

## 2021 Vermont Apple Season Highlights

### Persons Reporting:

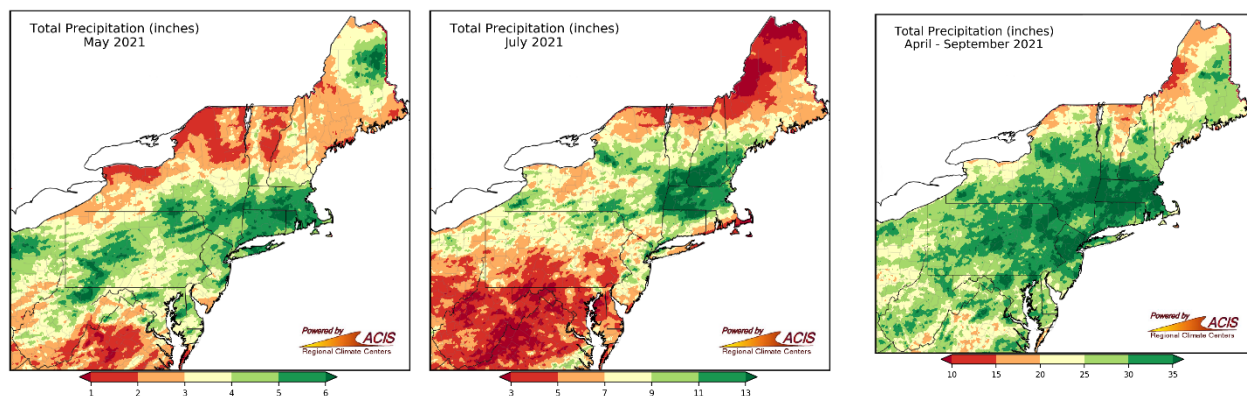
**Terence Bradshaw, Tree Fruit and Viticulture Specialist;**  
**Ann Hazelrigg, Director, UVM Plant Diagnostic Clinic;**  
**Eric Boire, Nutrien, Ltd.**

*McIntosh Phenology at  
 UVM Horticulture Research & Education Center, South Burlington, VT*

Year	Silver Tip	Green Tip	Half Green	Inch Tight Cluster	Pink	First Bloom	Full Bloom	95% Petal Fall
2021	3/30	4/1	4/8	4/12	4/28	5/09	5/10	5/17

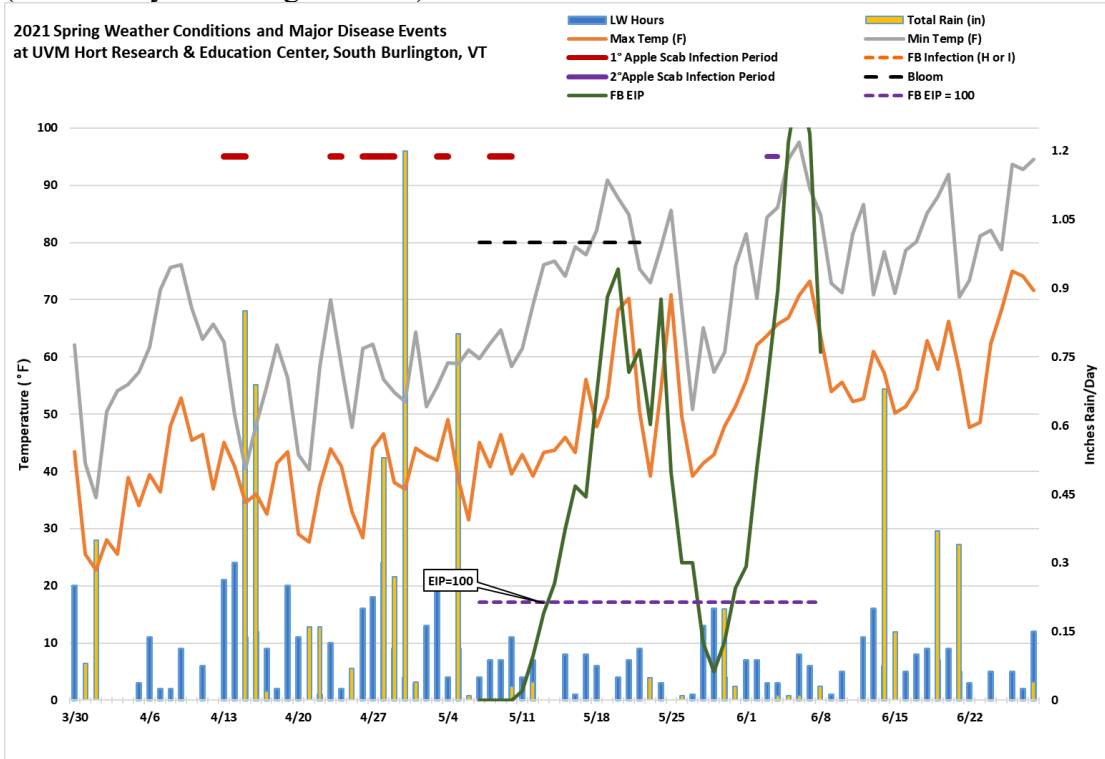
**General Weather Conditions** - *Weather data collected from Onset RX-2102 weather station at UVM Horticulture Research Center (HREC), South Burlington, VT.*

