

## **Title: Strengthening Partnerships and Building Tools for Advancing Vegetable IPM in the Northeast**

### *Summary:*

The Northeast Vegetable IPM Working Group proposes to continue working to increase the use of IPM practices among vegetable growers, with the associated environmental, health and economic benefits, in support of sustaining a thriving and diverse vegetable industry throughout the Northeast. We seek to provide practical and accessible tools that farmers will use to help them implement IPM, and to do that by building new partnerships and strengthening existing ones. This two-year project will bring together several types of projects with interrelated goals under the management of the Vegetable Working Group. Objectives for the project are: 1) Strengthen the capacity of the Vegetable IPM Working Group to network effectively, implement its priorities, and promote use of IPM by Northeastern vegetable farmers (Project Type: IPM working groups); 2) Complete, verify and promote the Northeast Vegetable Crop and Pest Management Resource Database (Project Type: Regional IPM publications); 3) Develop collaborative arrangements and educational tools with Natural Resources Conservation Service agencies to promote further adoption of IPM in NE vegetable production (Project Type: IPM working group priorities); and 4) Complete sweet corn crop profile for New England, based upon 2004 survey conducted by the New England Pest Management Network (Project Type: Crop profiles).

Completion of these objectives will produce a stronger and more cohesive IPM research, extension, education, and vegetable grower community in the northeast, which will result in greater accessibility and implementation of relevant IPM information and techniques by agricultural producers.

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## **D. Literature Review, Previous Work, and Related Experience**

**Vegetable IPM Working Group history and priorities.** The Northeast Vegetable IPM Working Group (Vegetable IWG) was established in 2002 under the umbrella of the Northeast Pest Management Center. The group was carefully selected to represent diverse types of vegetable farmers, as well as consultants, University and state agency professionals, and environmental groups across the thirteen states of the Northeast Region (see Attachment A, membership list). The group has met three times (March 2002, November 2003, and November 2004) and has been actively engaged in defining and tackling its priorities. Projects to address two priorities have been funded by the Northeast Center.

At every meeting we return to a major need that growers face: support at the on-farm level in using IPM in their diversified, complex cropping systems. (see Attachments B & C, also [http://www.nepmc.org/work\\_vegeother.cfm](http://www.nepmc.org/work_vegeother.cfm)). With the decline in Extension infrastructure fewer farmers have direct access to hands-on pest and management consultations. Private consultants have filled this gap in some areas, but for smaller, isolated farmers and for many parts of the Northeast region, there are no independent crop consultants in vegetable crops. Yet, implementation of Integrated Pest Management practices is a knowledge and labor-intensive proposition. If we hope to expand adoption of vegetable IPM, we must address this need.

The Vegetable IWG is exploring ways to fill this gap. One approach is to create tools that growers can access wherever they farm. This is the justification for creation of an online resource database of vegetable IPM information, and for strengthening a regional pest monitoring network and the Pest Watch website sponsored by Pennsylvania State University. Another approach we want to take is to partner with organizations and programs that have resources at the local level to assist growers in using IPM, and to work with those organizations to enhance the effectiveness of those programs. The Natural Resource Conservation Service was identified since our first meeting as a potential partner, and in this proposal we outline steps to build that collaboration.

**Vegetable IWG Membership.** The longevity, health and success of a far-flung, diverse group such as this IPM working group, depend upon an engaged membership that rotates on a regular basis. In our 2004 meeting we discussed the terms and expectations of membership in the Vegetable IWG. Seven of the thirteen original members of the working group agreed - enthusiastically - to serve for one or two more years. Additional new members have been invited to join the working group to replace those who have left or to fill identified gaps. A plant pathologist, a weed scientist, a state IPM coordinator, and three new growers who represent several sectors of vegetable industry (organic farming and Community Supported Agriculture, diversified fresh market production for direct sales, and large scale production for processing) all agreed to join (see Attachment A). Additionally, we will seek more growers, someone with marketing expertise, someone representing an environmental group, and an NRCS representative. These new members will provide fresh ideas and give diverse representation from around the region, while the original members provide continuity and the functionality of an established team. Ruth Hazzard (MA) agreed to continue as Work Group leader for two more years after which new leadership will be sought. Luke McConnell (MD) and Kathy Murray

(ME) formed a membership committee and are contacting prospective members. Kathy Murray agreed to provide leadership for the NRCS collaboration effort. Shelby Fleischer (PA) is taking leadership on a regional pest monitoring network. Thus, we are establishing a more shared leadership, as well as a rotating membership structure, with the standard expectation of a three-year term of service and an option of renewing for a second term. While it takes time for a group to establish a life of its own, this group has reached a phase of engagement and maturity, and is well positioned to have a growing impact on regional IPM.

