Title: Sustainable Vegetable Production and Marketing

Leader: Ruth Hazzard

Overview

Vegetable farming in Massachusetts and New England has remained vital in recent decades through constant and creative change: more direct marketing, diversification, selection of high value crops, and adoption of new technologies. The twenty thousand Massachusetts acres used to produce vegetables (worth over $80 million in farm-gate value and over $240 million retail value) are a resource for food, open space, environmental quality, economic vitality, and quality of life in the Commonwealth. Vegetable farmers are key players in the state's 100 plus farmers markets, 150 farm stands, 50 plus Community Supported Agriculture farms, and the wholesale food distribution system. Dairy, livestock and fruit farmers are diversifying by growing more vegetable crops.

Sustainable vegetable production requires new technical solutions to problems of cropping systems and rotations, crop nutrition, soil health, water use and conservation, energy sources and needs, and pest management. As Massachusetts undergoes cultural, economic and climactic changes, both new and established growers must learn to use practices that are economically, environmentally and socially sustainable, and to adapt cropping systems to new market opportunities in Massachusetts. The Sustainable Vegetable Production and Marketing project will undertake research and extension to address key problems and opportunities facing the industry and the public.

Project: Sustainable Vegetable Production: Integrated Pest and Crop Management for Vegetables

Through diverse methods the vegetable team will educate growers about environmentally and economically sound crop and pest management practices, invasive pests, changing pest conditions, innovative practices. Field based projects will assist growers to test and use new practices. Numerous educational programs and publications will reach over 1,000 growers. Specific new practices include biological control of two key pests (Mexican bean beetle in beans, European corn borer in peppers and corn), mitigation of soil borne diseases with cover crops and reduced tillage; using social media as well as newsletters and website for pest alerts; scouting networks for sweet corn pests, late blight, and other pests; educational programs throughout the year including the New England Vegetable and Fruit Conference; release of the new edition of the New England Vegetable Management Guide.

Activity Summary - 2014

- Bio control on-farm Demonstrations (2)
- Maintain on-farm weather stations (3)
- Pheromone trapping network for sweet corn and other pests (10)
Twilight meetings (28)
On farm consultation (130)
Collaborations with USDA/Natural Resource Conservation Service (2)
Web site development (1)
New England Vegetable Management Guide - Print version (1)
New England Vegetable Management Guide – Online Version (1)
Vegetable Notes - Newsletter (25)
Social Media - Post IPM information to Facebook page (25)
Conference Presentations (4)
Workshops for growers on weed management practices (2)

Total educational contacts for all projects

<table>
<thead>
<tr>
<th></th>
<th>Adult Contacts</th>
<th>Youth Contacts</th>
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<tbody>
<tr>
<td>In Person</td>
<td>5,068</td>
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</tr>
<tr>
<td>Indirect Contacts (Print, Web, etc...)</td>
<td>311,317</td>
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**Narrative Summary and Impact**

Highlights for the past year included the expansion of the number of growers in New England who produce and/or sell vegetables during the winter months and the corresponding growth of the number and varieties of marketing venues to accommodate this expansion. Eight field-research trials were conducted at University research stations and on grower collaborator farms. The research trials focused on: Cucurbits/Phytophthora capsici which helped growers gain knowledge of seeding, timing and incorporation methods for Caliente mustard as a biofumigant. Research was also conducted on Brassicas/Cabbage maggot fly. Results suggest that cyantraniliprole and spinosad offer effective, reduced-risk alternatives to current active ingredients, with spinosad offering a potential tool to organic growers. Other research trials were in the areas of over-wintered vegetable production in low tunnels, and post-harvest handling and storage of root crops, world crops production, and Integrated Pest Management. Reports from these trials were presented at educational programs across the state and were made available on the UMass Vegetable Program’s website.

Our collaborations with Natural Resources Conservation Service continued through meetings with NRCS state and district staff. NRCS continued to use UMass-generated checklists which describe detailed IPM methods for specific fruit and vegetable crops to assist EQIP-595 growers in their IPM plans. We also collaborated with Extension Educators throughout New England and beyond to prepare Pest Alerts on a weekly basis during the growing season reaching over 2,000 subscribers and to write the New England Vegetable Management Guide 2014-2015 edition.

The Massachusetts Commonwealth Quality program now certifies fifty vegetable and fruit farms, and provides recognition and market access for locally sourced products that are grown, harvested, and processed in Massachusetts using practices that are safe, sustainable and don't harm the environment. This program addresses one of the key concerns raised by our EIPM Advisory Panel, public education and marketing about the value of IPM practices. (see [http://ag.umass.edu/agriculture-resources/commonwealth-quality](http://ag.umass.edu/agriculture-resources/commonwealth-quality))
The impact of vegetable and fruit newsletters and Extension educational programs on readers was assessed in winter 2014 through an online survey. Growers reported improvement in crop health, soil quality, and environmental safety resulting from changes in IPM practices such as proper pest identification and monitoring, using cultural practices, and using reduced risk pesticide practices. Growers reported impacts related to increased farmworker and consumer health and improved profitability. Overall these responses indicate that readers are using a wide range of IPM practices and seeing environmental and economic improvements on their farms as a result. The impact of a 3 year Winter production, storage, and sales project was also assessed and we found that winter sales allowed New England growers to increase their annual income by a range of $11,622 - $23,220.

At the beginning of the 2014 growing season, members of our team worked with 10 farms to identify pests and problems and set Integrated Pest Management (IPM) goals. Growers identified a total of 88 pests or problems they wanted to address using IPM, each associated with a specific crop. Throughout the growing season, we visited participating farms on a bi-monthly basis and worked with growers to implement various IPM practices. A total of 275 management practices were developed to address these 88 pests and problems. During the fall and winter, we interviewed growers to evaluate the extent to which recommended IPM practices were adopted and how successful they were in helping farmers achieve their goals. Seventy percent of the practices were adopted by growers as recommended; an additional 16% were adopted with some modification. For those practices that were adopted, 85% were rated by growers as either “moderately” or “largely” successful. The 10 farms that we worked closely with served as locations for workshops and gathering scouting data for dissemination to our regional pest alerts network. In 2014 we hosted 24 educational programs with over 1,400 people attending.

Collaborating Organizations

- NRCS
- Regional New England Extension Educators
- Eastern Massachusetts CRAFT
- South Eastern Massachusetts Agricultural Partnerships SEMAP
- New England Vegetable and berry Growers Association NEVBGA
- Massachusetts Department of Agricultural Resources MDAR
- Community Involved in Sustaining Agriculture CISA