2016 Apple Season Recap (and a look to 2017)

TERENCE BRADSHAW
TREE FRUIT & VITICULTURE SPECIALIST
UNIVERSITY OF VERMONT

121ST ANNUAL VTFGA & UVM APPLE PROGRAM ANNUAL MEETING

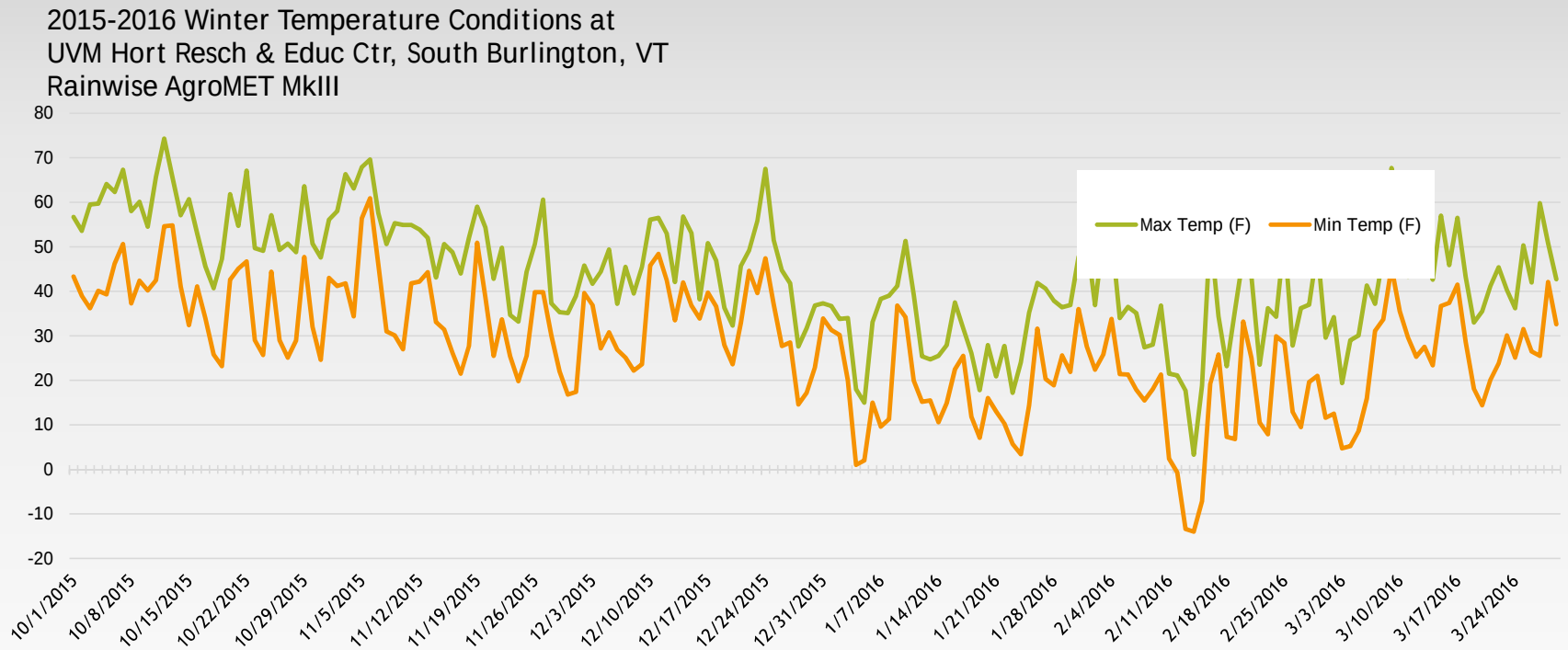
COLLEGE OF AGRICULTURE AND LIFE SCIENCES
UNIVERSITY OF VERMONT

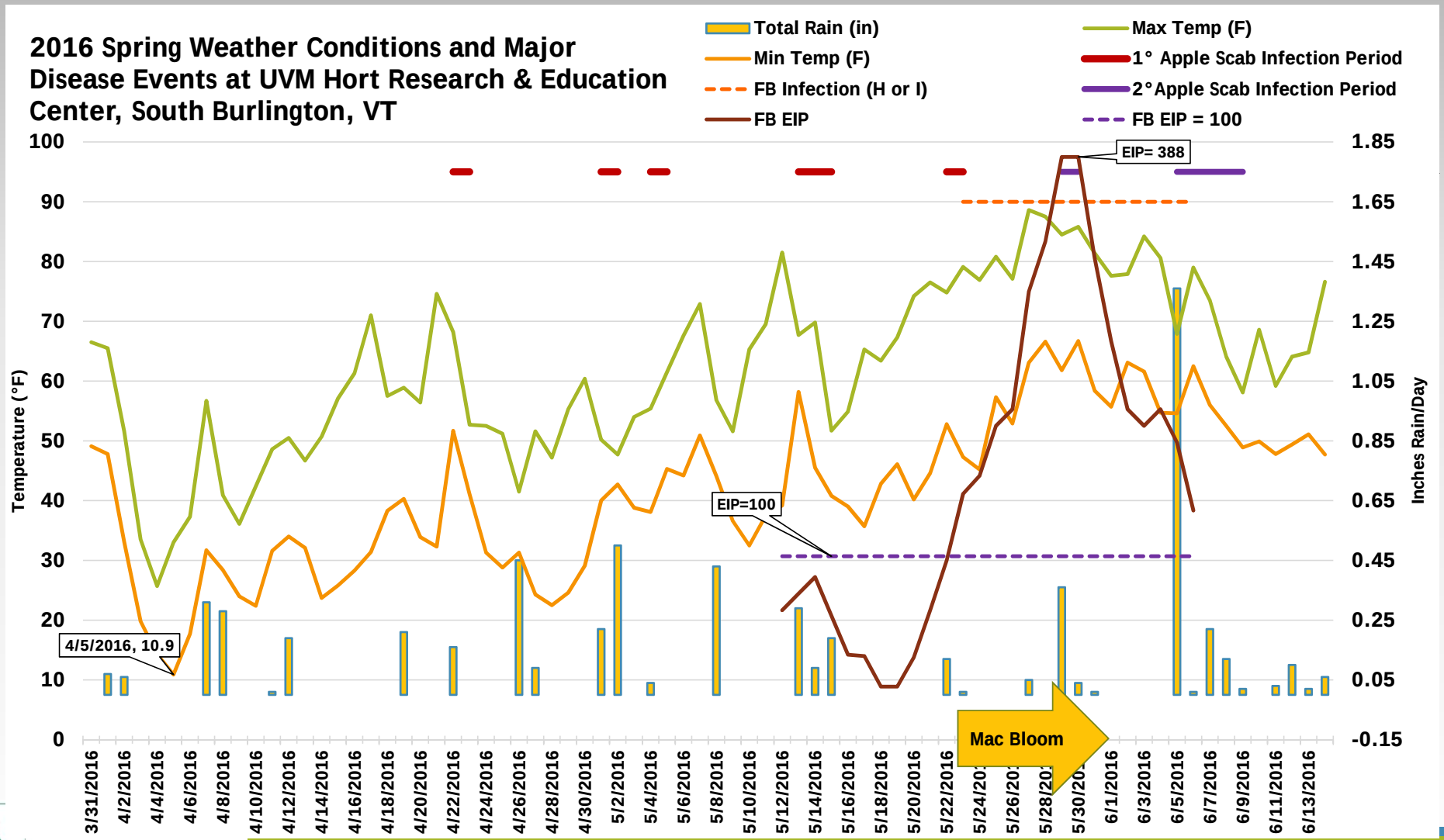
2017: UVM Apple Program & Support Programs

Changes at UVM and VT Agency of Agriculture

- UVM Extension in College of Agriculture & Life Science
- Chuck Ross
  - Secretary of Ag -> Director UVM Extension
  - Tom Vogelmann, CALS Dean 2008-present
    - Oversees Extension within CALS
- Anson Tebbetts -> Secretary of Agriculture
- Alyson Eastman -> Deputy Secretary