**Vegetable IPM Resource Database.** At our first vegetable IPM working group meeting the need for better coordination and access to IPM resources for agricultural professionals and growers was identified ([http://www.nepmc.org/work\\_vegeother.cfm](http://www.nepmc.org/work_vegeother.cfm)). Most IPM resources have been developed at the state level or within part of the region (New England or Mid-Atlantic, for instance) and are often not known and used in other parts of the region. Yet, they are likely to be highly relevant and useful to growers in other states. One of our first objectives, therefore, was to centralize vegetable IPM information by making it available through the Northeastern IPM Center website. With funding from the Center (“Consolidation of Integrated Crop Management Information for Vegetables,” 2003-2004), Craig Hollingsworth from University of Massachusetts Amherst was hired for the project. He worked closely with Center staff to design the structure of the database, which can be searched by type of information, by crop, by state, or by pest. Types of information on the website include Guides, Alert/Advisories, IPM Element/Protocol/Guidelines, Field Guides, Newsletters, Fact Sheets, Resource Indexes, IPM Curricula, and Videos (See Attachment D). Search results lead to website sources or to indexes of published materials available in print or other media. This database is designed to incorporate information on any commodity or type of IPM system, from specific crops to school and community IPM.

The vegetable resource database, with >1100 entries from thirteen states, is now incorporated and posted on the Center website as part of the Center database ([http://www.nepmc.org/vege\\_all.cfm](http://www.nepmc.org/vege_all.cfm); see also Attachment D). This is already one of the most heavily used areas of the Center Website (Thomas Bunnell, UMass Extension, personal communication). As more and more farmers use the Worldwide Web to seek out information, this selected, high quality database will help them to find information that is research-based, derived from a public source, appropriate for our bioregion and farming systems. It will also lead them to time-sensitive information such as pest alerts, disease forecasts, and newsletters.

Further work is needed to make this database complete, highly functional and successful. To be an effective tool for growers, it needs to run smoothly, and be durable and well maintained. A poorly ‘tuned-up’ database can be more frustrating and more detrimental to enhancing use of IPM than none at all. Specifically, Vegetable IPM specialists in each state should review the entries for their state to ensure that nothing important is left out and that all information is current; links need to be reviewed to be sure all are live; a network of state contributors and a system for regular updates should be established; and the capacity to search for specific pests of each crop, and access to good pest identification information need to be further developed. This database

improvement and development was identified as a priority in the Vegetable IWG's 2003 meeting (Attachment C).

Once we are confident that the database is complete and verified, growers and agricultural professionals need to know about it. A regional education and marketing effort is necessary to put this tool effectively into the hands of those who can benefit from it. Taking these steps to complete this project - which we consider to be a type of IPM Publication - is Objective 2 of this proposal.

### **Partnerships with the USDA Natural Resources Conservation Service**

We propose to engage in a collaborative partnership with NRCS agencies across our region to establish a network and develop plans for sharing expertise, resources and outreach activities.

The 2002 Farm Bill authorizes the USDA Natural Resources and Conservation Service (NRCS) to deliver technical assistance and financial incentives to farmers with the goal of increasing environmental stewardship of farmlands. Through the NRCS Environmental Quality Incentive Program (EQIP), qualified growers are provided with financial assistance as an incentive for adopting practices that protect environmental quality. This program is an excellent fit for promoting greater adoption of IPM practices, especially 'cutting edge' practices that could be perceived as risky by farmers. The mission of the EQIP program and other NRCS technical assistance services is very much aligned with the goals of IPM and the NEIPM Center.

Unfortunately, recognition of the benefits of IPM both in terms of environmental protection and farm profitability is often overlooked in EQIP-funded projects. A recent survey showed that only 25% of vegetable and fruit growers were aware of the availability of EQIP incentives for IPM use (Brewer et al. 2004). The same study showed that on average, less than 1% of EQIP funds allocated to grower contracts during 1997-2002 were used to implement pest management practices.

There is variation among the different NRCS state programs in terms of the degree to which existing IPM expertise and tools are utilized. Within general guidelines established at the federal level, state NRCS programs can add to technical standards and incentive frameworks to further support the adoption of IPM practices that have conservation benefits. For instance, Massachusetts NRCS has incorporated the Massachusetts IPM protocols (Hollingsworth and Coli 1999; see also <http://www.umass.edu/umext/ipm/index.html>) into the NRCS Conservation Practice Standard for Pest Management (Code 595, see Attachment F). They have also developed a Pest Management Calculator (Attachment G; Devergilo and Johnson 2002), which establishes incentive payments for adoption of IPM at low, medium or high levels (with payments at 10, 20 and \$30 per acre). It also details specific pest management practices that conserve air, water, soil, plant or animal quality, and assigns a payment rate to each one. Thus, a grower who uses multiple practices may qualify for payments that are commensurate with the actual costs and risks associated with using IPM in high value crops such as vegetables. The Code 595 also incorporates the NRCS Windows Pesticide Screening Tool (WIN-PST) into its standards. This model combines site-specific data on soil type, pesticide application method, crop, and risk evaluations with data on pesticide chemistry and conservation practices to help growers decide what pest management practices to use.