Conditions were somewhat difficult for acclimation to winter cold when transitioning from fall 2020 to winter 2021. Trees generally carried a lighter crop in 2020. Fall weather was moderately cool but rainfall below normal and in drought conditions in parts of the state for the season so trees were stressed going into acclimation. First frost came 11/2/2019, and regionally seasonable cold spells were seen through mid-November going into acclimation. Temperatures dropped very low by mid-December, with minimum 1 °F by December 17 which likely caused damaged to some trees in the state. This is the fourth straight year in which early and potentially damaging cold spells in November or December have occurred. Overall, winter was cold but not excessively so, with maximum low temperatures in South Burlington of -6°F (Jan 31) and four days with subzero lows. Midwinter warm spells were relatively nonexistent.

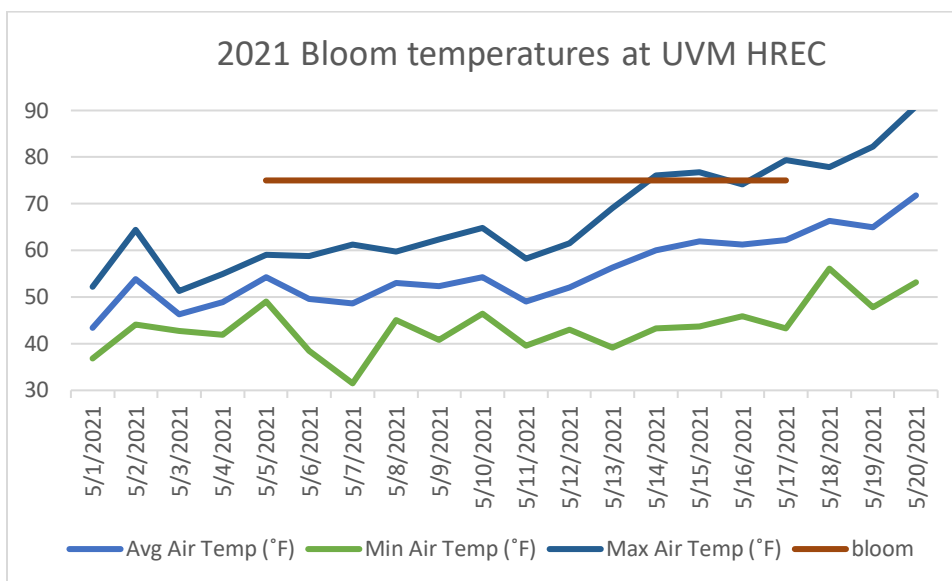


Early spring was warm and bud development slow to come, with green tip about 7-10 days ahead of normal. Temperatures cooled approaching bloom such that bloom dates were roughly normal compared to the past ~20 years. Spring started dry, and June was starting to look like a repeat of

the drought conditions seen in 2020. July was wet, with some parts of Southern Vermont receiving over 12” of rain in that month alone. Rain slowed a bit in August, and fall was relatively dry. many varieties were harvested 7-10 days ahead of normal. We accumulated 2691 degree days (base 50°F) at the UVM Horticulture Research and Education Center in South Burlington by October 1 (seventeen-year average is 2475).



