

Northern New Jersey Report, As Presented at the NEIPM Conference on October 2020

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Spring Weather

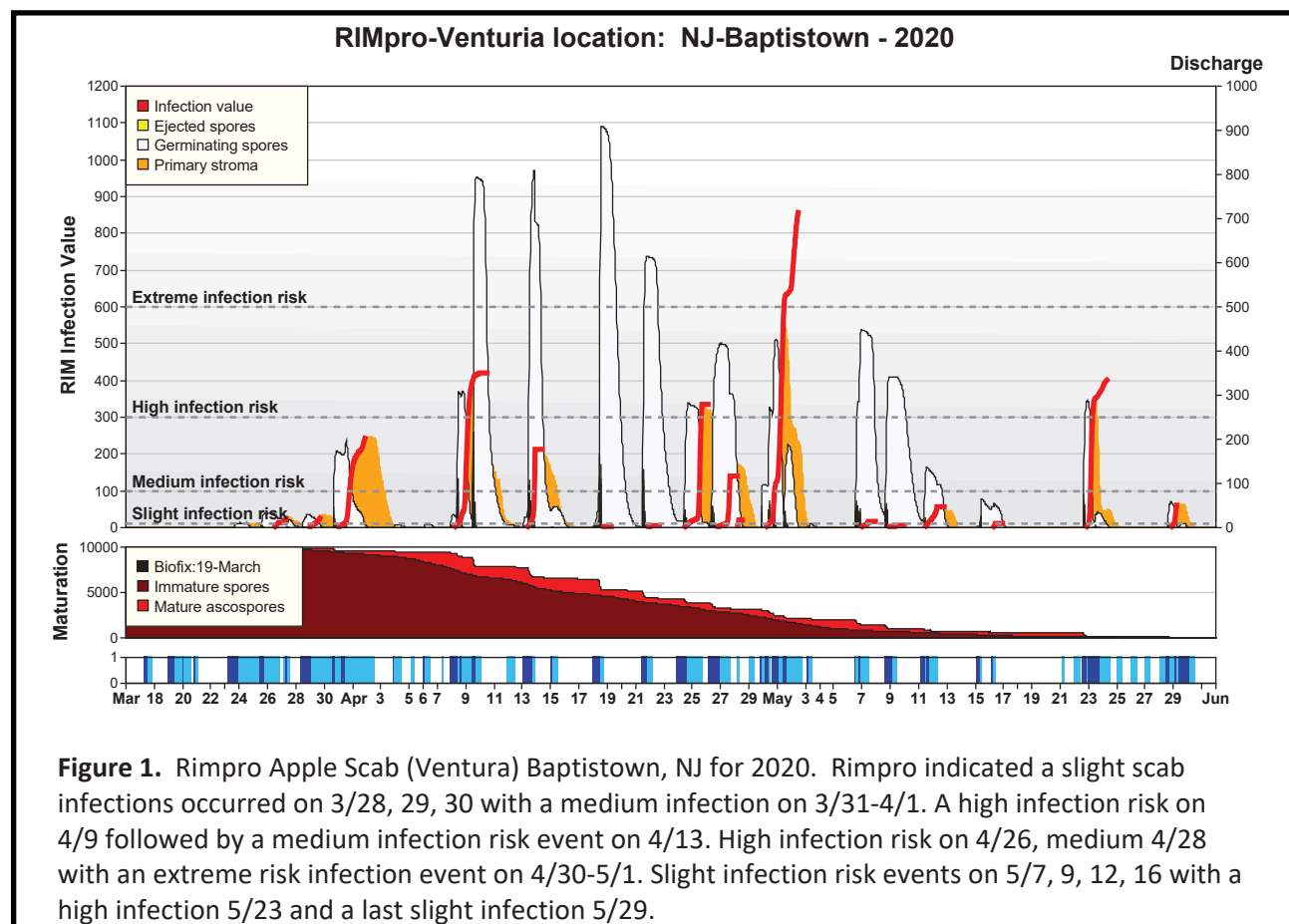
It was a tough spring for New Jersey growers. We started the season almost 3 weeks early with green-tip in Hunterdon County on March 16. While peaches were early as well, they have managed to move through bloom. Apples dragged along and were at tight cluster to early bloom on April 28 on many varieties depending on location and orchard exposure.