The approach taken by Massachusetts NRCS could serve as a model for other NRCS state programs in the region. In fact, Rhode Island NRCS has expressed interest in utilizing an approach similar to that taken by MA NRCS, but has not yet done so. While every state will want to approach this in ways that suit their unique needs, the approach taken by MA NRCS provides another model for how to build incentives for IPM into the existing structure of the EQIP program.

All states can benefit from sharing expertise and information regarding IPM tools and approaches. A regional approach to networking will facilitate timely information exchange and improved technical expertise leading to enhanced delivery of technical and financial support for IPM adoption on the farm.

A recent collaborative project conducted in Michigan (Brewer et al. 2004) showed that training and outreach are key to promoting IPM through partnerships between NRCS, Cooperative Extension and other agencies. This project, which included IPM training for NRCS Technical Service Providers, modification of EQIP award standards, and outreach to vegetable and fruit producers was credited with doubling the number of projects funded and a nearly 8-fold increase in incentive payments allocated for IPM.

The Michigan project and the Massachusetts NRCS standards provide well-documented models upon which we can build to develop effective partnerships in the Northeast. Our objective is to build collaborative partnerships between NRCS and other agricultural support organizations including Cooperative Extension, state agriculture departments, independent crop advisors and others, to improve delivery of IPM technical service, information, and incentives to northeast vegetable producers.

Our proposal has generated a high level of interest in participation within NRCS. As a result of the initial discussions with NRCS, the NE IPMC Vegetable IPM Working Group has been invited to present a workshop on IPM at the NRCS Eastern Regional Technical Training Workshop to be held in Rhode Island in April 2005. Our Work Group was also invited to set up an informational display at the workshop that will present an excellent opportunity to begin dialogue and networking with NRCS staff across the region.

Discussions with NRCS representatives from Massachusetts (Richard Devergilio, State Conservationist), Maine (Bill Yamartino and Chris Jones, Assistant State Conservationists), New Hampshire (Kim McCracken, Resource Conservationist), Maryland (John Timmons, Crop Land Agronomist), and Rhode Island (Eric Scherer, State Conservationist) confirm that our project will fill a need for building effective partnerships between organizations represented by the Vegetable IPM Working Group and NRCS offices in our region.

A gap identified by NRCS is the need for partnering with IPM specialists to provide training for NRCS-contracted Technical Service Providers (TSPs). A solid understanding of the processes and principles of IPM as they relate to farm conservation practices is key to allocating financial support and incentives for IPM adoption through NRCS programs; however, NRCS is not allowed to train TSPs directly. Our project will lay the groundwork for a partnership to provide IPM training for TSPs.

This partnership will also enable IPM specialists and service providers to develop an improved understanding of how IPM practices fit within the framework of farmland stewardship and resource conservation. A good understanding of conservation objectives is critical to sustainable farming. IPM practices that are easily recognized as mitigating

practices designed to conserve and protect air, land and water resources are more likely to be promoted by NRCS and built into their incentive structure, and more readily adopted by farmers. Our project will provide a foundation for increased adoption of IPM practices designed to address documented environmental problems such as air or water pollution, or destruction of beneficial biotic components of farm ecosystems.

Our proposed project will make a significant contribution to Northeast agriculture and will fill an important need. This project will enable us to partner with USDA NRCS across the region to identify barriers and develop solutions for increasing delivery of IPM support and incentives to vegetable producers.

This project directly meets two of the goals of the National IPM Roadmap: 1) improve economic benefits of IPM, and 2) minimize adverse environmental effects of pests and IPM practices. It also indirectly meets the third goal, which is to reduce potential human health risks from pests and the use of IPM practices.

Economic Benefits: NRCS programs can provide financial incentives to help offset the perceived economic risks of adopting new IPM tools. These incentives can also be used in creative ways to support IPM through outsourcing IPM services such as scouting or labor-intensive cultural pest management practices. A successful model of this approach is a Maine low-bush blueberry IPM program in which support of scouting services is provided through a local Soil and Water Conservation District using funding through the NRCS Environmental Quality Incentive Program (EQIP).

Minimize Environmental Impacts: The mission of NRCS is to assist farmers in minimizing environmental impacts of farming. Our proposed partnership will ensure that northeast vegetable farmers have improved access to technical support and incentives for mitigating environmental impacts of pests and pest management practices.

Reduced potential human health risks from pests and the use of IPM practices: We expect this project to improve adoption of IPM and reduce reliance on pesticides, thereby reducing risk of pesticide exposure among farm workers and neighbors.

