2014 Vermont Apple Season Roundup
(& a look ahead to 2015)

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UNIVERSITY OF VERMONT
119TH ANNUAL VTFGA & UVM APPLE PROGRAM ANNUAL MEETING

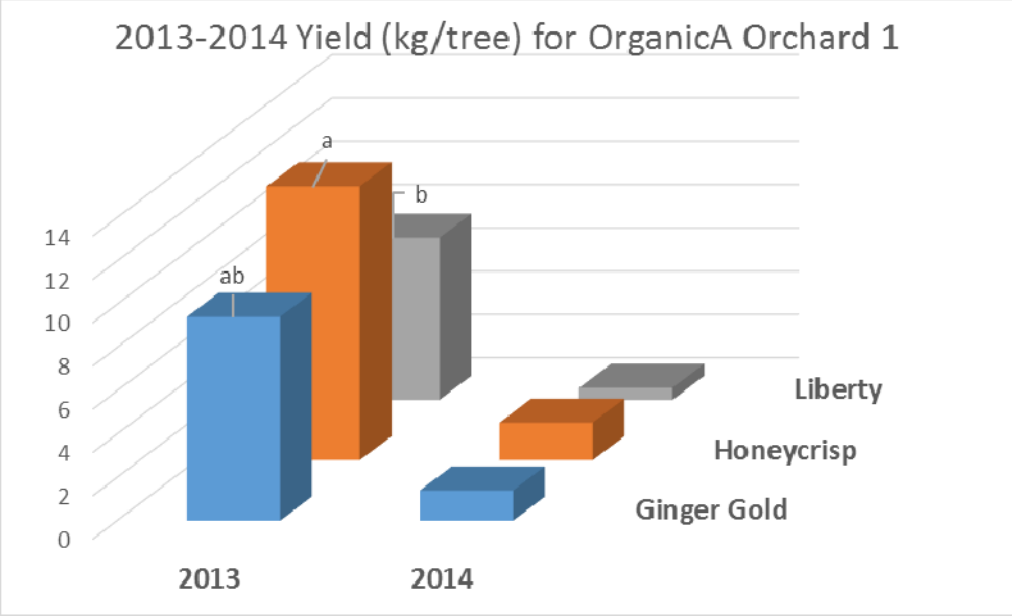
FEBRUARY 12, 2015

2014: The crop that wasn't?