2016 Growing season: Mild winter

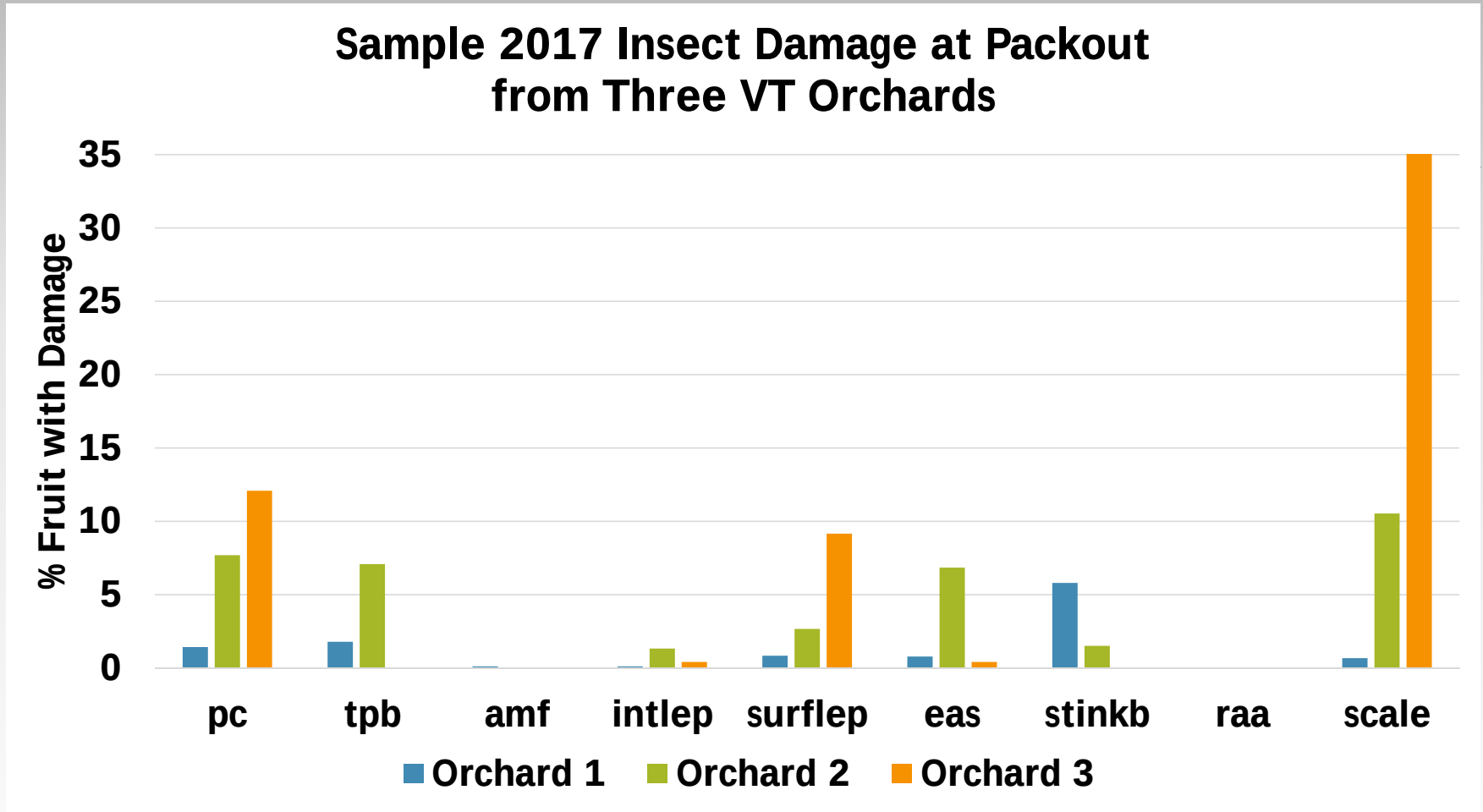



2016 Spring Weather Conditions and Major Disease Events at UVM Hort Research & Education Center, South Burlington, VT
Total Rain (in)
Max Temp (F)
Min Temp (F)
1° Apple Scab Infection Period
FB Infection (H or I)
2° Apple Scab Infection Period
FB EIP
FB EIP = 100
Temperature (°F)
Inches Rain/Day
EIP= 388
EIP=100
4/5/2016, 10.9
Mac Bloom

Drought?

2016 Apple disease highlights

- Fire blight!!!
  - NEWA models largely/functionally accurate
  - Cut out during pruning
  - Be ready in 2017
- Apple scab:
  - Little to none
- Summer diseases
  - Little to no SBFS
  - Fruit rots: irrigate in drought conditions to reduce susceptibility (among other things)


Sample 2017 Insect Damage at Packout from Three VT Orchards
% Fruit with Damage
35
30
25
20
15
10
5
0
pc
tpb
amf
intlep
surflep
eas
stinkb
raa
scale
Orchard 1
Orchard 2
Orchard 3

Apple IPM in Vermont: Where are we?

2017 UVM Apple IPM Program Grower Survey: Thank You!

- 100% of respondents report practicing IPM
- 100% report UVM Apple Program as:
  - "Useful", "Somewhat useful", or "Highly useful"
- 92% use UVM Apple Program information in decision making
- 92% report and economic impact from using IPM information
  - 100% of those report the impact as positive

Has the information obtained through the UVM Apple IPM Program allowed you to:	**Yes**	**No**
Increase your knowledge or understanding of Apple IPM	**84.62%** 11	**15.38%** 2
Increase your knowledge on how to prevent pest management problems	**84.62%** 11	**15.38%** 2
Adopt at least one new IPM practice	**50.00%** 6	**25.00%** 3
Reduce or minimize pesticide use	**69.23%** 9	**23.08%** 3
Determine if pesticides are needed in your orchard	**76.92%** 10	**15.38%** 2
Effectively time pesticides if they were needed	**76.92%** 10	**15.38%** 2
Adopt a reduced-risk alternative to manage a pest (e.g., insect, disease, weed, vole, deer, etc.)	**61.54%** 8	**23.08%** 3

