale seed bed was created using a flame weeder. Cucumbers were grown with and without row cover. Two cucumber varieties were trailed. Three varieties of yard-long beans were trailed. Only one variety yielded any beans because the season in Massachusetts is not long enough for varieties other than those developed specifically for the northeast. In addition, the beans were badly attacked by Mexican bean beetles. In the future, a trial of a kaolin clay product to control this pest might be appropriate. Buckwheat and oats were grown as cover crops for weed control and to attract pollinators. Eggplants were grown with and without row cover to protect from eggplant flea beetles. Three varieties of Asian basil were trailed, as were approximately ten varieties of mustard greens. Samples of row cover were given to interested farmers. Approximately ten samples were given.

A permanent, weather-proof bulletin board was constructed next to the garden on which information about pests, trainings, and the techniques used in the garden were posted. These postings were translated into Hmong.

Ruth Hazzard, Nandy Vang, and April Merleaux made a short bilingual video about the use of row cover to control flea beetle and striped cucumber beetle. A filmmaker employed by the New Entry Sustainable Farming Project taped Ruth and Nandy in the field and began the process of editing the video for distribution to Hmong farmers. This editing has not been completed, at this time.

Frank, Ruth, Natalia Clifton and translator Nandy Vang presented a pesticide safety training to a group of fifteen Hmong farmers in August 2001. This training was also filmed for eventual distribution to Hmong farmers. The training was held on a Saturday in the field. The content included basic safety clothing, mixing of pesticides, and discussion of common insect pests. Based on interview findings, it had become clear that many farmers made pesticide purchase decisions based on brand name or insect pictured on the label rather than on familiarity with the active ingredients. We conducted a survey of all local retail outlets for pesticides in order to determine what materials were available and which could be recommended as safest for use on Southeast Asian crops. The training session encouraged the farmers to begin to recognize the name and concentration of the materials and use that as a basis for their purchases. The New Entry Sustainable Farming Project donated gloves, aprons, and safety goggles.

April Merleaux and I each attended several markets at which Hmong farmers sell their vegetables. We learned that the appearance of the produce is very important to the consumers. The produce must be appropriate varieties, at the proper stage of maturity, inexpensive, and free from obvious insect damage. Southeast Asian consumers were not concerned, for the most part, with pesticide use. Thus, consumer demand in current markets does not appear to be a strong motivation for Hmong farmers to undertake low-input farming practices. On the other hand, cutting production costs was repeatedly mentioned as a motivation for reducing pesticide use.



April conducted life history interviews with four Hmong farmers and conducted interviews about pest management and crop production with four additional farmers. She obtained Institutional Review Board approval for the interviews from Tufts University. The life history interviews were recorded and transcribed. Notes were taken about the other interviews. She then summarized the findings, which we have incorporated into our ongoing understanding of how to provide more effective services for Hmong farmers.

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### Summary of Interview Findings

April Merleaux, M.S.

Tufts University

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Gardens and small farms play an important role in the social and cultural patterns of Hmong communities in the United States. Farming and gardening facilitates the recreation of important elements of Hmong peoples' past experiences, provides a cushion against some of the hardships of life in the United States by providing familiar and inexpensive foods, and crystallizes many of the values of Hmong people.

Meanings associated with pesticides are complicated and are nested within the important meanings attributed to gardens and to international migration by the Hmong community. Pesticides represent a break with the slash-and-burn agricultural practices of Hmong people in Laos, and also represent continuity with practices learned while refugees in Thailand. Pesticide use represents many of the difficulties of gardening in Massachusetts—soil depleted by constant cultivation, inability to move to new locations when problems arise, inability to burn crop and forest residue, lack of control over land and other resources. Pesticides are expensive and undermine the important role of vegetable gardening as a subsistence activity. They also represent the imposition of American values on a traditionally Hmong activity.