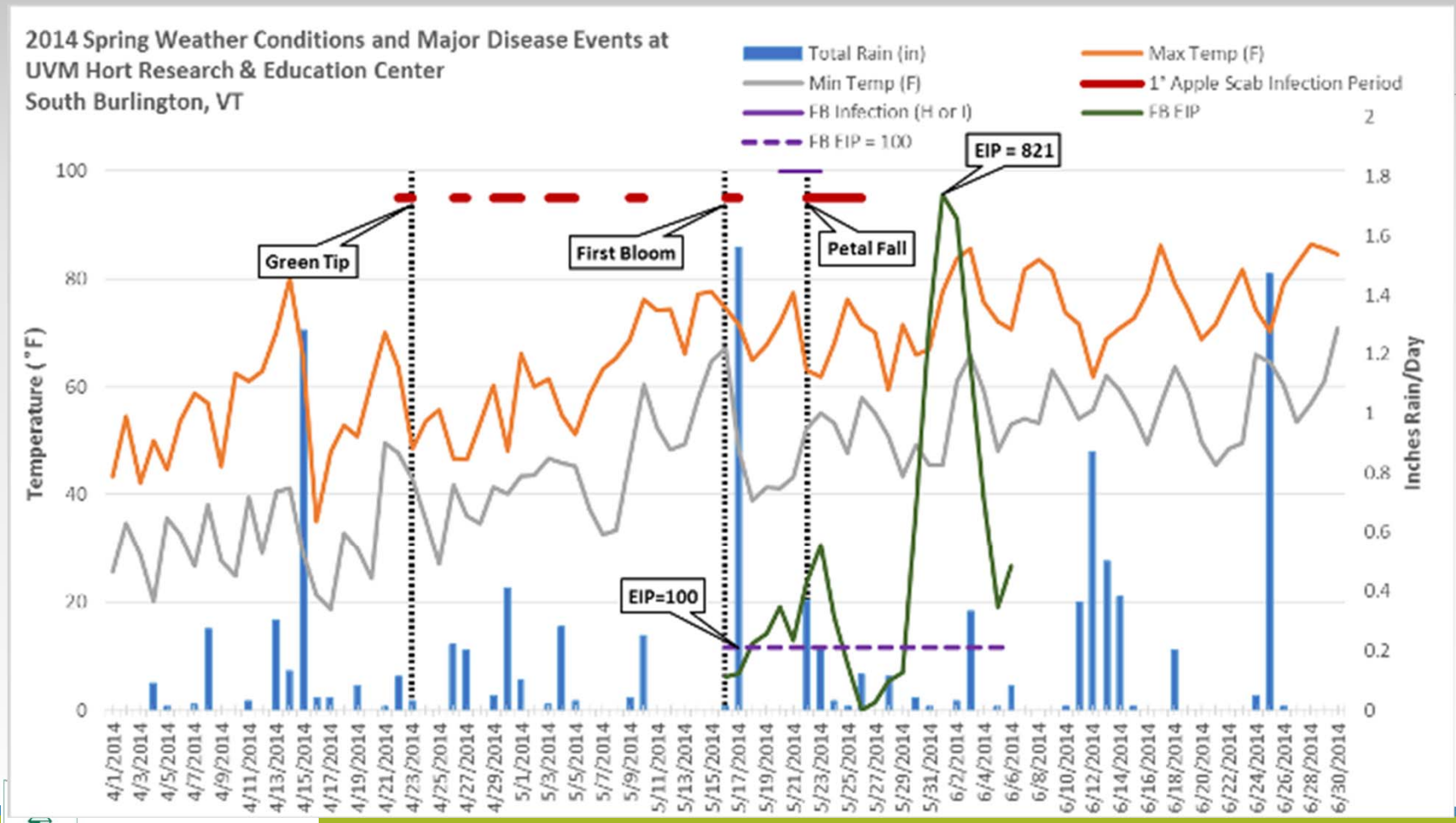
2014: The crop that wasn't?

- Total production down in Vermont ~40% from five-year average
- Crop uneven overall
  - Great crop in Grand Isle county
- Over production in 2013
- Winter damage Dec 2013, Feb 2014