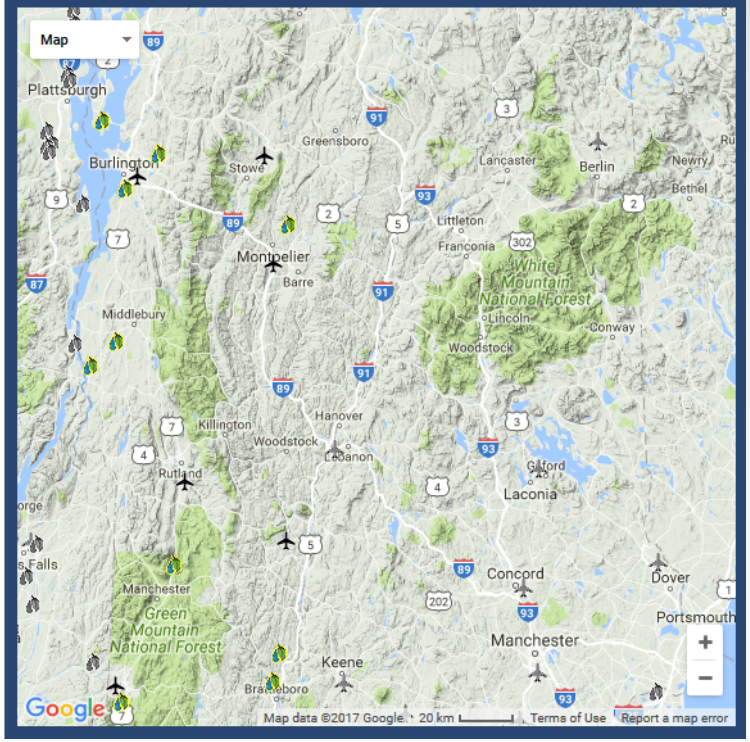
NEWA

Weather Stations in Vermont

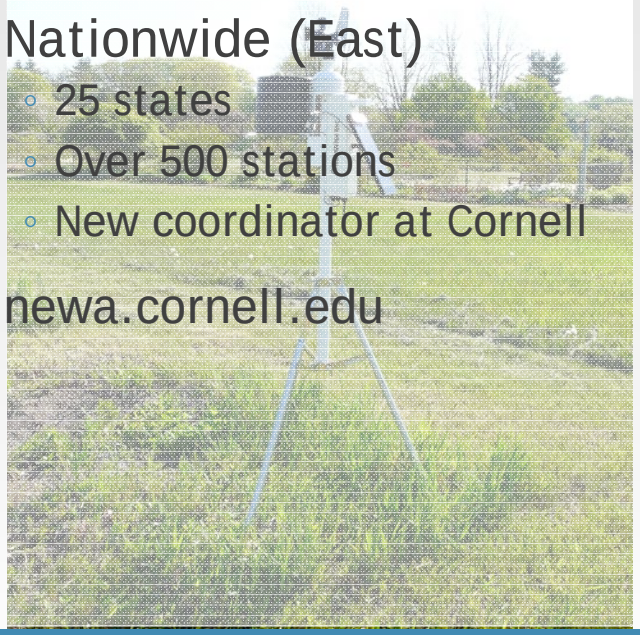
Weather Stations
Bennington (airport)
Bennington (SVO)
Burlington
Cornwall
Dummerston
East Dorset
East Montpelier
Essex
Montpelier
Morrisville
Putney
Rutland
Shoreham
South Burlington
South Hero
Springfield

16 records found.

Click on a map marker to go to the weather station's home page.



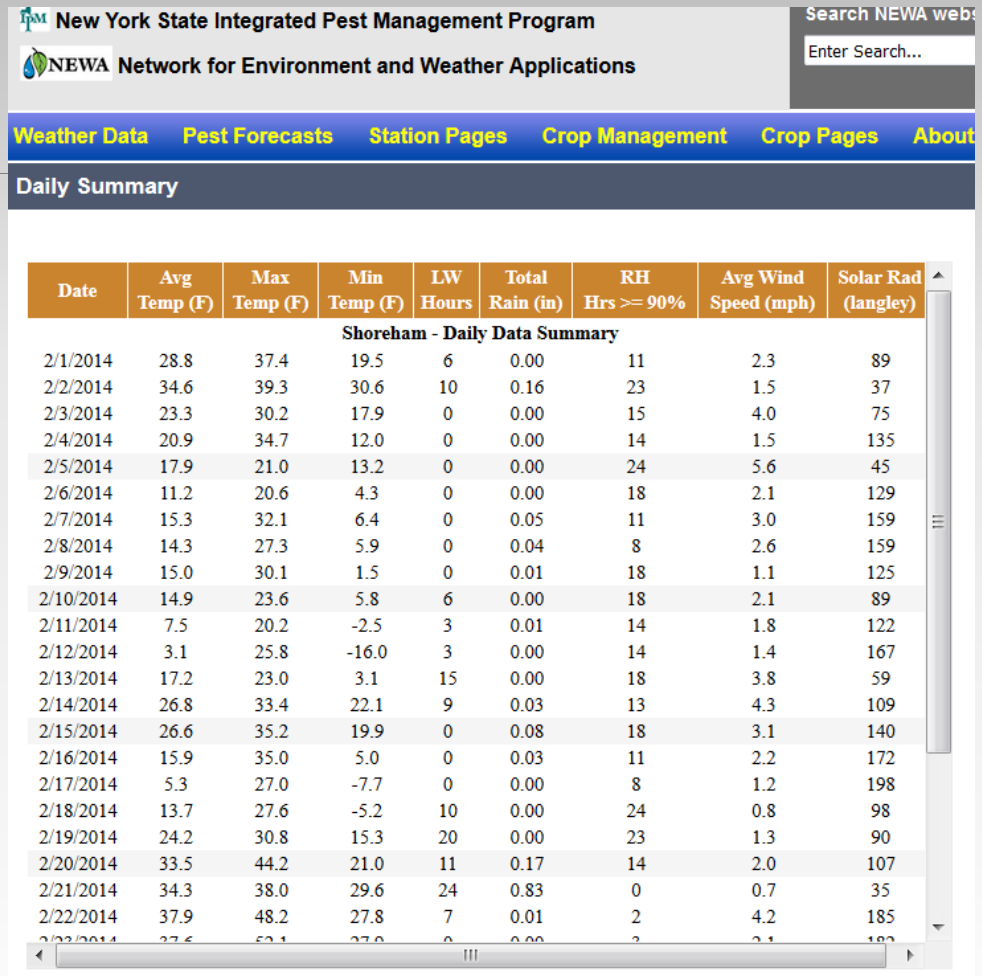
- 16 stations in Vermont
  - Six airports
  - Ten on-farm stations
- Nationwide (East)
  - 25 states
  - Over 500 stations
  - New coordinator at Cornell
- newa.cornell.edu



NEWA: Models

- Three disease models
  - Apple scab, fire blight, sbfs
- Six insect models
  - Codling moth, plum curculio, obliquebanded leafroller, Oriental fruit moth, apple maggot, San Jose scale
- Multiple horticultural models
  - Carbohydrate thinning, evapotranspiration, irrigation, frost risk, degree days
- Archived weather data

- Caveat: NEWA is a tool, not a silver bullet. It needs to be used as part of a comprehensive IPM program!!


New York State Integrated Pest Management Program

NEWA Network for Environment and Weather Applications

Search NEWA webs

Enter Search...