The Vegetable IPM Working Group has demonstrated an ability to engage and work with representatives from a diverse array of agencies, organizations, and independent consultants and the farming community as evidenced by its past successes, including development of a resource database (2004) and near completion of a pest management strategic plan (2004-2005).

**Sweet Corn PMSP and Crop Profile.** Another major priority of the Vegetable IWG has been to develop a regional Pest Management Strategic Plan for a vegetable crop with major regional significance. Sweet corn was selected at our 2003 meeting, based on acreage and importance throughout the region, and the need to address pest management concerns and loss of management materials. We sought a Partnership Grant in 2004 (“Development of a Region-wide Strategic Pest Management Plan for Sweet Corn”), and with support from the Center were able to hold a PMSP stakeholder meeting immediately following our November 2004 working group meeting in Albany, New York. Several working group members participated, along with additional representatives from farms and concerned organizations. The in-depth discussions of weed, insect, disease and vertebrate pest concerns demonstrated the value of interaction among people from

throughout the Northeast region. Although many people had never met before, everyone who attended felt that they learned a lot from the others. While there were clear variations in pest management practices and needs across the region, there was a great deal of common ground. The group had little difficulty deciding on our top priorities for regulatory, research and extension needs in sweet corn. The writing of the first draft of the regional sweet corn PMSP is being completed by Kerry Richards of Pennsylvania State University. This will be circulated among members of the stakeholder group as well as IPM specialists in the Northeast for comments, and returned for further editing.

In a coordinated effort to obtain current data for the sweet corn PMSP, the New England Pest Management Network (NEPMN) conducted a New England-wide (six state) survey of sweet corn growers in fall 2004. The survey was conducted by Natalia Clifton of the University of Massachusetts as a subcontract with NEPMN, and covered insect, disease, weed, and vertebrate pests, as well as use of specific pest management tools and practices. Following the Dillman method (Dillman 1978), surveys were sent to 754 growers in the six New England states. Data entry and analysis are in process, and are expected to be complete by June 2005.

The next step will be to use these data to complete the sweet corn crop profile for New England. In order to accomplish this in a timetable coordinated with the regional PMSP, we propose to draft a crop profile as part of this project. Glen Koehler of the NEPMN is aware of this proposal and supports completing the New England sweet corn crop profile within this partnership grant under the leadership of the Vegetable Working Group. The New England Vegetable and Berry Growers Association (NEVBGA) also supports the completion of the sweet corn profile. This up-to-date, survey-based crop profile will be integrated with the knowledge gained from the PMSP meeting and other, earlier state or regional sweet corn surveys and crop profiles, and will be incorporated into the Northeast Region Sweet Corn PMSP.

#### **E. Objectives.**

**Objective 1. Strengthen the capacity of the Vegetable IPM Working Group to network effectively, implement its priorities, and promote use of IPM by Northeastern vegetable farmers for one year. (type: IPM working groups)**

**Objective 2. Update, verify and promote the Northeast Vegetable Crop and Pest Management Resource Database (type: IPM working group priorities; regional publications)**

**Objective 3. Develop collaborative arrangements and educational tools with NRCS agencies to promote further adoption of IPM in NE vegetable production. (type: IPM working group priorities)**

**Objective 4. Integrate information for a regional sweet corn crop profile for New England, based upon 2004 survey conducted by the New England Pest Management Network, into the regional sweet corn pest management strategic plan. (type: Crop profiles)**

## **F. Procedures.**

**Objective 1. Strengthen the capacity of the Vegetable IPM Working Group to network effectively, implement its priorities, and promote use of IPM by northeastern vegetable farmers. (type: working groups, working group priorities)**