- *Prepare to thin in 2014*



Disease management 2014

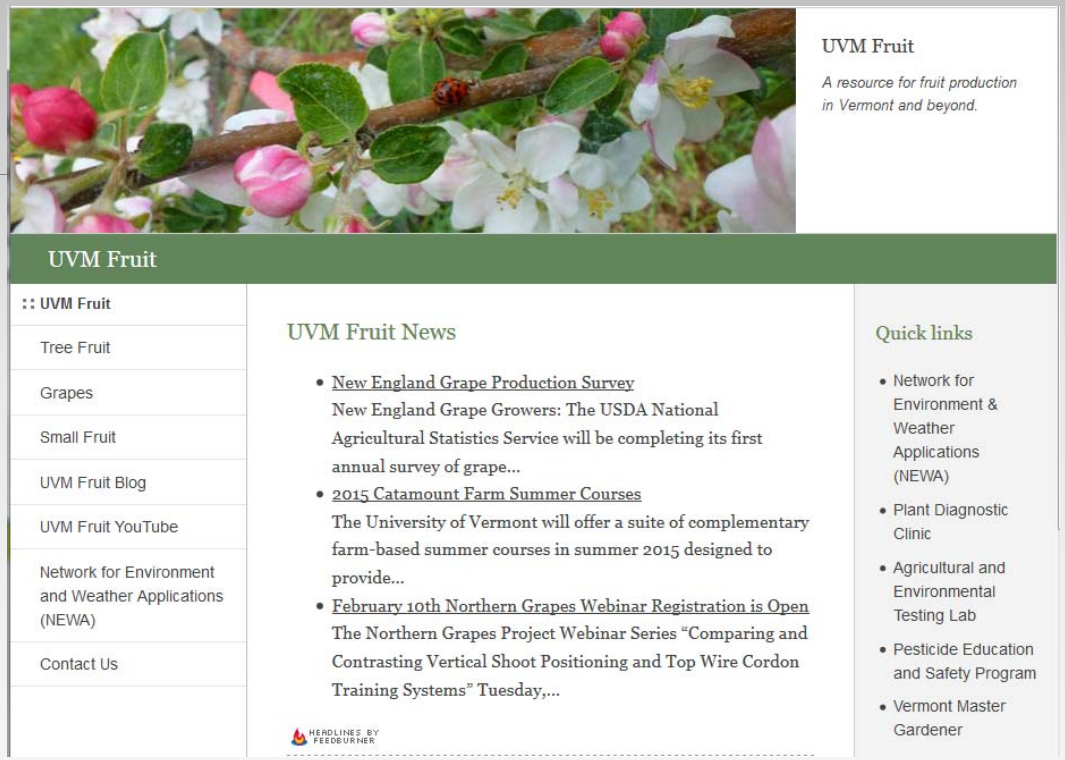


Research Projects, 2014

E-IPM Outreach

UVM Fruit website, mailing list, & blogs

- Site redesign & blog added April 2014
- 76 posts since April 2014
- Continued support 2015
- Grower Survey



E-IPM Outreach

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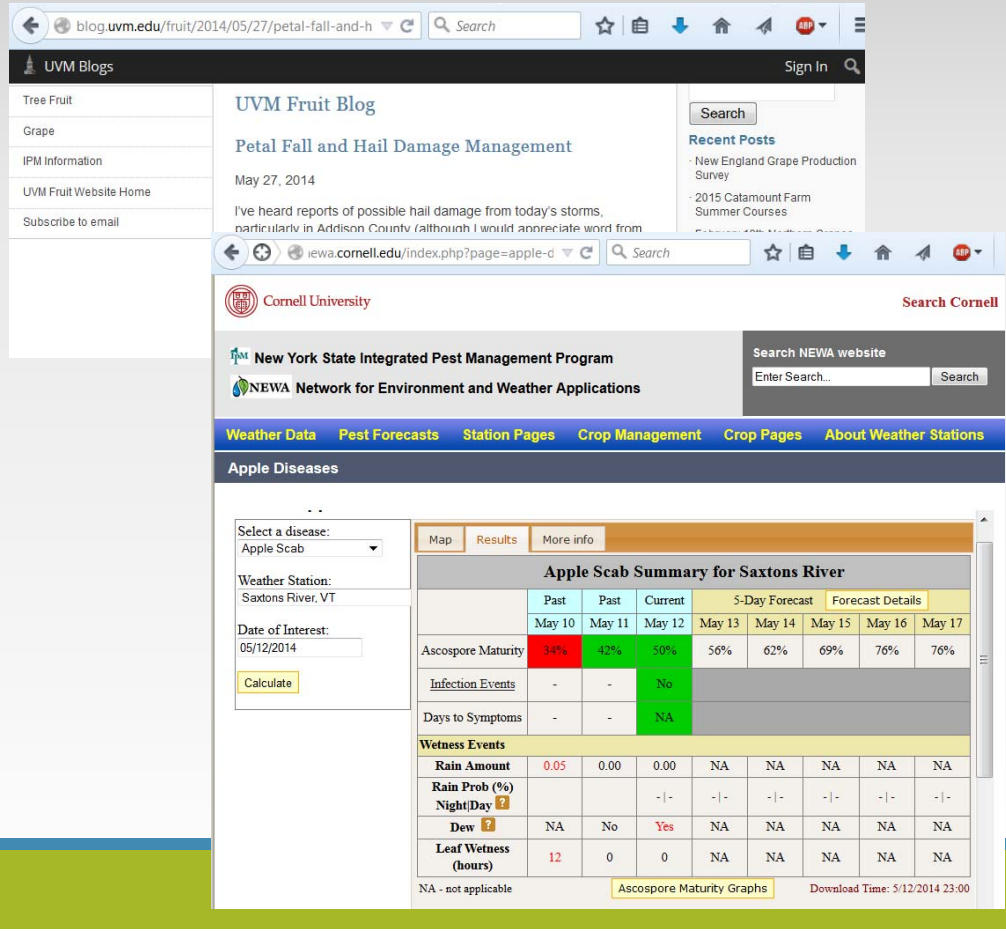
NEWA IPM Application