Weather Data | Pest Forecasts | Station Pages | Crop Management | Crop Pages | About

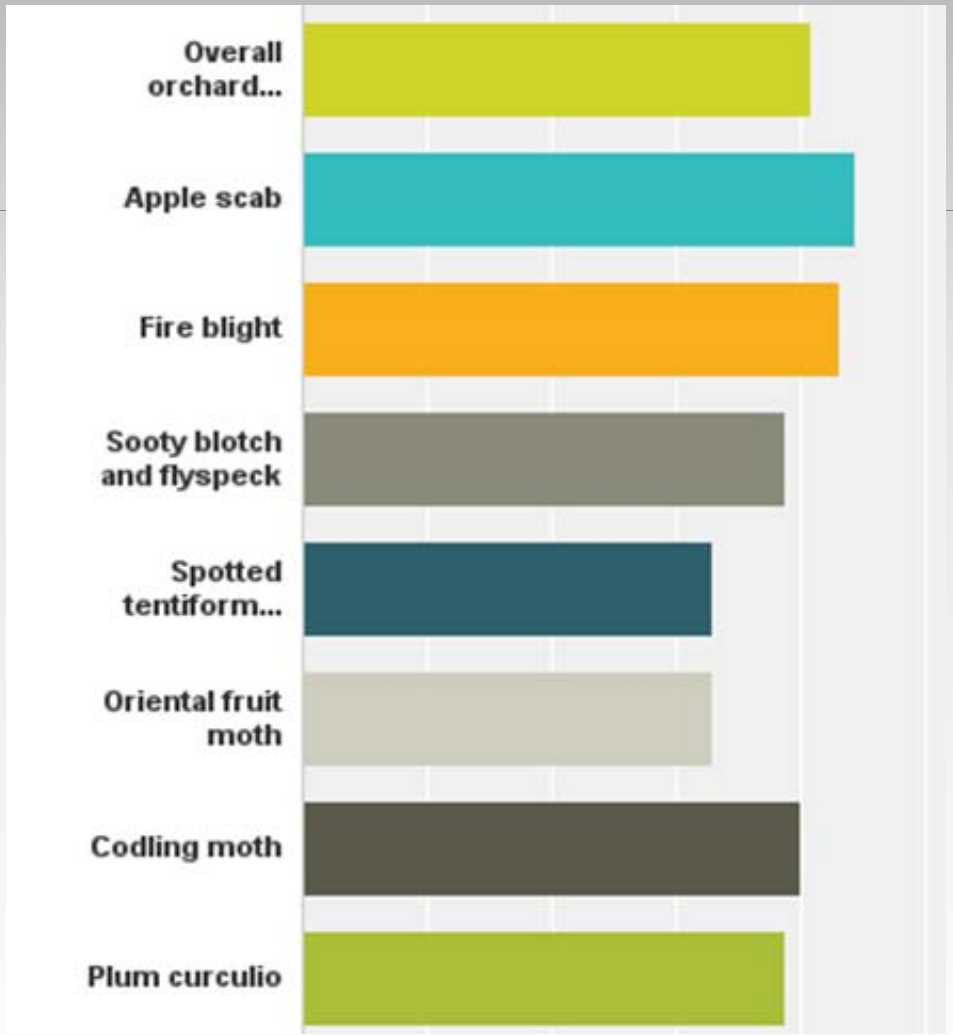
Daily Summary

Date	Avg Temp (F)	Max Temp (F)	Min Temp (F)	LW Hours	Total Rain (in)	RH Hrs >= 90%	Avg Wind Speed (mph)	Solar Rad (langley)
Shoreham - Daily Data Summary								
2/1/2014	28.8	37.4	19.5	6	0.00	11	2.3	89
2/2/2014	34.6	39.3	30.6	10	0.16	23	1.5	37
2/3/2014	23.3	30.2	17.9	0	0.00	15	4.0	75
2/4/2014	20.9	34.7	12.0	0	0.00	14	1.5	135
2/5/2014	17.9	21.0	13.2	0	0.00	24	5.6	45
2/6/2014	11.2	20.6	4.3	0	0.00	18	2.1	129
2/7/2014	15.3	32.1	6.4	0	0.05	11	3.0	159
2/8/2014	14.3	27.3	5.9	0	0.04	8	2.6	159
2/9/2014	15.0	30.1	1.5	0	0.01	18	1.1	125
2/10/2014	14.9	23.6	5.8	6	0.00	18	2.1	89
2/11/2014	7.5	20.2	-2.5	3	0.01	14	1.8	122
2/12/2014	3.1	25.8	-16.0	3	0.00	14	1.4	167
2/13/2014	17.2	23.0	3.1	15	0.00	18	3.8	59
2/14/2014	26.8	33.4	22.1	9	0.03	13	4.3	109
2/15/2014	26.6	35.2	19.9	0	0.08	18	3.1	140
2/16/2014	15.9	35.0	5.0	0	0.03	11	2.2	172
2/17/2014	5.3	27.0	-7.7	0	0.00	8	1.2	198
2/18/2014	13.7	27.6	-5.2	10	0.00	24	0.8	98
2/19/2014	24.2	30.8	15.3	20	0.00	23	1.3	90
2/20/2014	33.5	44.2	21.0	11	0.17	14	2.0	107
2/21/2014	34.3	38.0	29.6	24	0.83	0	0.7	35
2/22/2014	37.9	48.2	27.8	7	0.01	2	4.2	185

NEWA usefulness

<u>80% of respondents use NEWA at least once per week</u>

How useful is the NEWA system in helping make management decisions for the following diseases, pests, and horticultural practices:



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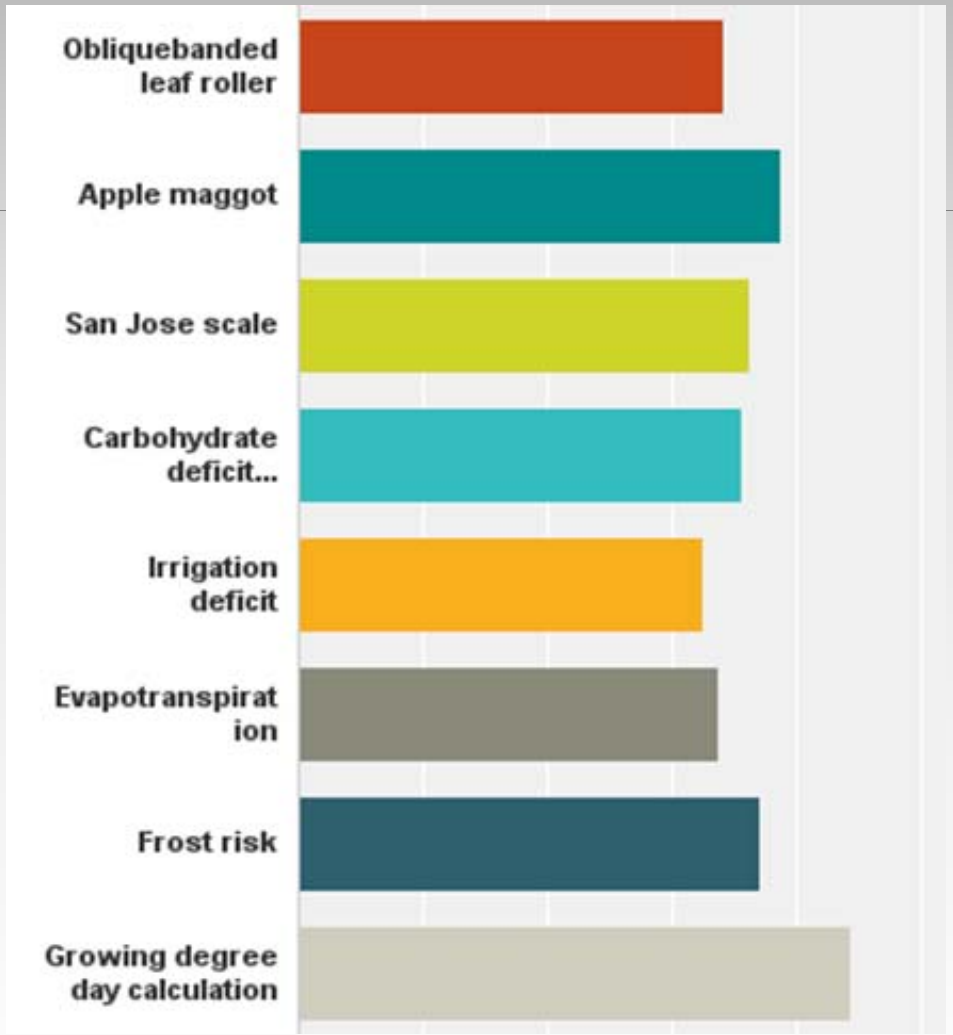
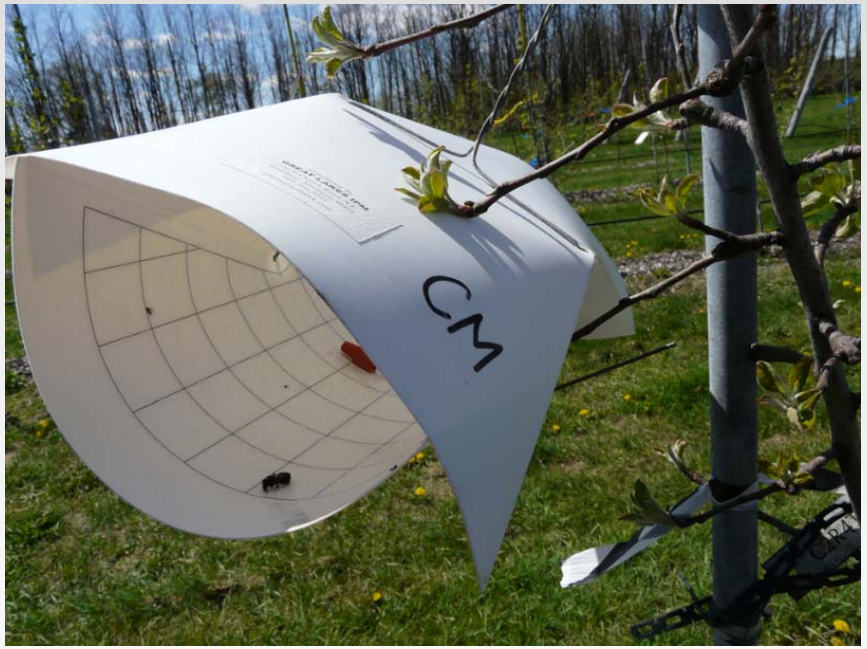


Do you follow a formal scouting program?