- 1. We will maintain regionally representative and diverse membership in the working group.** We will invite new members to fill gaps identified by the group, replace departing members, or bring in expertise that is needed to help with a particular project. By the end of this proposed project period (March 2007) we expect most original members to have completed their term of service. At each year's meeting we will assess needs and make plans for keeping a full membership at between 13 and 15 members, each of whom serves at least one three year term.
- 2. We will meet annually to evaluate ongoing projects, review priorities and initiate new projects.** An annual face-to-face meeting strengthens the relationships in the group and makes it possible for us to monitor our current projects, review priority pest management needs, and develop our next work plan. The group has settled on the week after Thanksgiving for its annual meeting, as this gives time to prepare proposals for the Partnership Grants funding cycle. For the 2005 meeting we will move from the Albany, NY location, where we held the 2003 and 2004 meetings, southward to Harrisburg, PA. Based on experience, we believe that the optimal amount of meeting time is one and one half day. This allows us to combine the working group meeting with another project-focused meeting for optimal use of time and budgetary resources. In 2004 we successfully combined the Sweet corn PMSP with the VEG IWG meetings. We propose a similar format for the NRCS project in 2005 (see Objective 2, below).
- 3. Engage stakeholders in review of priority pests and needs.** Critical pest priorities were defined and ranked at the 2003 meeting (Attachment E), and updated in 2004 using feedback received from grower groups in Maine and Pennsylvania. These priorities are posted on the Center website ([http://www.nepmc.org/work\\_vegepriority.cfm](http://www.nepmc.org/work_vegepriority.cfm)) and are being used by scientists in preparation of proposals to address IPM issues in vegetables. The priority lists will be taken by members to grower organizations and conferences for review following each annual meeting. We will establish a methodology for this process in order to obtain broad input from farmer and other agricultural organizations. Their feedback will be discussed and incorporated into the priorities for the following year and posted on the Center website. This process will also increase awareness among grower groups of the Vegetable IWG and our ongoing projects.
- 4. Contribute to planning for regional IPM conference in 2007.** The Center has proposed a regional IPM conference every two years. At our 2004 meeting we began discussions of possible topics relevant to the Vegetable IWG. By continuing to meet annually we will be able to plan for a significant contribution to the 2007 conference.

We are reviewing a plan to coordinate with the Community IPM for a combined conference in fall 2006 or winter/spring 2007.

5. **Develop and disseminate information about the working group and its projects.** It is safe to say that most vegetable growers are not aware that the Vegetable IPM Working Group exists. Our accomplishments and our desire for input provide the basis for contacting stakeholders throughout the region to let them know who we are, seek input, and inform them of newly available tools.
6. **Exchange of pest management information.** We will work to strengthen exchange of pest management information among vegetable agricultural professionals and growers throughout the Northeast. In particular, we will work with the New England Pest Management Network to support their work on crop profiles and PMSP's and to enhance the regional disease forecasting capacity for vegetable diseases such as early and late blight of potato and tomato.
7. **Regional pest monitoring and forecasting network.** The Vegetable IWG will support development and promotion of regional monitoring networks and web mapping for critical, new and invasive pests. Our meetings provide a forum for discussion and planning. We will use our network capacity to assist in communication and to engage stakeholders throughout the region in this project. We support the work of Shelby Fleischer to establish a planning process for developing a better infrastructure and more coordination throughout the region so that this tool provides high quality, timely pest information that is readily available to growers. This network will also assist in timely alerts and tracking of invasive pests.

**Objective 2. Complete, maintain and promote vegetable crop and pest management resource database (type: regional publications, IWG priority issues)**

1. **Check Content Accuracy.** We will identify one or two primary contacts in each state in the region who are familiar with the vegetable IPM resources that have been developed in that state. We will work with those individuals to review the current resources, add any that are missing, and update information that is outdated. Changes will be sent to the Center for input into the database.
2. **Create system for website maintenance.** We will work with the Center to develop a system for updating the database on a regular basis, and explore the feasibility of inputting data from off site for approved individuals. Center website managers will scan for broken links or other problems.
3. **Improve search features of database.** We will work with the Center to improve design features of the site to make searches more effective. We will also work to improve search capability for individual pests and links with pest identification.
4. **Link to regional management guides.** We will collaborate with designers of the *New England Vegetable Management Guide* website ([www.nevegetable.org](http://www.nevegetable.org)) and other regional guides to develop good linkages to and from the website.
5. **Market the website.** Once we are confident that the database is fully operational, we will initiate marketing efforts to inform growers of this resource, possibly to

include flyers or bookmarks for dissemination at vegetable conferences in winter 2005-2006; press releases for state newsletters; and articles in the Center newsletter.

6.

**Objective 3. Develop collaborative arrangements and educational tools with NRCS agencies to promote further adoption of IPM in NE vegetable production.**

We propose to engage with USDA NRCS representatives to develop a collaborative strategy for delivering technical resources, training and/or incentives to producers, crop advisors, and others with the goal of minimizing environmental, health, and economic risks through increased adoption of IPM practices in northeast vegetable production. Potential strategies to be explored will include 1) providing IPM training to NRCS Technical Service Providers, 2) providing education to growers at local and state levels to promote utilization of existing incentive programs, such as EQIP, to promote further adoption of IPM, and 3) providing education for other agricultural support agencies and organizations (such as Cooperative Extension and commodity associations) to promote and facilitate partnerships with NRCS to promote IPM adoption, and 4) examining the feasibility of modifying incentive structures to promote further adoption of IPM practices.

