New England Cider Apple Project

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In a recent survey of apple growers, one prominent Vermont apple grower stated, "*The cider apple market represents the first real increase in demand for New England Apples in a generation. While sales of our dessert fruit have been flat or declining, we see this market as essential to maintaining the competitiveness of our industry*."

Fermented cider production in New England experienced over 50% annual growth from 2009 to 2014 and sales of regional craft ciders made from specialty cider apples increased over 40% in 2017. That last figure is especially important, because cideries use two sources of apples for making their products: culled fruit of traditional dessert apple varieties (e.g. 'McIntosh', 'Empire', etc.); and specialty varieties grown specifically for their unique flavor and aroma contributions to the finished cider. The former of these apples make up the lion's share of fruit used for making cider in the U.S., and their production requires a wholesale dessert variety market that provides sufficient revenue so that growers can afford to sell culls at substantially lower prices. At regional educational meetings in 2014-2017, and in national surveys since 2014, apple growers stated that biennial bearing, variety adaptability, appropriate orchard training systems, and increased susceptibility to specific diseases, particularly fire blight, present significant limitations to increased expansion of cider apple production.

Specialty cider apple varieties, however, present greater value as cider apples than dessert varieties that are downgraded for cider use. Thus, cider varieties do indeed present opportunity for diversification of New England orchards without substantially changing production systems. Currently, the demand for cider apples exceeds supply, and apple varieties specifically selected for cider (e.g. 'Dabinett', 'Ashmead's Kernel', 'Franklin Cider Apple') offer high returns for growers. Cider apples also have lower infrastructure and management needs because lack of demand for blemish-free fruit creates an opportunity to grow them with fewer chemical inputs. In addition, postharvest cold storage, sorting, and packing are greatly reduced compared to dessert apples. However, production of cider apples is limited by unknown performance metrics for specialty cider apple varieties when grown in New England, unique pest management considerations including greater susceptibility to fire blight, and alternate bearing cycles that reduce yield. There is a dearth of objective, research-based information on cider variety performance across New England orchards. However, there are many growers whose expertise growing these fruit can be collected through citizen science to develop regional recommendations for cider apple production. In addition, new methods for managing crop load through use of plant growth regulators and/or canopy hedging could address biennial bearing issues that reduce cider variety productivity.

New England Cider Apple Project

In fall 2019, specialists from the Universities of Maine, Massachusetts, and Vermont initiated the New England Cider Apple Project (NECAP) with funding from the Northeast SARE Research and Education Program. This project includes research components that will yield valuable information for New England fruit growers":

Cider variety observations. In 2019, NECAP staff began collecting field observations of cider varieties in several orchard in Vermont and Massachusetts. Data is being collected on tree growth (vigor, habit); biennial bearing tendency, crop yield; juice quality; and incidence of disease and pest damage. Beginning in 2020, we will solicit growers for your observations and data,

if available, to build out profiles of popularly-grown cider apple varieties in the region.

Mechanical thinning research. Traditional European cider varieties do not respond as well to chemical thinners as most dessert varieties. In Maine, we will evaluate the effectiveness of a mechanical string thinner for effectiveness in early flower thinning, yield, and biennial bearing.

Return bloom: Plant growth regulators, and canopy hedging. The success of the highly biennial dessert variety 'Honeycrisp' has led to research on and recommendation for treatments to improve annual bearing tendency. The use of post-thinning plant growth regulators and trimming vegetative shoots through

New England Cider Apple Program
Grower Survey

The intent of this survey is to evaluate past and present cider apple production in New England and the surrounding region and to guide future research and outreach programming. Because apple cultivar and production system production figures are not collected in traditional agricultural census programs (i.e. NASS, USDA), it is critical to capture this information. Your support in completing this survey is appreciated. All data will be kept confidential and will not be linked back to any individual operation. Please visit http://go.uvm.edu/necapsurvey to complete this survey online. This survey complies with Institutional Review Board policies at the University of Vermont.
Questions regarding this survey may be directed to:

Terence Bradshaw, tbradsha@uvm.edu, (802)656-0972.

This survey is concerned primarily with *cider* apples that were intentionally grown for making cider, as opposed to cull dessert fruit cultivars, i.e., off-grade McIntosh, Cortland, etc. that were intended for fresh market sales but sold to cideries at marketing time due to reductions in fruit quality or similar factors.

1. Are you presently growing cider apples on your farm? Y / N
2. Are you considering growing or increasing plantings of cider apples on your farm? Y / N
3. Please list acres of **all** apples grown _____
4. Please list acres of **all** *cider* apples grown _____
   (if cider apples are easier counted in trees than acres, please do so and indicate that by circling below)
5. Please list cider apple cultivars and amount of each grown on your farm

Cultivar	Number of (trees or acres)	Cultivar	Number of (trees or acreas)
1.		8.	
2.		9.	
3.		10.	
4.		11.	
5.		12.	
6.		13.	
7.		14.	

6. On how many acres of cider apples are you using the following management practices:
   a. Reduced disease management inputs _____
   b. Reduced insect management inputs _____
   c. Hedging _____
   d. Fruit spur removal _____
   e. PGRs for return bloom _____

7. What is the overall value of cider apples sold from your farm:
   (*Please do not count cull fruit from dessert cultivars that were intended for the fresh market. If you only make your own cider, please cite the price for raw materials you would charge the cidery from the orchard*)
   a. Total $ _____
   b. $ per acre _____

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8. **Please rate** the following issues for your perception of their effect on difficulty in producing cider apples on your farm, where:
1 = not a problem at all, 2 = slight problem, 3 = neutral,
4 = manageable problem, 5 = major problem:
   a. Cultivar selection _____
   b. Canopy management- pruning _____
   c. Canopy management- training _____
   d. Biennial bearing _____
   e. Fire blight _____
   f. Other disease issues _____
   g. Insect management _____
   h. Pruning _____
   i. Sunburn _____
   j. Harvest labor _____
   k. Sourcing nursery trees _____
   l. Quality of nursery trees _____
   m. Cold hardiness _____
   n. Rootstock selection _____

9. **Please rate** your comfort with the following characteristics of cider apple management
1 = not comfortable at all, 2 = slightly comfortable, 3 = neutral,
4 = generally comfortable, 5 = very comfortable:
   a. Cultivar evaluation _____
   b. Canopy management – hedging _____
   c. Training systems; low vs high density _____
   d. Fire blight and other disease modelling and management _____
   e. Specific cider IPM programs _____
   f. Managing biennialism with plant growth regulators _____
   g. Harvest mechanization _____

10. How many applications of each of the following groups of pesticides were applied this year in your orchard:

	Cider blocks	Fresh fruit blocks
a. Herbicides	_____	_____
b. Fungicides	_____	_____
c. Bactericides (fire blight)	_____	_____
d. Insecticides	_____	_____
e. Plant growth regulators	_____	_____

Thank you for your participation in this survey. The New England Cider Apple Project is funded by Northeast SARE project LNE19-373, and is a collaboration of faculty and staff from the Universities of Vermont, Maine, and Massachusetts. Please forward any questions to the project director at Terence.Bradshaw@uvm.edu.

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hedging cam improve return bloom the following year independent of crop thinning. These treatments will be tested on commercially-important cider varieties to assess effects on yield, return bloom, and fruit quality.

Work completed to-date is preliminary, and thus we are not ready to make recommendations based on it. The intent of this session is to introduce the project to cider apple growers from across the region to invite participation in project activities, including collection of observations from your orchards. As this project unfolds, we will publish results on the NECAP website at http://go.uvm.edu/necider.

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