- *newa.cornell.edu*
- Six airports, nine on-site weather stations



Biological management of apple replant disease

NORTHEAST SARE

COLLEGE OF AGRICULTURE AND LIFE SCIENCES
UNIVERSITY OF VERMONT

Biological management of apple replant disease

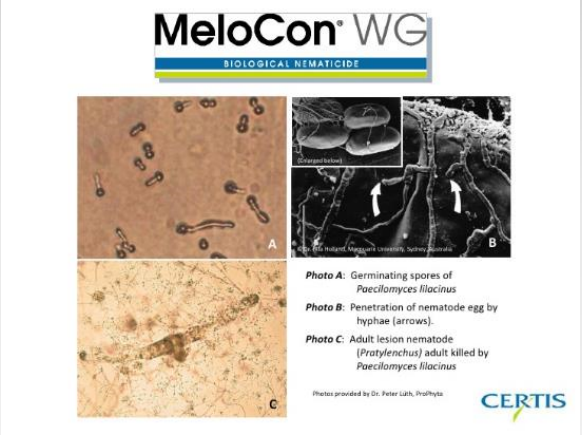
Post-plant assessment of biofungicides/bionematicide materials against ARD

ARD is a disease caused by a complex of nematodes, fungi, and bacteria that reduce tree growth and productivity

Biological management of apple replant disease

Two materials:

- MeloCon (Certis)
- Actinovate (Novozymes/Monsanto BioAg)



Two sites

- South Hero
- South Burlington

Four soil injections/year

Preliminary data:

Site	Treatment	TCSA increase, %		
		value		p-value
HREC	NTC	32.9		0.7417
HREC	ACT	32.2		
HREC	MCN	30.9		
SHVT	NTC	67.4	b	0.0003
SHVT	ACT	62.6	b	
SHVT	MCN	72.9	a	

TCSA: Increase with Melocon at one site

Preliminary data:

Site	Treatment	Terminal leader growth, cm		
		value		p-value
HREC	NTC	11.2	c	0.0001
HREC	ACT	23.2	a	
HREC	MCN	19.6	b	
SHVT	NTC	41.0	a	0.0002
SHVT	ACT	31.9	b	
SHVT	MCN	31.7	b	

TCSA:

- Increase with Melocon at one site

Leader growth:

- Actinovate increased growth at one site,
- NTC had greatest growth at another

Preliminary data:

Site	Treatment	Terminal shoot growth, cm		
		value		p-value
HREC	NTC	11.7	b	<0.0001
HREC	ACT	15.4	a	
HREC	MCN	14.6	a	
SHVT	NTC	32.2	a	<0.0001
SHVT	ACT	25.5	b	
SHVT	MCN	27.2	b	

TCSA:
- Increase with Melocon at one site

Leader growth:
- Actinovate increased growth at one site,
- NTC had greatest growth at another