1. **Conduct IPM workshops for NRCS.** Two members of the NEIPMC Vegetable IPM Working Group will present a workshop on IPM at the NRCS Eastern Regional Technical Training Workshop to be held in Rhode Island in April 2005. We will also send representatives of the Vegetable IWG to other regional NRCS meetings during the course of the Project.
2. **Develop a network of key participants in each state.** Representatives from each NRCS state office, NRCS regional centers, Cooperative Extension IPM Coordinators, IPM specialists, crop advisors, and vegetable commodity organizations will be invited to participate with members of the NEIPMC Vegetable Working Group in the planning phase. One NRCS representative will be invited to join the Vegetable IWG, and at least six key participants will be invited to meet with the Vegetable Working Group at their annual meeting in November 2005. At this meeting we will share knowledge about 1) how IPM is currently being implemented and supported through NRCS, Cooperative Extension and other programs and 2) how IPM practices and incentive programs intersect with other approved vegetable production practices, and 3) ways of partnering and funding support for IPM needs at the regional, state, and local level. Our goal for the meeting will be to develop the draft of a strategic plan for implementing actions in partnership with NRCS.
3. **Identify training resources.** We propose to evaluate existing IPM training modules and curricula to determine how they may be used to provide training for NRCS Technical Service Providers and/or NRCS staff. While the specifics will depend upon the outcome of the initial meeting, we anticipate that we may hold a pilot training session in year two of the project. We will gather existing training materials or develop new ones.

- 4. Strategic Plan follow-through.** Additional funding will be sought from appropriate programs, such as the USDA Conservation Partnership Program, to implement the strategic plan to be developed as part of this proposal.

**Objective 4. Complete sweet corn crop profile for New England, based upon 2004 survey conducted by the New England Pest Management Network. (Type: Crop Profiles)**

The New England Sweet Corn Survey was sent to over 760 vegetable growers in the six New England States (ME, CT, RI, MA, VT, NH). Data entry and summary are in process under the direction of Natalia Clifton, who is the New England Pest Management Network's liaison at the University of Massachusetts Amherst. The survey summary is expected to be complete by June 2005. Pam Westgate will work on the crop profile beginning by September 2005. The sweet corn crop profile will follow the standard USDA format (Burr) and the template that has been used by other crop profiles developed for the New England Pest Management Network, and will be reviewed by the NEPMN. We will work with Kerry Richards, author of the regional sweet corn PMSP, to ensure that the survey data and crop profile information is available for use in the PMSP.

**G. Literature Cited.**

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Hollingsworth, Craig S. and W. M. Coli, 1999. Massachusetts IPM Guidelines: Crop Specific Definitions. University of Massachusetts Extension Publication AG-1353:7/97. 66 pp.

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## **H. Probable Duration**

2 years: May 2005-April 30, 2007.

The expected breakdown of this timeline is as follows:

- (1)Objective #1: Year 1 and 2.
- (2)Objective #2: Completed in Year 1.
- (3)Objective #3: Year 1 and 2
- (4)Objective #4: Completed in Year 1, September 2005 to March 2006

## **I. Evaluation Plans.**

**Objective 1:** We will institute an evaluation process at each meeting to review the value and success of each meeting. Continued attendance and engagement of members will also be a measure of success. We will expect to receive direct feedback on pest priorities from 3-5 grower groups per year. Presence of information about our projects will be evidence of outreach success. Evaluating the value of the projects will be specific to each project.

**Objective 2:** Success will be measured by visible improvements in quality and workings of the interactive resource database, which will be in place by January 2006. By the end of winter 2006, following marketing and promotion, use of the site should be measurably increasing. Feedback mechanisms on the site will provide information, positive or negative, on user response. As part of the work on the site we will receive feedback from vegetable specialists in the region regarding usefulness of the database.

### **Objective 3:**

The success of our project will be measured in six ways

1. Successful development of a network of key representatives from NRCS, Cooperative Extension, other agricultural support organizations or agencies (including independent consultants), and the farming community interested in promoting increased utilization of NRCS technical support and incentives for IPM in northeast vegetable production (Winter-Summer 2005)
2. Successful hosting of meeting of key representatives from this network and the NEIPM Vegetable Working Group to identify needs and strategies for partnering in delivery of IPM information, services and incentives to growers. (Late Fall 2005)
3. Development of a strategic plan for partnership with NRCS to provide incentives and technical assistance for increased adoption of IPM in northeast vegetable production (Winter 2005-2006)
4. Successful engagement of NRCS staff in learning about IPM practices at the NRCS Regional Technical Workshop (April 2005 and other later dates)
5. Successful review and needs analysis of existing IPM training modules and curricula for their potential utility in IPM training for NRCS Technical Service Providers (Winter-Fall 2005).

6. If it is part of the strategic plan, implementation of a pilot training session for NRCS and Extension staff about utilization of NRCS technical support and incentives for IPM.

**Objective 4.** Completion and dissemination of the sweet corn crop profile for New England. Dissemination will include posting the profile on New England and Northeast Pest Management websites.

