

Project Title: Sustainable Cranberry Production

Project Leader: Hilary Sandler

Project Overview

The cranberry industry in Massachusetts faces many challenges. Growers struggle to remain economically competitive and environmentally sustainable. It is anticipated that the industry may lose some acreage due to attrition and that smaller growers may sell their land. As with all farmers, energy costs are rising quickly, impacting the bottom line. Growers must develop and adopt innovative technology to remain competitive. The additional pressure of marketing fruit for export (foreign) markets that mandate restrictive thresholds for pesticide residues present yet another challenge. They must understand the biology of cranberry pests to properly utilize new management tactics. Additionally, they must contend with increasing urban pressure on the farm's margin as many parties compete for resources. The goal of the UMass Extension Sustainable Cranberry Project is to provide cranberry growers with pertinent and timely information so they may sustain their operations in Southeastern Massachusetts.

Activity Summary - 2017

- Annual Meeting - Cranberry Management Update (1)
- Bogside Workshops (2)
- Pesticide Safety Meeting (1)
- Grower visits and recommendations (30)
- Cranberry Station Newsletter (5)
- Cranberry Station web site (1)
- Development of BMPs for maintaining and enhancing native pollinator habitat (2)
- Cranberry diagnostic and management recommendation services (50)
- Graduate Student Support (2)
- Cranberry farm water mgmt. tile drain fact sheet (1)

Total educational contacts

	Adult Contacts
In Person	1359
Indirect Contacts (Print, Web, etc...)	17945

Narrative Summary and Impact

2017 was a productive year but a year of change for the Sustainable Cranberry Production team. We had one retirement and a change in leadership at the Cranberry Station. We held a series of successful meetings that were well attended by our grower clientele. Specifically, 241 growers attended the Annual Management Update and 82 people attended a separate meeting on pesticide safety. We published 5 issues of the Cranberry Station newsletter, which was distributed to 232 recipients. Most subscribers are in Massachusetts, but 9 were national or international addresses; 43% receive the newsletter via email.

During the past year, we concluded our research work on the use and implementation of tile drains for improved water management on cranberry farms. We published a fact sheet and a Best Management Practices (BMP) related to that work. We published two (2) multi-page color fact sheets on pollinator biology and habitat enhancement; one was cranberry-oriented and the second was designed broadly to encompass other specialty crops. We had one IR4 project in 2017. The impact of old and new chemistries on bee activity were also monitored. Our team supported the work of 2 graduate students. The full suite of our Extension publications and presentations are posted on ScholarWorks (see metrics below). Our diagnostic lab processed 50 disease samples in-house with 10 samples sent externally for virus testing; more than 30 grower site visits were made related to disease issues.

Project Summary-Impacts

Our 2017 meetings provided direct educational outreach to 323 attendees, and allowed 223 attendees to obtain 892 contact hours towards pesticide recertification. The information presented in our extension meetings is valuable for our stakeholders. Based on survey data (N=140 respondents from 241 attendees) from our January 2017 Update Management meeting (full-day meeting), 83 and 43 (changing patterns in weed management), 95 and 35 (herbicide update), 65 and 62 (frost and sun scald), 109 and 19 (water treatments with alum), 85 and 42 (nutrient management), 107 and 28 (invited speaker: NJ cultivars), 81 and 54 (fruit rot management), 92 and 42 (scale and cranberry fruitworm), 86 and 41 (native bee survey), 91 and 30 (grower panel on renovations), and 101 and 17 (cranberry task force outcomes) growers got new information and/or got information they will likely use on their farm, respectively. The relevant topics for the responses are in parenthesis.

Web access continues to be an excellent resource for our constituents and people interested in sustainable cranberry production. Many of our fact sheets, presentations, and publications are available on Scholarworks, a digital repository supported by UMass Libraries. Based on the metrics generated by BeePress (which supports Scholarworks for UMass), visitors to the Scholarworks site downloaded 992 copies of various sections the UMass Cranberry Station Chart Books (-19% from last year), 279 copies of the Cranberry Production CP-08 (Executive Summary and Full) Manuals (-18% and +8.%, respectively,

from last year), 673 copies of BMPs (+5.5% from last year; IPM was downloaded most frequently, 189 times), 2,389 copies of our Extension PowerPoint presentations (-9% from last year; jar test for mixing pesticides was the most popular with 410 downloads), and 676 fact sheets (-12%% from last year; Physiology of cranberry yield was the most popular with 151 downloads). We also had 171 downloads of various reports and surveys with the report on corn gluten meal as an herbicide downloaded 34 times. UMass Cranberry Station documents were downloaded by people from more 660 different institutions (USDA, Ocean Spray and University of Wisconsin-Madison among the most frequent) and 129 different countries. The top three countries accessing our work through Scholarworks are the US, China, and Canada. China continued to be a significant point for downloads, having the most downloads of our chart book (279 vs 243 from the US) and second in downloads of our extension publications (204 vs 1229 from US) and our fact sheets (90 vs 313 from US)

Often we seek to identify an outstanding single event to highlight as our project's success story. But this year, we want to highlight the often-overlooked services that we provide our growers that make significant impact on their farms. These activities are the "meat and potatoes" of our Extension outreach. This year, we highlight the excellent work done by Anne Averill and Marty Sylvia of the UMass Cranberry Station Entomology laboratory.

Two dozen bog visits were made to diagnose a variety of insect issues. More than 35 diagnostic consultations were conducted with more than 25 requiring intensive microscopic identification. Letters were written for crop insurance claims and Zone II application waivers. Private pesticide license examination consultations were conducted. 46 people were trained on Worker Protection Standards during 5 different sessions; 12 attendees were Cambodian and 10 were Hispanic. A 32-page extension publication on bee and Northeast specialty crops were written, designed and published by Andrea Couto and Anne Averill. During the reporting period, Averill's bee research resulted in 1 refereed paper and an Maine Agricultural Experiment Station publication; two additional referred publications have been submitted. Work continued to maintain the State Bog Pollinator Garden for demonstration purposes. Ecology classes from local colleges visited the pollinator garden as part of their field trips (with H. Sandler).

The UMass Cranberry Station was the receiving point for the delivery of >400 quads of Koppert bees for the cranberry grower community. Sylvia and K. Ghantous (Weed/IPM lab) participated in quarterly conference calls and handle 90-100 emails during the year as members of the Maximum Residue Level (MRL) Committee for the cranberry industry. The committee's work is critical to opening and maintaining trade channels for exporting of cranberry fruit overseas.

Collaborating Organizations

- **Cape Cod Cranberry Growers Association**
- **Cranberry Institute**

