Project Title: Sustainable Fruit Production and Marketing.  Website: [http://ag.umass.edu/fruit](http://ag.umass.edu/fruit).

Project Leader: Jaime Pinero, [umassfruit@umass.edu](mailto:umassfruit@umass.edu).


2020 was a challenging year, with the complications brought on by COVID-19 and the drought throughout the region. We have been inspired to see the resiliency of farms throughout New England and have been proud to continue serving our commercial growers this past year.

Project Overview

The fruit industry is a significant driver for the Massachusetts economy. In addition, fruit farms and vineyards provide open space and scenic vistas that add significantly to the quality of life in Massachusetts. The lands surrounding agricultural production provide buffer zones for native species of plants and animals and corridors for their movement or expansion. To remain a vital part of the Massachusetts economy, both new and established growers must learn to produce crops sustainably and to adapt production systems to market opportunities. New varieties provide fruit farmers with opportunities for enhancing production, quality, sales and consumption. Delivering appropriate research-based information on new and alternative fruit species and varieties, advanced horticultural management techniques, marketing and business management strategies, pest ecology, and pest-management strategies that addresses the current needs of Massachusetts fruit growers is critical to the UMass Extension Fruit program to fulfill its mission and deliver high-quality services. Research on pest ecology and management informs approaches that optimize control, reduce chemical use and increase fruit quality. The knowledge and resources provided by Extension forge successful partnerships with Massachusetts’s fruit producers that in turn foster a more secure, diverse and healthful food supply for the Commonwealth.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Occurrence</th>
<th>Number of People Reached</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classes &amp; Tours</td>
<td>14</td>
<td>430</td>
</tr>
<tr>
<td>Diagnostics &amp; Consultations</td>
<td>440</td>
<td>440</td>
</tr>
<tr>
<td>Publications</td>
<td>173</td>
<td>28,204</td>
</tr>
<tr>
<td>Research &amp; Demonstration Projects</td>
<td>11</td>
<td>142</td>
</tr>
<tr>
<td>Workshops, Conferences, Presentations</td>
<td>42</td>
<td>3,073</td>
</tr>
<tr>
<td>Websites maintained</td>
<td>6</td>
<td>7,754</td>
</tr>
</tbody>
</table>

UMass Cold Spring Orchard Research & Education Center – D. R. Cooley
During 2020, the Extension fruit team adjusted its Extension programming for online delivery. Unfortunately, we had to cancel dozens of educational events, some staff took furloughs, extended grants and canceled projects because we could not hire the people to do them.

The team hosted, organized, and presented research-based information at 42 events (mostly online) across New England and the Northeast, reaching over 3,000 people. At these events, we shared vital information ranging invasive insect pest management to time sensitive horticultural guidance to climate mitigation strategies and integration of cutting-edge agricultural technologies.

We conducted 11 different on-farm research and demonstration projects. The fruit team’s projects addressed research needs such as innovative attract-and-kill IPM systems for controlling native and invasive fruit pests, apple and peach rootstock performance evaluations, precision thinning, optimizing cider apple production for high value markets, the effect of shoot and cluster thinning on wine grape juice quality and many more.

Fruit team members produced and maintained 173 publications that reached over 28,000 people. Those publications include newsletters and production guides, fact sheets, reports, abstracts and articles (both in refereed journals and in industry publications). An archived library of works by multiple team members continues to provide reference material to growers, service providers, gardeners, students, and educators in the field. Additionally, team members also served on numerous editorial and review boards.

Compared to 2019, individual consultations and/or diagnostic services were drastically reduced and they involved phone calls and e-mail.

Social media significantly widened the team’s audience. The UMass Fruit Team website (UMass Fruit Advisor), when linked together with social media platforms (twitter, Facebook, Instagram), extended the team’s collective impact by making it available to over 7,700 people. This, along with all other high quality outputs, is a vital part of sustainability and the production of safe, affordable fruit.