## Horticulture Overview



Crop in 2020 was generally moderate around the state- initial fruit bud density going into 2021 was relatively high. However, weather during bloom was challenging, with alternating periods of

warm/sunny and cool/cloudy during the ~10 days of bloom. Temperature range from low to high during the period 5/7-5/17 was 47.8°F, from a low of 31.5° on 5/17 to a high of 79.3° on 5/17. Thinning weather was superb, but possibly not in a good way. Warm nights (especially) contributed to substantial carbohydrate deficits, and the beginning of a water deficit likely set trees up to over-respond to thinner applications. Growers were all over the place in thinning in 2021- some did not thin at all due to a questionable pollination and fruit set, some overthinned to the point of no fruit on certain varieties. Warm nights during ripening in September delayed coloring on McIntosh and its daughters. Generally warmer days have also contributed to good flavor development in Gala and other Delicious. Bitter pit is a problem this year.

**Pest Management Overview**

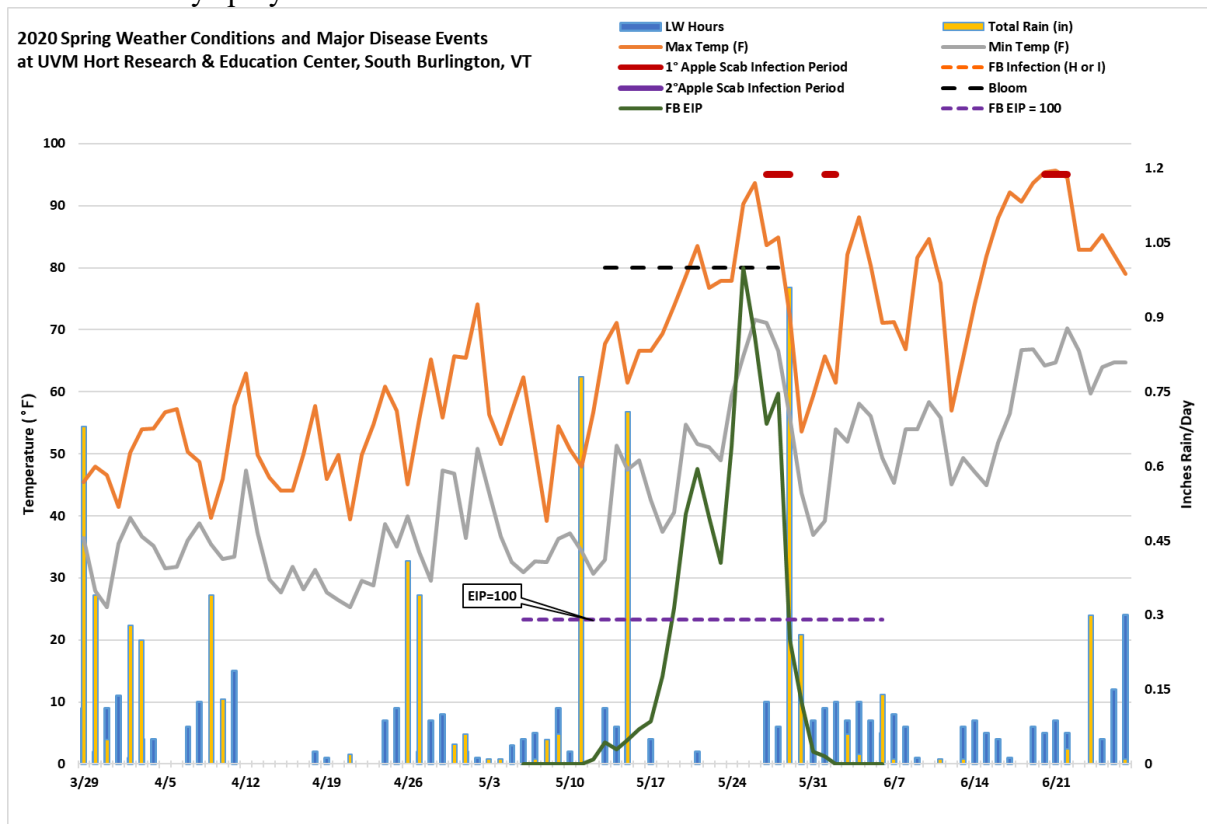
**Primary Apple Scab Infection Periods:**

3/31-4/01; 4/15-17; 4/21-22; 4/25-26; 4/28-5/01; 5/05-06; 5/10-12; 5/23; 5/26.