Yet Hmong gardeners also described pesticides as a laborsaving device that allows them to continue gardening despite the damage caused by pests that they might not otherwise have the time to control. Many Hmong gardeners can only imagine that pests would need to be smashed by hand if pesticides were not available in Massachusetts. Most Hmong gardeners I talked to were defensive of their pesticide use—minimizing the dangers associated with the technology and treating it as an obvious and necessary tool used for gardening in the United States. Pesticides should be viewed as a modern technology—burdened with harmful physical properties, implicated in the political economy of twentieth century corporate development, easily misused, but successful in achieving certain farming goals. Even as more Hmong men and women enter the paid work force farming remains critical to their adaptations within their new environment, and pesticides are one tool that helps them deal with time constraints and discouraging pest destruction. Hmong use of pesticides can be seen as a selective incorporation of modern technology that may or may not diminish practices and knowledge inherited from Laos, but that facilitates the maintenance of farming as an important element of Hmong identity. If small farms are critical to Hmong identity, then pesticides—despite the other baggage they carry—must also be seen as critical to Hmong identity in Massachusetts. This does not imply that Hmong pesticide use is intransigent; merely that it can be *strategic* to incorporate “modern” technologies when more important elements of cultural identity are at stake. From this perspective it becomes increasingly important to provide information about safe pesticide use and other easily accessible pest management techniques, such as row cover, kaolin protectants, and cover crop rotation. Cost- and time-effective pest management strategies should be given high priority.

Many people that I spoke with drew comparisons between Laos and the United States in regards to agriculture. Even an informant who had not experienced agricultural life in Laos first-



hand indicated that farming had fewer challenges there—this is part of the story told by Hmong people to themselves about their life transitions. This informant said that “in Laos there were no problems with insects. If they did have problems with insects for a couple of years and the vegetables weren’t good, they would go somewhere else, move on to a new farming site.” Life was freer and better in Laos. The soil was better, the Hmong were able to move to a new location when pests or weeds overwhelmed them, they were free to burn their fields, there were no arcane rules governing the use of forests, water, and fields, they did not need money or pay bills.

For the Hmong who remembered farming in Laos and for those Hmong who had heard for years about farming in Laos the meanings attributed to land are central to any understanding of pests and pest management. Shifting from an old field to a new one is a Hmong paradigm for managing agricultural and social problems. Shifting has become much more difficult in this new environment. Land is all owned, expensive, posted for trespassing, and protected by a barrage of rules and regulations limiting what even people who own the land can do with it. Gardening and farming in a fixed location implies a new reliance on the agricultural technologies developed to compensate for resource-degrading agricultural practices of sedentary farming. What is more, most Hmong in Massachusetts are confined to farming on fields shared with many other Hmong families rather than with only the most trusted and immediate family members. Just as farmers in Laos had moved to a new forest site and cleared it when their crops began to suffer from insects, weeds, declining fertility, and social friction, the answer to pest problems for Hmong farmers in America is to move—or to grudgingly use pesticides.

It is relevant to note that the “indigenous” technology that Hmong people imagine as an alternative to pesticides—slash-and-burn cultivation—is not possible in the United States. For this reason pesticide use does not require a direct and immediate rejection of Hmong technologies that might threaten Hmong conceptions of self. On the other hand, Hmong gardeners are extremely attached to their hoes and are unwilling to relinquish them. They have not—for the most part—accepted the use of herbicides or flame weeders to replace weed control. Several gardeners use rototillers to manage weeds in large fields, but even these gardeners persist in using Hmong-made hoes ordered from relatives in Thailand. Hoes are part of monetary exchange with family in Southeast Asia and they feel familiar to Hmong farmers. Pesticides are new and are also implicated in new systems of social exchange, but they do not represent an immediate break with the Hmong past.

Most Hmong farmers interviewed had sophisticated understandings of the fertility processes in soils and the relationship they bear to pest management. When asked about the flea beetle, for example one informant said that she thinks that if the land at were to be left unplanted for a few years the flea beetles would leave and the field would be useful again. Crop rotation is in fact one of the best practices advocated by Organic farmers for managing many pests, including the flea beetle. Unfortunately, the Hmong lack the ownership and the decision-making over the fields they use. Another informant described a very sophisticated system of slash-and-mulch agriculture that can be used to recycle nutrients without disrupting the soil structure or increasing erosion. He said that he had seen this system in use in Southeast Asia on return trips. When asked why Hmong people in the United States did not adapt some of these techniques he said that they would not do it because they do not own the land they farm. Renting land discourages land conservation and stewardship practices among the Hmong—I was told by almost every person that I asked that it was not worth it to encourage the natural fertility of the soil because the land was not Hmong-owned.