Selected Grants Awarded (primary or as sub-award)


Sandler, H.A. and Caicedo, A. L. Documenting the genetic variation of dodder species in Massachusetts cranberry bogs to optimize efficacy of dodder management-Year 2 CAFÉ Integrated Research and Extension Grant. $30,901.

Petit, E. Center for Agriculture, Food and the Environment, May-October 2020, $5,500.

Goodell, B. Collaborators: J. Jellison, E. Petit, American Vineyard Foundation, 2019-2275 Role of LMW fungal metabolites in Eutypa dieback, 2019-2021, $70,000 (about $35,000 each year with second year only awarded after progress report).


Robinson, T., Chang, L., Clements, J. Precision crop load management of apples. USDA-NIFA-SCRI SREP 2020-51181-32197. 09/01/2019 - 08/31/2021. (Co-PI). $80,000 Clements sub-contract over four years


**Selected Publications**


**Fact Sheets:**

- Pettit, E.L. 2020. Fact sheet on grape trunk diseases presented at the Connecticut Farm Winery Development Council, CT.
- Garofalo, E., Piñero, J.C., Schloemann, S. 2020. Apple IPM: Codling Moth (Cydia pomonella). IPM Fact Sheet Series, University of Massachusetts Extension, Fact Sheet # #AI-001.

Guides & Newsletters

2020 New England Small Fruit Management Guide – S. G. Schloemann, General Editor

Fruit Notes Quarterly (http://umassfruitnotes.com/)
Healthy Fruit Newsletter (http://ag.umass.edu/fruit/healthy-fruit-archive)
IPM Berry Blast (http://ag.umass.edu/fruit/ipm-berry-blaster)
Cranberry Station Newsletter (http://ag.umass.edu/cranberry/newsletters)

Selected Collaborations and Working Groups

- European Apple Disease Working Group (International)
- Great Lakes Fruit Workers (Upper Midwest)
- NE-1720 Multi-state Evaluation of Wine grape Cultivars & Clones
- NC-140 Regional Rootstock Project, Technical Committee (National)
- Northeast Berry Call-In (USDA Region I/Eastern Canadian Provinces)
- Northeast Plant Growth Regulator Working Group (Northeast)
- Organic IPM Working Group (Eastern US)
- Spotted Wing Drosophila Working Group (Eastern US)
- Northeast Tree Fruit IPM Working Group (Northeast)
- Network for Environment and Weather Applications
- UMassAir 5-College Collaborative with UMass Transport Center (Local)

Narrative Summary

The UMass Extension Fruit Team seeks to introduce new ideas, technologies and techniques for fruit production in New England, provide timely relevant & research-based information to our audiences that is ecologically and economically sound, respond to current issues effectively and efficiently, and alert growers to high impact issues if/when they occur. We work with fruit growers from small- and large-scale operations who range from beginners to experienced growers and use organic to conventional production systems to produce a variety of fruit crops ranging from apples to strawberries. Fruit Program activities are carried out statewide and also regionally around New England and are delivered via workshops, field days and trainings, conferences and meetings, individual consultations, newsletters, factsheets and pest alerts, guides and other publications. As a result of this work our track record includes: reduced pesticide use on fruit crops, increased use of ecologically-based IPM strategies including biological controls and reduced-risk pesticide materials, introduction of new crops and production systems such as growing seedless table grapes and the introduction of high density apple production systems.

Collaborating Organizations:

- US Department of Agriculture
- Massachusetts Department of Agricultural Resources
- Massachusetts Society for Promoting Agriculture
- Massachusetts Fruit Growers’ Association
- New England Vegetable & Berry Growers Association
- Massachusetts Farm Winery & Growers Association
- Massachusetts Cultivated Blueberry Growers Association
- Massachusetts Horticultural Society
- Massachusetts Master Gardeners Association

Cleft grafting – Jim Kruppa