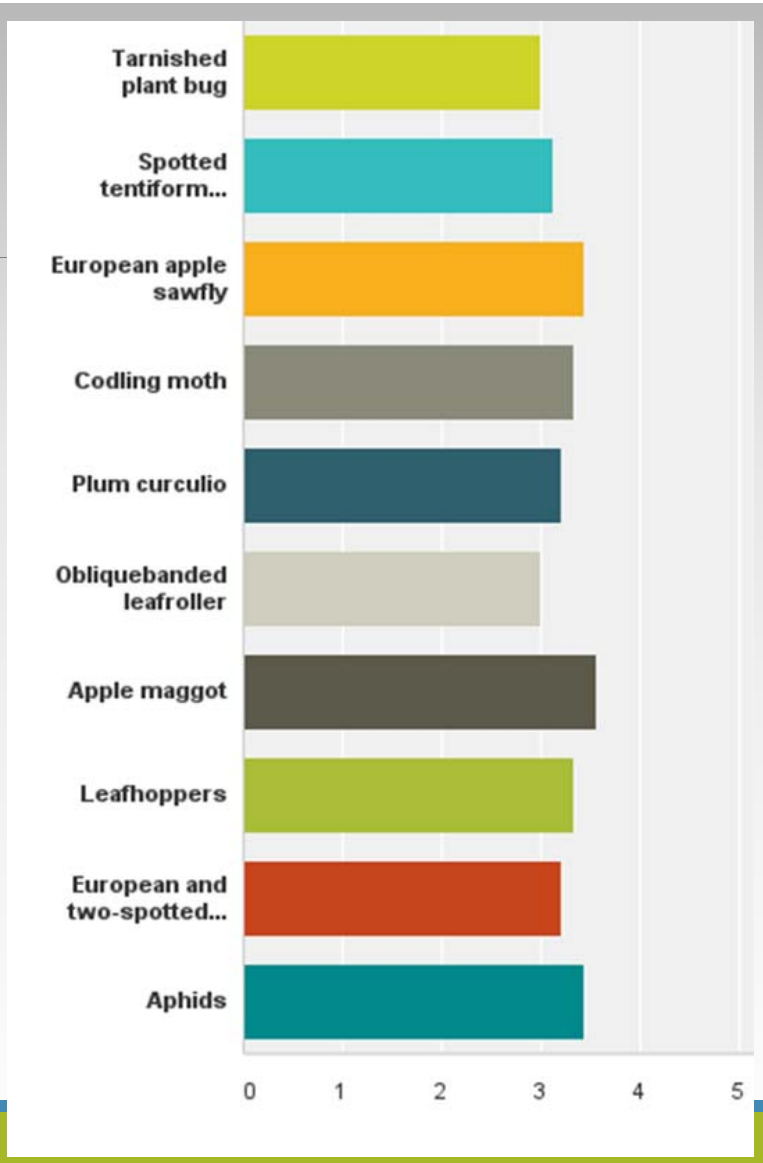
Answer Choices	Responses	
Yes, I scout weekly for pests and beneficial arthropods using traps and foliar & fruit sampling.	50.00%	5
Yes, I scout as needed for pests and beneficial arthropods using traps and foliar & fruit sampling.	30.00%	3
Yes, I scout as needed by making general orchard observations.	20.00%	2
No, I do not scout	0.00%	0
Other (please specify)	0.00%	0
Total		**10**

Do you use traps for monitoring the following insects in your orchard?:

	Yes	No
Tarnished plant bug	**10.00%** 1	**90.00%** 9
Spotted tentiform leafminer	**20.00%** 2	**80.00%** 8
European apple sawfly	**40.00%** 4	**60.00%** 6
Codling moth	**60.00%** 6	**40.00%** 4
Obliquebanded leafroller	**44.44%** 4	**55.56%** 5
Oriental fruit moth	**44.44%** 4	**55.56%** 5
Redbanded leafroller	**33.33%** 3	**66.67%** 6
Apple maggot	**70.00%** 7	**30.00%** 3



How comfortable are you with protocols for scouting for the following pests:

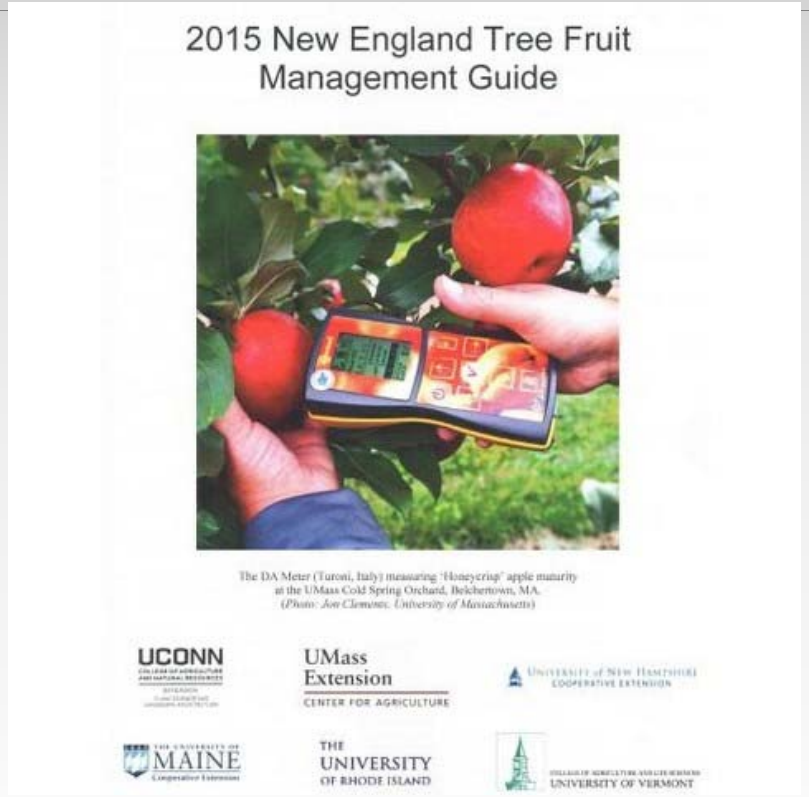


2017 UVM Apple Program Scouting Plans

- Details up in the air
  - Pending funding: WLEF, SCBGP, USDA EIPM
- Plan to expand scouting & reporting to multiple orchards around state
  - Number depends on funding
- Scouting field day(s) in spring
- Weekly emailed reports/recommendations based on observed conditions

