

Northeastern IPM Center – IPM Partnership Grants – 2010 – Proposal Project Description

Project Director: Sonia Schloemann, University of Massachusetts Extension
Project Title: Development of a *New England Small Fruit IPM Field Manual*
Project Type: Regional IPM Publication

Project Summary:

This proposal seeks funding by the Northeast Integrated Pest Management Center under the IPM Partnership Grant program; section C (Regional IPM Publications), for the development of a *New England Small Fruit IPM Field Manual*. This publication will serve as a companion to the *New England Small Fruit Pest Management Guide* providing detailed information on pest identification and crop damage (photos), pest life cycles and crop susceptibility (graphics) for key small fruit pests along with the text describing monitoring methods, economic and action thresholds, and a suite of management tactics including cultural, biological, mechanical, and chemical methods. A variety of IPM information is available for small fruit growers in various print publications and on-line, but no single source currently provides all this information in one place for New England producers. As interest in establishing sustainability standards nationally and locally increases, growers need practical tools to guide them in implementing recommended practices. IPM methods are key to growers' success in this environment. This manual will provide the practical pest management information that growers need. Professionals from Extension, NOFA, Experiment Stations throughout New England will contribute content to this publication. Producers and independent crop consultants will participate in reviewing this publication. It will be available as a print publication, series of fact sheets, and as a searchable online resource for growers that will be accessible from each state's Extension website. A condensed form may be made into a pocket guide in the future.

Background and Justification:

Small Fruit Important to New England Agriculture

Small fruit crops, including strawberries, blueberries, raspberries, represent an important component of New England agriculture. The 2007 USDA Census of Agriculture¹ shows that there was a 45% increase in the number of New England farms growing blueberries, raspberries and strawberries over the 2002 Census, rising to 2,740 farms that grow 4,430 acres of these three crops. This represents a 39% increase in acreage from the previous census. The growth of this sector is even more pronounced when cranberries, lowbush blueberries, and other berry crops are included.

Many established farms are reorganizing to a more diversified production and marketing model, growing a wider range of crops and marketing through more retail oriented (farmers markets, roadside stands, CSA's) or local wholesale (local markets, restaurants, food coops) channels. Similarly, many new farm businesses are choosing diversified models for their operations. Small fruit crops are often included in these farms as high value crops appealing to local consumers. The New England Ag Statistics Service 2008 Fruit and Vegetable 2008 Crop

¹ USDA Census of Agriculture: www.agcensus.usda.gov/Publications/2007/index.asp

Report² shows that along with the growth in farm numbers and acres of production devoted to berry crops, price per unit (lb) has also risen an average of 27%. This represents a significant growth in investment in and value of small fruit crops for New England farms.

High fruit quality and a reputation for good land stewardship are important elements of the market strategy of retail oriented operations that have a high level of interaction with the public. Consumers are increasingly interested in purchasing locally grown products and have a heightened awareness of potential ecological impacts of farming. They purchase locally grown food in part to support local businesses, but also because of the perception that local produce is fresher, healthier and higher quality^{3,4}. Along with other good management practices, effective pest management is key to the economic success of growing these high value crops, each having a potent pest complex that threatens the ultimate marketable value of the crop.

Comprehensive IPM Information for Small Fruit Needed

Over the last four years, New England Extension personnel and others have worked together to produce regional crop profiles and pest management strategic plans⁵ for highbush blueberries, strawberries and raspberries/blackberries. This process involved regional grower surveys and stakeholder meetings for each crop to determine stakeholder priorities for research, education and regulatory concerns. Each strategic plan clearly identifies the need for good diagnostic (pest/damage identification) information and holistic management recommendations including pest monitoring techniques and effective cultural, biological and chemical management methods. Similarly, the New England Small Fruit IPM Working Group convened in 2009 identified the need for more accessible IPM information in small fruit crops. Independent crop consultants have also indicated the need for more comprehensive IPM tools for small fruit, particularly when working with producers enrolled in the NRCS EQUIP or similar programs.