Terminal shoot growth:
- Inconsistent results

Preliminary data:

Site	Treatment	Kg fruit/tree		
		value		p-value
HREC	NTC	1.27		0.9445
HREC	ACT	1.23		
HREC	MCN	1.24		
SHVT	NTC	3.67	ab	0.0016
SHVT	ACT	4.37	a	
SHVT	MCN	3.17	b	

TCSA:

- Increase with Melocon at one site

Leader growth:

- Actinovate increased growth at one site,
- NTC had greatest growth at another

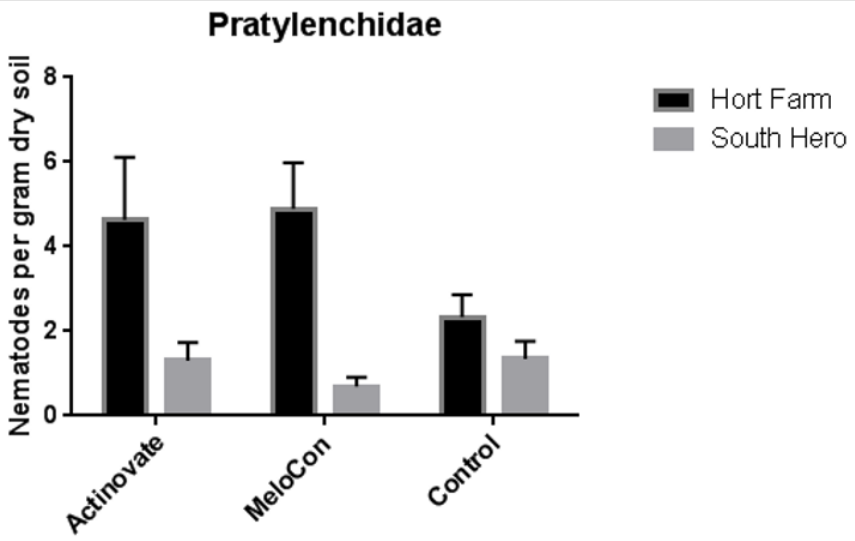
Terminal shoot growth:

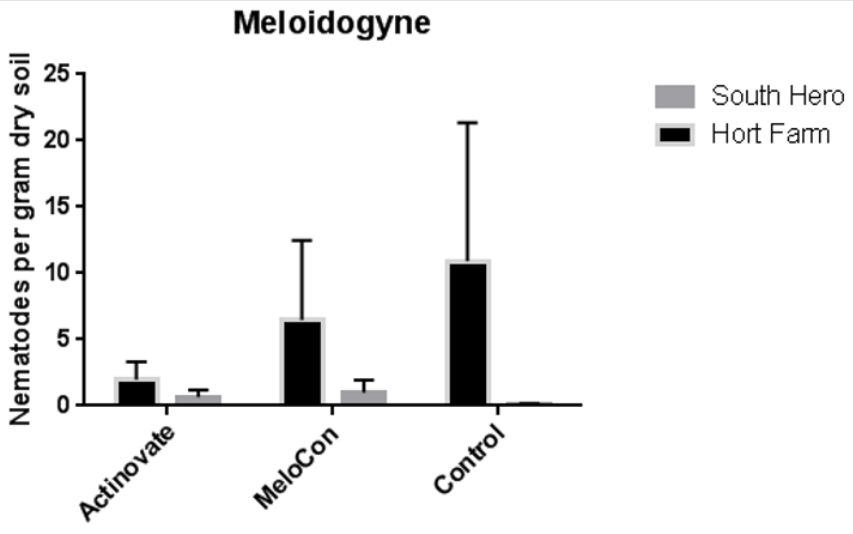
- Inconsistent results

Kg fruit/tree

- No effect @ HREC
- Actinovate had greater crop yield than Melocon at S Hero

Changes in soil community





Cider apple production systems

Cider apple production systems

Working Lands Enterprise Fund

USDA Federal State Market Improvement Program

Industry surveys:

- Grower & Cidery
- Production and utilization capacity
- Price points

	Mean percent	Median percent	Standard deviation
On the farm sold as fresh fruit	33.6	32.5	31.4
On the farm sold as juice	11.5	3.0	18.1
To wholesalers	18.4	0.0	32.2
Directly to stores	15.3	0.0	28.3
To sweet cider processers	7.6	0.0	17.4
To cideries	8.4	0.0	21.3
Other	5.1	0.0	16.7

Cider apple production systems

Working Lands Enterprise Fund

USDA Federal State Market Improvement Program

Industry surveys:

- Grower & Cidery
- Production and utilization capacity
- Price points

		Price received ($US)			Target price ($US)			Average price difference in $US
Apple type	n	Mean	Min	Max	Mean	Min	Max	
Specialty cider/bittersweet	2	8.25	4	12.5	13.7	10	17.5	-5.45
Dessert variety tree pick	2	5.75	4	7.5	8.0	6.0	10.0	-2.25
Dessert variety cull	1	7.5	7.5	7.5	7.5	7.5	7.5	0
Dessert variety drop	1	-	-	-	7.5	7.5	7.5	-

Cider apple production systems

Working Lands Enterprise Fund

USDA Federal State Market Improvement Program

Orchard and cultivar data

- Production by cultivar & orchard system
- Cultivar juice characteristics

Cultivar	Bushels / acre	Firmness (psi)	Starch index	Soluble solids (°brix)
Cortland	672	15.9	3.7	10.3
Empire	932	18.8	5.0	12.8
Idared	1221	17.4	4.0	10.6
Jonagold	338	16.0	7.4	12.6
Liberty	282	17.5	6.0	11.0
Macoun	705	15.4	5.0	10.9
McIntosh	1134	15.2	4.6	11.6
Paula Red	435	17.1	3.4	11.3

Cider apple production systems

Working Lands Enterprise Fund

USDA Federal State Market Improvement Program

Orchard and cultivar data

- Production by cultivar & orchard system
- Cultivar juice characteristics

Cultivar	Soluble solids (°brix)	pH	Malic acid (mg/l)	Total polyphenols (%)	YAN (mg/l)
Ashmead's Kernel	17.6	3.25	10.40	0.075	262.4
Commercial blend	12.2	3.40	5.91	0.037	58.5
Cortland	11.2	3.43	4.74	0.047	45.1
Dabinet	13.1	4.13	1.88	0.109	60.6
Esopus Spitzenburg	15.3	3.48	7.10	0.035	113.4
Honeycrisp	12.6	3.52	4.97	0.027	85.0
Idared	10.8	3.29	5.98	0.017	15.5
Jonagold	12.3	3.40	5.12	0.021	38.6
Liberty	11.5	3.45	5.72	0.018	56.7
Macoun	11.7	3.47	4.17	0.021	65.1
McIntosh	11.7	3.25	5.48	0.036	30.1
PaulaRed	11.0	3.40	4.45	0.050	30.4
Topaz	12.4	3.35	9.86	0.056	16.1
Wickson	13.9	3.40	11.94	0.018	53.3