One unexpected finding was to learn of the great importance to Hmong gardeners’ current practices of their experiences in Thailand. Of the people I interviewed all but one said that they had never known of pesticides in Laos. These people each reported having first learned about pesticides in Thailand while living in refugee camps. Many Hmong people lived in the refugee camps for as long as fifteen years and they had a range of experiences in these settings. One interviewee reported working for some time as a day laborer on a Thai vegetable farm—the



first time he understood about marketing vegetables and using pesticides. In this job he was charged with applying pesticides and he says that he was given a dust mask to wear while doing the work. Informants reported that pesticides were easily purchased from Thai vendors in and near the refugee camps. Like pesticides in this country, their labels had pictures of the insects and weeds they could be used to control so that people without literacy skills could use them. Farmers reported that they felt for the first time that they needed to use pesticides in Thailand since this was the first time that they were forced to garden in one location instead of moving on when pests grew intolerable. Even so, they claimed to have used pesticides much less frequently than they do in Massachusetts.

Vegetable gardening and small-scale farming is seen as women's work. Women were responsible for vegetable gardens in Laos, although they also helped extensively with other types of cultivation. Men, however, were responsible for locating new patches of land to clear and burn. A woman might have very high level of control over her own garden operation, but the right to that control was granted to her by her husband in the process of choosing and clearing land for her. Vegetables were never a crop that was marketed in Laos. Only after moving to Thailand did Hmong people begin to participate in market vegetable gardening. It seems to have more often been men who were hired as day laborers on Thai vegetable farms. Women continued to have opportunities to grow vegetables in Thailand, and increasingly had the opportunity to market their vegetables. Women also became involved in other entrepreneurial activities, such as peddling trinkets and selling embroidered clothes. These experiences have formed the basis for entrepreneurial vegetable gardening in Massachusetts, much of which is undertaken by women. An awareness of the division of labor and decision making within Hmong families is important for providing effective services and offering information to those people who are most likely to make use of it. Women were more likely to actually apply the pesticides, but less likely to have the literacy skills to make an informed pesticide purchase.

The most important lessons for agricultural professionals that can be drawn from these interview findings are:

- Women are the main farmers among the Hmong, yet important decision-making is often shared with or done by men. It is important for anyone hoping to provide services to immigrant farmers to learn about both who does the work and who makes the decisions within families. Men may present themselves to outsiders as the farmers, but they may or may not pass information on to their wives. Reaching the women farmers directly offers a better possibility for instigating change. This often requires working with translators, since Hmong women are less likely to speak English. In addition, in the case of the Hmong, women extension workers may be more likely to be trusted by women farmers.
- It is extremely helpful to translate the names of different insects into the immigrant farmer's language. Before this project, Hmong people referred to all insects as "lady bugs" in English. After learning that the flea beetle is called the *kab dev mub*, it became much easier for us to have specific conversations in which the farmers revealed their observations and experiences about this insect. This type of translation most often can occur informally in the field, since insect names will not likely be listed in any standard dictionary. It can also be accomplished with pictures of the insects, the damage they cause, and their preferred food plants.
- Recognize that any community has its own power dynamics, social networks and relationships. Any services that aim to help people will be received through these existing social relationships, and may exacerbate existing inequalities. The challenge for agricultural professionals is to facilitate change that does not disrupt social cohesion.
- I found that comparisons between Laos and America were a powerful way to illicit ideas and insights from Hmong farmers who had lived there. Such comparisons could form an



important basis for productive conversations between agricultural professionals and Hmong gardeners in the future. What is more, Hmong experiences in Thailand—perhaps more than their actual experiences in Laos—appear to have set the stage for their increasingly commercial vegetable production in Massachusetts. It is to this context that we should continue to look to gain further insights into the context for Hmong beliefs about gardens and entrepreneurship. Every agricultural professional seeking to provide services to immigrant farmers should engage in conversations about the farmers' previous experiences and beliefs. Only by doing so will we be able to develop a respectful and reciprocal exchange of information. As agricultural professionals seek to work with these farmers, they must take a critical stance towards their own knowledge and institutional context. It is important to respect the knowledge and experience of immigrant farmers, even when it is very different from American practices.

- Hmong farmers have sophisticated understandings of agricultural production and pest control. They would benefit from extremely specific safety information about the practices that they currently use, which are limited to using pesticides available retail. Hmong farmers would benefit from an approach to choosing pesticides that encourages them to seek information about active ingredients and well as specific crop recommendations. They would likely benefit from information about safely storing and transporting pesticides. As well, they would benefit from additional information about simple non-chemical pest management strategies, such as row cover, kaolin protectants, Bt, and crop rotation. This information was introduced to many farmers through the demonstration garden, but future demonstration gardens and assistance locating non-chemical pest management products would help.
- Land ownership should be encouraged in any way possible since this would provide incentives for Hmong farmers to practice land and water stewardship.