IPM resources for small fruit growers have not been developed as extensively as they have in other crops in the Northeast, such as apples and grapes. Some of the elements that could contribute to a comprehensive IPM resource exist but these elements have yet to be brought together in a single source. Currently there are several publications that address pest management for small fruit in New England. The most widely used is the *New England Small Fruit Pest Management Recommendations*⁶. This publication is similar to ones published in many states or regions for the purpose of keeping growers up to date on pesticide materials, formulations, rates, etc. for managing pests in various crops. The New England guide also includes some IPM information as space allows, but it is not comprehensive. New England Extension programs have excellent fact sheets on some key small fruit pests, especially for strawberries⁷, but gaps exist and some need to be updated. Currently New England relies heavily on resources from Land

² NASS NE 2008 Fruit and Vegetable Crop Report

www.nass.usda.gov/Statistics_by_State/New_England_includes/Publications/05frtveg.pdf

³ Leopold Center Study "Food Facts: Results from Marketing and Food Systems Research"

www.leopold.iastate.edu/research/marketing_files/food/food.htm

⁴ University of Maine "Why Consumers Buy- and Don't Buy- Your Farm Direct Products"

www.umext.maine.edu/onlinepubs/PDFpubs/1160.pdf

⁵ New England PSMPs www.ipmcenters.org/pmsp/index.cfm

⁶ New England Small Fruit Pest Management Guide www.umass.edu/fruitadvisor/2008/2008SFGGuide.pdf

⁷ Univ. of Maine IPM factsheets pmo.umext.maine.edu/strwbery/strawlinks.htm

Grant systems out of the region, in particular New York, Ohio, and Pennsylvania. A complete, inclusive, local source that is up-to-date and accessible to growers, consultants, Extension staff, NRCS staff and others is vitally needed.

In addition to the need for IPM information for Massachusetts also has published IPM guidelines for berry crops.⁸ These guidelines, similar to the Cornell IPM Elements⁹, are simply a list of recommended practices and do not provide the background of information on which those practices are based. Similar guidelines are also found in the *Massachusetts Small Fruit Best Management Practices Manual*. The NRCS IPM cost share program relies on these existing guidelines to evaluate grower practices. Without training or resource materials to supplement these worksheets, growers and consultants must rely on their ability to search for and find the needed background information. This new publication would provide the working tools and rationale behind the recommended practices. This is particularly important as many growers are enrolling in federal and state programs based on IPM or sustainability standards.

Growers must have the needed tools to successfully participate in these programs if they are to achieve their intended goals.

Objectives and Anticipated Impacts:

The **objective** of this project is:

1. To plan, develop and publish a *New England Small Fruit IPM Field Manual*

The design of the publication will allow for access in several formats; print hard copy, individual electronic factsheets, and for inclusion in a larger IPM web portal (similar to the Ontario Crop IPM site¹⁰). It will be available for distribution by collaborators as well as posting on their websites. Producing this publication in varied formats will expand its accessibility to the target audience. In addition, the electronic format will be conducive to expansion and updates as new information is added or developed. The project director will devote the time needed to carry out planning steps, gathering content from regional collaborators, consult the advisory team to review drafts, and produce final copy for the proposed publication.

The resulting publication will provide small fruit producers, crop consultants, Extension staff, NRCS staff, and others a comprehensive, up-to-date, accessible resource for guiding IPM practices or assessments for commercial strawberry, highbush blueberry and raspberry production. Over time, additional small fruit crops may be added.

The resulting **impacts** of producing/distributing this publication will be:

- a higher degree of science-based knowledge about crop/pest interactions, environmental and human health impacts of pest management practices, and the range of IPM tactics among New England berry producers, crop consultants and certifying agents (e.g., NRCS)

⁸ UMass Extension IPM Guidelines; www.umass.edu/umext/ipm/publications/guidelines/index.html

⁹ NY Elements of IPM www.nysipm.cornell.edu/elements/

¹⁰ Ontario Crop IPM <http://www.omafra.gov.on.ca/IPM/english/index.html>

- **100 berry producers** will acquire new knowledge about IPM from this publication
- **6 Extension staff** will acquire new knowledge about IPM from this publication
- **3 or more crop consultants** will acquire new knowledge about IPM from this publication
- **5 or more NRCS staff** in New England will acquire new knowledge about IPM from this publication
- a greater level of measurable IPM adoption among New England berry growers
 - **60 berry producers** will adopt 1 or more new IPM practices described this publication
 - **10 new berry producers** will enroll in NRCS EQUIP program
- a higher degree of pest management efficiency through the use of scouting/thresholds and integrated management practices among New England berry producers
 - **25 berry producers** will reduce their chemical spray applications by at least 1 as a result of following scouting/threshold recommendations found in this publication
- improved market conditions for New England berry producers *
 - consumers purchase more local IPM grown fruit
- improved environmental conditions for New England berry farms *
 - a higher level of IPM adoption leads to decreased environmental impact where berries are grown
- improved working conditions for berry farmers and their workers *
 - increased worker safety where IPM practices are employed