#### **J. Cooperation and Institutional Units Involved.**

This project will be directed by Ruth Hazzard at the University of Massachusetts Amherst. One institutional unit is involved: the University of Massachusetts, College of Natural Resources and the Environment, Department of Plant, Soil and Insect Science. Staff hired by the project will be part of the same unit. Collaborators will be from throughout the Northeast (see Attachment A and Collaborative Arrangements, below).

#### **K. Key Personnel.**

Ruth Hazzard, University of Massachusetts Amherst, will serve as Project Director and coordinate all aspects of the project. She will facilitate meetings of the Vegetable IWG in 2005 and 2006, network on behalf of the Vegetable IWG, attend at least one NRCS regional meeting, and supervise staff dedicated to the project.

Pam Westgate, University of Massachusetts Amherst, will serve as project administrator and will write the sweet corn crop profile. She will provide administrative support for the NRCS partnership with the Vegetable IPM Working Group. *Pam has 5 years of experience with sweet corn field research and is very familiar with the sweet corn system. She managed a 5-state, 3-year SARE project in sweet corn and wrote the final report ([http://www.sare.org/reporting/report\\_viewer.asp?pn=LNE99-118](http://www.sare.org/reporting/report_viewer.asp?pn=LNE99-118)). She has collaborated with Cornell, Ohio State and Virginia State Universities in *Trichogramma ostrinae* and cucurbit IPM systems research.*

Pam Westgate will provide administrative support by assuming the following responsibilities:

Objective 1. Vegetable IWG: assist with member and stakeholder communications, organize annual meetings and group conference calls, prepare minutes, work plans & reports, solicit and organize input from stakeholders on priority pests, and conduct other Vegetable IWG tasks as needed.

Objective 3: Priority issues: coordinate regional networking activities with NRCS and Extension; obtain, organize, evaluate and disseminate information about IPM incentives, use and implementation in NRCS state programs; organize meetings and conference calls; prepare training materials for Year 2 trainings.

Objective 4: Develop a draft New England sweet corn crop profile, based on survey results from New England sweet corn survey, and assist with integration of this material into the regional sweet corn pest management strategic plan.

Kathy Murray, Maine Department of Agriculture, Food, and Rural Resources, will take the lead in coordinating the NRCS partnership with the Vegetable IPM Working Group with assistance from Ruth Hazzard and Pam Westgate. Kathy has 15 years of experience in IPM research, demonstration and teaching. She coordinates IPM programs for the State of Maine Department of Agriculture

#### **L. Collaborative Arrangements.**

NRCS: Eric Scherer, Rhode Island NRCS Resource Conservationist will coordinate with Kathy Murray and Ruth Hazzard to present an IPM workshop at the NRCS Eastern Region Technical Workshop. State NRCS offices in each state in our region will be invited to participate. State NRCS personnel that have expressed willingness to participate in our project are: Rick Devergilio (Massachusetts State Resource Conservationist), Kim McCracken (New Hampshire, Resource Conservationist), Eric Scherer (Rhode Island State Resource Conservationist), Bill Yamartino and Chris Jones (Maine Assistant Resource Conservationists) Ginger Murphy (Delaware NRCS State Conservationist, and Paul Webb (NY NRCS State Resource Conservationist).

New England Pest Management Network state liaisons will assist in creating the sweet corn crop profile by reviewing the draft versions to check that the documents accurately represent their state. Liaisons may use the expertise of other persons in their state to aid in that determination, but the state liaison is responsible for communicating acceptance for their state to the crop profile author. If changes are needed before acceptance can be granted, it is the responsibility of the state liaison to identify those changes and to notify the crop profile author.

There are no formal or budgetary collaborative arrangements among the organizations associated with this project. Collaboration and shared leadership among members of the Vegetable IWG will be extensive, as described above, but does not involve financial arrangements except that the project will cover individual travel costs to working group meetings.

**M. Budget.**

## **N. Budget Narrative.**

### **Personnel:**

Vegetable Work Group Leader: The Center Advisory committee, the commodity working group leaders, and the members of the Vegetable IPM Working Group have all advocated on several occasions for the practice of compensating working group leaders for the time invested in leadership activities. To date, the leader of this working group has received \$2000 in compensation for three years of leadership activity which has included selecting the committee, organizing and facilitating meetings, as well as writing and supervising grant funded projects. Given the current climate of state Extension programs and land grant Universities, regional activities must not only be justifiable, they also should be bringing in resources for the University. Certainly, they should not be a net loss.

In this proposal we asking that the Center provide adequate support to the leadership of the Vegetable Working Group by funding support staff at a level equivalent to the time that the working group leader devotes annually to the working group (16 days, or 0.05 FTE, \$4000 per year plus fringe), *in addition to* support to help accomplish the administrative and technical work of the group.

Networking requires time, and doing it well requires consistent and professional organizational and communications skills. The staff people who will be performing the work of the proposed project are experienced in this kind of work and are supervised by the Project Leader on a daily basis.