**\*McIntosh Green Tip Date:** 3/28

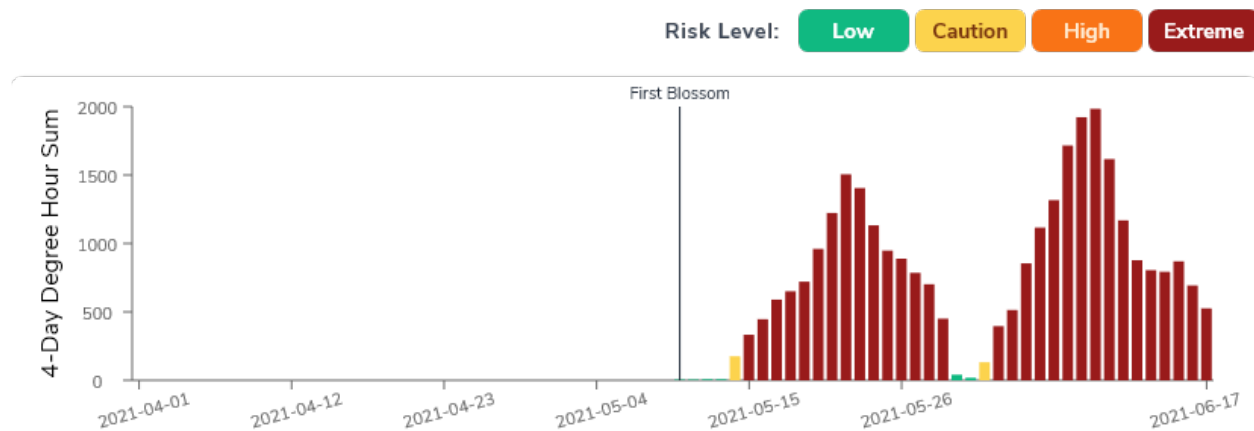
**Estimated date of 100% Ascospore Maturity (NEWA):** May 27

According to the NEWA apple scab model, primary apple scab season lasted for approximately eight weeks in 2021. While nine primary apple scab infection periods were recorded in 2021, overall, scab was almost non-existent due to relatively dry conditions that led to ‘light’ infection events and easy spray weather windows.



## Fire Blight Blossom Blight Infection Periods at UVM HREC:

Heat accumulation during and soon after bloom led to substantial potential for fire blight infection. Early weather leading into bloom was moderate to even cool, but, beginning 5/17, weather turned downright hot. On 5/20, after many varieties had entered full petal fall, temperatures climbed into the 90s. Late blooming cultivars, especially cider cultivars like Dabinett and Yarlinton Mill, fought with blossom and shoot blight at the UVM HREC for a good bit of the summer. Fire blight control was made more difficult by wet weather from mid-June through July that left few dry windows for removal of strikes and appears to have spread the disease where it was cut out.



## Arthropod Pests

We continued our partnership with a local Nutrien / CPS consultant to report on orchards across the state. However, our formal, weekly trap network was not continued, as growers were expected to provide their own scouting after three years of on-farm training. Generally, growers slipped back into poor scouting habits, except in the case of apple maggot fly, which most orchards are good at monitoring and applying treatments based on thresholds.

Broadly speaking, insect management was good overall. **Redbanded leafroller** and **Oriental fruit moth** continue to be caught in pheromone traps, but few growers manage for them specifically. **Codling moth** is now widespread in the state but growers reported reasonably good management in 2021. **Apple leafcurling midge** was a surprise pest this year, and was reported in several orchards. **Spotted lanternfly** were reported for the first time in the state in September, but there is not yet a worrisome population.

**Obliquebanded leafroller** generally peaked in late-June to mid-July, and are commonly targeted as a primary pest using degree-day models. Many growers are using mating disruption for **dogwood borer**, and many are also making trunk applications of Assail to manage that pest. Mites, especially **European red mite**, generally not a problem in 2021. **San Jose scale** continues to be problematic as growers are using less prebloom oil. **Apple maggot fly** was unexpectedly absent or at most a minor problem around the state. Some growers report catching hundreds of flies per

week, and one grower believes he has resistance to Assail and Imidan in his AMF population, but no follow up testing was conducted.