** validating impact of Condition Outcomes is beyond the scope of this project, but remains the overall goal.*

LOGIC MODEL For Development of Small Fruit IPM Field Manual

SITUATION	INPUTS	ACTIVITIES	OUTPUTS	OUTCOMES		
				Knowledge	Actions	Conditions
<p>Berry production is important to New England farm enterprises</p> <p>Customers value local for fruit quality and good land stewardship</p> <p>Incentives exist for increased documentable adoption of IPM practices in berry production</p> <p>Many IPM practices well defined but not assembled in a comprehensive, accessible, tool for growers, consultants, certifying bodies to use</p>	<p>Εξτενσιον σταφθ τιμε & κνοωλεδγε (χοντεντ δεπελοπιμεντ)</p> <p>Οτηερ κερψ στακεηολδερ τιμε & κνοωλεδγε (ινπυτ & φεεδβαχκ)</p> <p>Producers' time & knowledge (input & feedback)</p> <p>Existing content materials</p>	<ul style="list-style-type: none"> - Assess content needed for success - Identify existing resources - Consult stakeholder for validation - Develop needed content; assemble with existing content - Submit draft for review - Incorporate stakeholder feedback - Finalize and publish <p>Target Audience (TA): Berry Producers (New England & Northeast Region); Extension Specialists; Pest Mgmt. Consultants; NRCS Staff; General public.</p>	<p>New England Small Fruit IPM Manual (print format and electronic format)</p>	<p>100 berry producers will acquire new IPM knowledge in 1st year</p> <p>6 Extension staff will acquire new IPM knowledge in 1st year</p> <p>3 or more crop consultants will acquire new IPM knowledge in 1st year</p> <p>5 or more NRCS staff will acquire new IPM knowledge in 1st year</p>	<p>60 berry producers will adopt 1 or more new IPM practices by 2nd year</p> <p>10 new berry producers will enroll in NRCS EQUIP or similar program by 2nd year</p> <p>25 berry producers will reduce their chemical spray applications by 2nd year</p>	<p>Increased market appeal of local IPM produced berries</p> <p>Decreased environmental impact of IPM produced berries</p> <p>Increased worker safety for IPM produced berries</p>

ASSUMPTIONS:

Increased access to comprehensive up-to-date IPM information will increase IPM adoption by TA; multiple formats (print & electronic) increase IPM adoption by TA; a comprehensive IPM tool will increase ability to document IPM adoption (NRCS)

EXTERNAL FACTORS

NRCS and other certifying bodies may alter their emphasis on IPM certification programs or change the requirements.

Approach and Procedures:

The project director and participants will carry out a systematic capacity/needs assessment for the content of this guide. This will include involvement of producers and independent consultants. Existing content will be assembled and sources for needed content will be found. Drafts will be reviewed by stakeholders and feedback incorporated before the manual is finalized. The final product(s) will be disseminated in hard copy as well as electronically. (*Note: funding support for printing and web site design are not included in this request in order to concentrate support on content development. The resulting publication will be a 'for sale' product and University procedures for financing up-front costs will be used. Additionally, sponsorships and other funding support (e.g., RMA) will be sought to defray the end cost to growers. Funding support for web site design will be incorporated into other proposals. A domain name www.newenglandberries.org has already been reserved.*)

Once complete, the impact to stakeholders of the publication will be assessed by documenting short term (learning) and medium term (action) impacts as outline below. Methodology is explained in the Evaluation section of this proposal.

Steps will include:

→ Review New England Crop Profiles and other sources to determine key pests (insect, disease, weed, vertebrate); and for baseline level of IPM adoption	• Winter 2009/2010 ~ Dec./Feb,
→ Meet with stakeholders (growers, crop consultants, Extension staff, others) to determine needed information	• Winter 2010 ~ February
→ Conduct inventory of existing IPM resources (documents, factsheets, photographs) in New England	• Spring 2010 ~ March
→ Identify gaps and weaknesses in existing IPM resources	• Spring 2010 ~ March/April
→ Develop content to fill gaps and strengthen weak content areas	• Spring/Summer 2010 ~ April - July
→ Meet in concert with planned small fruit working group summer 2010 to review draft and design	• Summer 2010 ~ July/August
→ Submit draft for additional review by growers and crop consultants	• Fall 2010 ~ September
→ Finalize content and print, upload to collaborators websites	• Fall 2010 ~ November
<p>Conduct impact assessments (carried out after the grant period)</p> <p>Short term (learning) impacts:</p> <ul style="list-style-type: none"> • 100 berry producers, 3 crop consultants, 5 or more NRCS staff will acquire <u>new</u> knowledge about IPM from this publication <p>Medium term (action) impacts:</p> <ul style="list-style-type: none"> • 60 berry producers will adopt 1 or more <u>new</u> IPM practices described this publication • 10 <u>new</u> berry producers will enroll in NRCS EQUIP program • 25 berry producers will reduce their chemical spray applications by at least 1 as a result of following scouting/threshold recommendations found in this publication <p>Long term (condition) impacts:</p> <ul style="list-style-type: none"> • Increased market appeal of local IPM produced berries • Decreased environmental impact of IPM produced berries • Increased worker safety for IPM produced berries 	