Pam Westgate's hours are assigned to three project types in the following proportions: Year 1: 40% VWG, 40% WG Priority, 20% Crop Profile. Year 2: 100% WG Priority. Budget request is for a total of 12 hours per week, \$19/hour, 40 weeks, plus fringe at the University of MA required rate (29.36% plus H&W @\$11/week) in Year 1; 8 hours per week for 42 weeks in year two assuming a 5% raise. Four hours per week in each year is compensation for the VWG leaders' time (as described above).

The resource database development position is requested for 5 hours/week, \$14.00 per hour, 26 weeks per year in year one (plus fringe as above). The staff person is expected to be Andrew Cavanagh, who has worked on vegetable IPM research and extension projects for 4 years and is skilled in database and website evaluation, information technology, networking activities, and project management.

Total personnel: **\$23,989.24**

### **Travel.**

**Working group:** The travel budget is based on 12 people attending Vegetable IPM Working Group meetings each year. Costs are: fares or mileage per person (\$3280); hotel per night (\$120); and meals: breakfast and break (\$20), lunch (\$20) and dinner (\$30). It is possible that we will be able to obtain lower rates; if this occurs, funds will be used in support of travel for Objective 2. Based on experience from 3 Vegetable IWG meetings, the group needs to meet for about one and 1/2 days to accomplish the tasks of the annual meeting; the budget assumes one overnight, four meals (L, B, D, L, \$90 per person) for a meeting from lunch on day one through the afternoon of day 2.

**IWG Priorities:** In 2005, the Vegetable IWG annual meeting will be followed immediately by a joint meeting with six representatives of NRCS, to continue for a second night through lunch of the following day. The budget assumes three meals (D, B, L, \$70 per person), overnight for 12 people. Lodging and travel for approximately six NRCS staff will not be covered by this grant; we anticipate that NRCS will be able to fund their staff travel costs. We also budget for two members of the Vegetable IWG to travel to a regional NRCS technical meeting (one night's lodging) in Year 2.

Total Travel: \$9,500

**Materials and Supplies**

Supplies for office costs (paper, mailings, copying, computer, software or maintenance, printer maintenance) for Project Director, Administrator, and Database Developer who share one office network are budgeted at \$1500 in year one and \$1000 in year two. In Year 2, \$1000 is budgeted for materials to be used in trainings with NRCS about IPM (IWG Priorities).

Total: \$3,650.00

**Other Direct Costs**

Other costs are for meeting space rental for a 3-day meeting in the first year of the project, at \$300 per day for a total of \$900

Total for meeting space rentals: \$900.

**Totals by Fund Type:  
(Revised budget)**

<b>Fund Type:</b>	<b>IPM Work Groups</b>	<b>IPM Publication</b>	<b>IWG Priorities</b>	<b>Crop Profiles</b>	<b>Total by Year</b>
<b>Year 1</b>	\$12,127	\$3,140	\$8,707	\$1,824	\$25,798
<b>Year 2</b>	\$0		\$12,241		\$12,241
<b>Total Direct Costs</b>	\$12,127	\$3,140	\$20,948	\$1,824	\$38,039
<b>Indirect=19% of total</b>	\$2,844.47	\$736.60	\$4,913.58	\$427.84	\$8,922.48
<b>Total</b>	\$14,971.28	\$3,876.95	\$25,861.66	\$2,251.84	\$46,961.73

**O. Attachments.**

Attachment A. Northeast Integrated Pest Management Center Vegetable Work Group - Membership 2005

Attachment B. Vegetable Commodity Working Group Notes, March 2002

Attachment C. Vegetable IPM working group recommendations on priority needs within the Northeast region, from November 2003 meeting.

Attachment D. Front page of the Vegetable IPM Resource Database on the Northeast IPM Center Website.

Attachment E. Pest Priorities for Northeastern Vegetable Growers, Updated for 2004

Attachment F. Massachusetts NRCS Service Conservation Practice Standard: Pest Management (Code 595): Example of integrating IPM into NRCS technical practices.

Attachment G. Massachusetts NRCS Pest Management Calculator for 2005 EQIP: Example of calculating and offering cost share for specific types of pest management practices.

Attachment H. Letters of support from:

Theresa Chadwick, State Conservationist, NRCS, New Hampshire.

Cecil B. Curran, State Conservationist, NRCS, Massachusetts.

Judith M Doerner, State Conservationist, NRCS, Rhode Island.

Christopher R. Jones, State Resource Conservationist, NRCS, Maine.

Paul Webb, State Resource Conservationist, NRCS, New York.

Glen Koehler, Co-Director New England Pest Management Network, UMaine.

Ed Davidian, President, New England Vegetable and Berry Grower's Association.