2015 New England Apple Pest Management Guide

- No updated guide 2016
- netreefruit.org



http://www.target.com/p/2015-new-england-tree-fruit-management-g-new-england-tree-fruit-management-guide-paperback/-/A-50147454

Zeke Goodband, manager of Scott Farm, observes an insect trap. Photo: Red Tomato

FRUIT GROWERS NEWS

Andrea, left, and Bill Suhr run Champlain Orchards in Shoreham, Vermont, along with raising two young children. Photo: Matt Milkovich

FRUIT GROWERS NEWS

DEC 27, 2016

Program seeks to reward ecological practices

Potential issue: Rapid/sudden apple decline

- Increased anecdotal reports of sudden decline and death of trees on highly dwarfing rootstocks
  - Mix of dead/declining trees dispersed evenly
  - Young trees most susceptible
  - Graft union affected/necrotic
  - Affected wood solid/not spongey
  - Total collapse of tree in summer
- Survey from Dr. Kari Peters, Penn State University

Increased focus on pollinator protection

Multiple bills to eliminate neonicotinoid insecticide use in VT have failed

2016: Act 83 established VT Pollinator Protection Committee

- Your Truly, committee chair
- Eric Boire, committee member
- Develop recommendations for legislature & VAAFM *based on the literature* for pollinator protection

Some Pollinator Protection Committee *Recommendations*

- Pesticide restrictions
  - Three-year moratorium on applications of neonicotinoid insecticides (NNIs) on ornamental plants
  - Discourage prophylactic use of pesticides (IPM)
  - Classify NNIs as Restricted Use
  - Classify all materials highly toxic to bees as Restricted Use
  - Prohibit systemic pesticides highly toxic to bees until after flowering (exemptions…)
  - Develop BMPs on NNI treated corn & soybean seeds, restrict their use unles documented need exists
- Habitat
  - Several recommendations to develop habitat management practices for pollinators and encourage their funding
- UVM Extension
  - Create Pollinator Extension position
  - Develop educational curricula for beekeepers to aid in hive, disease, and pest management
- Develop pollinator protection fund
  - Help farmers offset costs
  - Seek sustainable funding mechanisms

Which of the following practices do you employ to reduce impacts on pollinators in your orchard?

	Yes	No	Unsure	Total	Weighted Average
Mowing to reduce flowering weeds prior to spraying	**72.73%** 8	**27.27%** 3	**0.00%** 0	11	0.73
Herbicides to reduce flowering weeds prior to spraying	**9.09%** 1	**72.73%** 8	**18.18%** 2	11	0.09
Maintaining flowering habitat within the orchard to encourage pollinators	**27.27%** 3	**63.64%** 7	**9.09%** 1	11	0.27
Maintaining flowering habitat outside but near the orchard to encourage pollinators	**81.82%** 9	**9.09%** 1	**9.09%** 1	11	0.82
Avoiding use of neonicotinoid insecticides	**63.64%** 7	**36.36%** 4	**0.00%** 0	11	0.64
Avoiding use of neonicotinoid insecticides before bloom	**100.00%** 11	**0.00%** 0	**0.00%** 0	11	1.00
Avoiding use of pesticides rated highly toxic to bees	**81.82%** 9	**18.18%** 2	**0.00%** 0	11	0.82
Avoiding use of demethylase/sterol inhibitor fungicides (e.g. Inspire, Rally, Procure, etc.) during bloom	**90.91%** 10	**9.09%** 1	**0.00%** 0	11	0.91

Cider apple research: Three projects

- Return bloom enhancement with PGRs on European bittersweet cultivars
- Reduced spray programs on dessert fruit grown for cideries
- Reduced pruning inputs on dessert fruit grown for cideries

Pending:
SCRI : *Creating Interdisciplinary Extension and Research Programs to Redevelop the American Cider Industry*

FRUIT GROWERS NEWS

OCT 4, 2016

Sunrise Orchards Embraces Hard Cider

Barney Hodges has high hopes for his high-density hard cider block at Sunrise Orchards in Vermont.

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Hard cider boom lifts Addison County apple orchards

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Dr. Terence Bradshaw
- UVM Tree Fruit & Viticulture Specialist
  College of Agriculture & Life Science

Dr. Ann Hazelrigg
- Director, UVM Plant Diagnostic Clinic
  UVM Extension

Sarah Kingsley-Richards
Jessica Foster
- Research Technicians

Dr. David Conner
- Agricultural Economist
  UVM Dept Community Dev & Appl Economics

Florence Becot
- Research Specialist, CDAE

Funding acknowledgements:

USDA FSMIP
- Orchard Economic Assessment to Support Vermont Hard Cider Production

USDA Extension Integrated Projects Program
- The Multidisciplinary Vermont Extension Implementation Program Addressing Stakeholder Priorities and Needs for 2014-2017Northeast IPM Center
- Addressing Unique IPM Needs in Northeast Cider Orchards

Northeast SARE
- Orchard Pruning for Cider Apple Production

Vermont Agricultural Experiment Station

Vermont Tree Fruit Growers Association

Vermont Hard Cider Company

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