Cider apple production systems

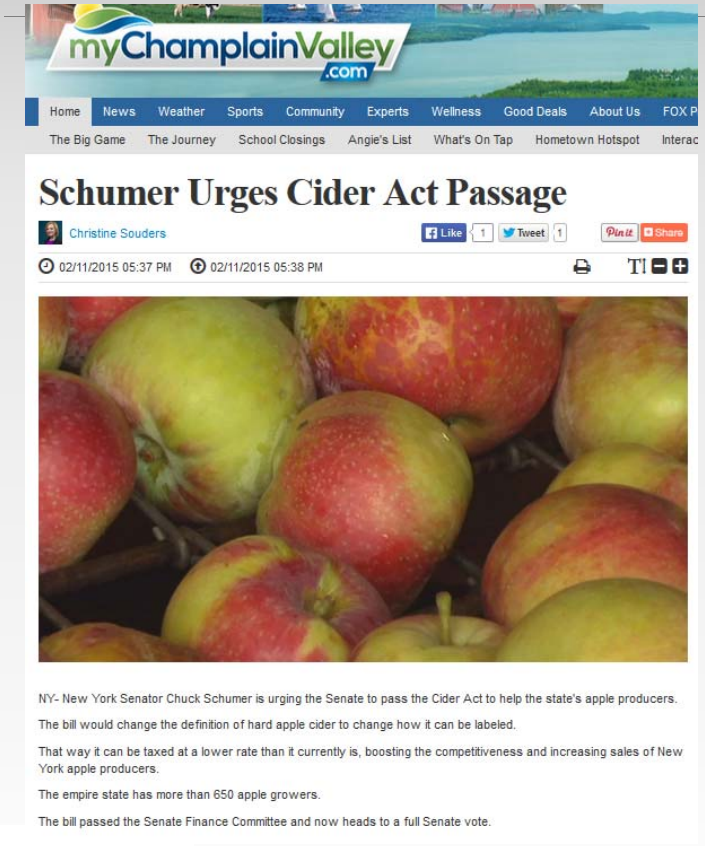
Working Lands Enterprise Fund

USDA Federal State Market Improvement Program

Fermentation characteristics

- Ciders fermented at three commercial cideries
- Spring 2015: evaluation of finished ciders to characterize cider quality

CIDER Act (H.R. 600)



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Schumer Urges Cider Act Passage

Christine Souders

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02/11/2015 05:37 PM 02/11/2015 05:38 PM

NY- New York Senator Chuck Schumer is urging the Senate to pass the Cider Act to help the state's apple producers.

The bill would change the definition of hard apple cider to change how it can be labeled.

That way it can be taxed at a lower rate than it currently is, boosting the competitiveness and increasing sales of New York apple producers.

The empire state has more than 650 apple growers.

The bill passed the Senate Finance Committee and now heads to a full Senate vote.

- Amend the section of the tax code to allow cider makers to produce cider using the natural products available without the possibility of facing increased tax liability
  - increase the carbonation level for hard cider, thereby meeting customer expectations,
  - include pears in the definition of "hard cider," and
  - align the alcohol-content standard for hard cider with the natural sugar content of apples.

2015 Projects

E-IPM Outreach Program

SARE Apple Replant Disease

Cider Apple Production

- In-depth financial analysis of costs to produce cider apples in VT
- Increased replication across orchards
- Phenology data
- Developing database of characteristics of apple cultivars used for hard cider

Biopesticide management of cedar apple rust on scab-resistant cultivars

2015 Undergraduate & Continuing Education Courses

PSS 209 Sustainable (Vegetable) Farm Practicum

- **Instructors: Susie Walsh Daloz and Terry Bradshaw**
- **Dates: May 18-August 5, 2015 (On-line coursework is from May 18-27 and August 3 – 5; On-farm practicum is MW from June 1-July 29)**

PSS 195 Sustainable Orchard and Vineyard Management

- **Instructor: Terry Bradshaw**
- **Dates: TR, June 15 – July 10, 2015**

2015 UVM Apple Program

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

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:

Vermont Working Lands Enterprise Fund
- Apple Market Optimization and Expansion through Value-Added Hard Cider ProductionUSDA FSMIP Program

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

USDA Extension Integrated Projects Program
- The Transdisciplinary Vermont Extension IPM Program Addressing Stakeholder Priorities and Needs for 2013-2016

Northeast SARE
- Biological Management of Apple Replant Disease

Vermont Agricultural Experiment Station

Vermont Tree Fruit Growers Association

Vermont Hard Cider Company

Monsanto BioAg