Evaluation Plan:

Relevance of this publication's content and format will be verified by stakeholders at key points in its development as outlined above. Adjustments and modifications will be made based on stakeholder feedback before publication.

Once published and uploaded to target websites, usage, value and impact of the publication will be assessed in several ways.

- Direct feedback from the target audience will be gained from face to face interaction.
- Overall program evaluation will include gathering impact data about this publication.
- A formal survey of short term and medium term impacts will be conducted after the document is in circulation for at least one year.
 - This survey will be conducted according to the Tailored Design Method (TDM)¹¹ developed by Dr. D. Dillman
 - This survey will be conducted in close coordination with overall impact assessment of the participating institutions
 - Survey results will be compared to baseline information determined from published Crop Profiles and other sources prior to publication.
 - The project director is familiar with the methodology from conducting the survey activities for the IPM Crop Profiles.
 - Additionally, extensive mailing lists are already in hand for New England berry producers.
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Evaluation results will be made available to stakeholders and guide expansion and further use and development of this publication.

Cooperation, Institutional Units, and Key Personnel Involved:

The primary responsibility for coordinating, developing and producing the *New England Small Fruit IPM Field Manual* will be the project director's (Sonia Schloemann). Her affiliation is with the Dept. of Plant and Insect Sciences (PSIS) at the University of Massachusetts and UMass Extension. The development of this publication will be closely coordinated with University Extension representatives from each of the New England States (see letters of support attached) who will help provide needed content and review drafts. At least one meeting project participants will be convened in conjunction with the planned Small Fruit IPM Working Group meeting in the summer of 2010 to discuss project progress. Further collaboration will be made with key individuals knowledgeable about berry production (key growers in each state), organic organizations who's members can benefit from this project (NOFA, MOFGA), IPM Institute (integration with similar efforts in other regions and with marketing initiatives), NRCS (to harmonize with certification process).

¹¹ Tailored Design Method http://www.sesrc.wsu.edu/dillman/TDM_3rd_Ed.htm

Table of Project Participants and their roles.

Project Participants	Project Activities Performed
<p>Project Director Sonia Schloemann – UMass Extension Fruit Specialist 25 West Experiment Station 682 North Pleasant St. Univ. of Massachusetts Amherst, MA 01002 413-545-4347 sgs@umext.umass.edu</p>	<p>Project coordination</p> <ul style="list-style-type: none"> - Identify priority content-existing and needed - Assemble content into draft document(s) - Distribute draft(s) for review - Revise drafts as needed - Arrange for publication & website uploads - Coordinate/carry out evaluation steps
<p>Project Participants: Dave Handley - Univ. of Maine Ann Hazelrigg - Univ. of Vermont Becky Sideman - Univ. of New Hampshire Heather Faubert - Univ. of Rhode Island Lorraine Los - University of Connecticut Frank Caruso – Univ. of Massachusetts Rich Bonanno – Univ. of Massachusetts</p>	<p>Scope of activities (applies to all)</p> <ul style="list-style-type: none"> - Assist in identifying priority content - Review design and content - Provide photo and graphical content - Assist in collecting stakeholder feedback - Assist in evaluation process
<p>Additional contacts for project:</p> <p>Thomas Akin – NRCS (MA) Thomas Greene – IPM Institute Wendy Sue Harper – NOFA-VT Erik Sideman – MOFGA (ME) TBA – New England Vegetable & Berry Growers Association Andre Tougas – Fruit Grower (MA) Tim Nourse – Fruit Grower (MA) TBA – Fruit Growers (CT, RI, VT, NH, ME)</p>	<p>Scope of involvement:</p> <p>Formal in informal feedback and guidance during project development</p> <p>Participation in evaluation process</p>

ATTACHMENTS

- A. Project Director Sonia Schloemann's Curriculum Vitae
- B. Collaborative Arrangements and Letters of Support
- C. Budget Form
- D. Budget Justification
- E. Current and Pending Support
- F. Conflict of Interest List
- G. NEPA Determination
- H. Assurance Statement