In North Jersey, nine freeze events occurred: 4/17, 4/18, 4/19 and 4/20, 4/22, 4/23, 5/8, 5/12, 5/13. Some apples were hurt in southern NJ. Cold events ranged from 32F down to 23F, but not every farm had all

events. Bloom and post bloom damage occurred at most orchards, some severe some minimal, some lost whole crops, apples and or peaches. Damage depended on location, cultivar, stage of bloom, etc. Three types of damage was observed: ovary, stigma (where pollen germinates) and style, anther (pollen)- & filament. Some had all three areas injured. Overall, I gauged the apple crop at 60% of a normal crop in NJ.

Apple Thinning

Fruit set and thinning were a challenge this year with these cold events. I had several growers use Pro-



RIMpro-Erwinia location NJ-Baptistown - 2020

Indicated potential infection events only relevant for trees in bloom.

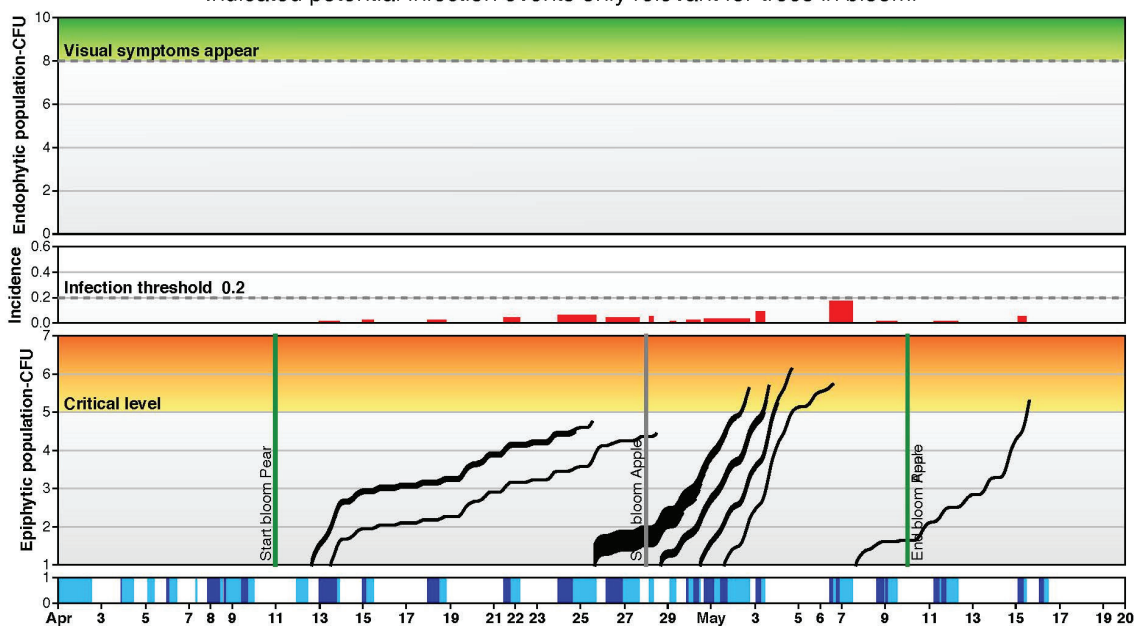


Figure 2. Rimpro Fireblight (Erwinia) Baptistown, NJ for 2020. Fireblight infections reached critical levels on several dates according to Rimpro but none reached the infection threshold of 0.2. The Critical fireblight potential infection of May 16 did not reach the infection potential of 0.2 but on NEWA (see Figure 3) it reached 113 EIP which is the minimum for infection. Growers with open bloom should have sprayed on the May 15-17 with Strep.

malin or Perlan to help set apple fruit during several of the most severe events, with some success. We also enhanced typhness on many varieties, like Gala, with the Promalin treatment. A few growers on a few cultivars needed to bloom thin, but many held off. Where fruit set appeared strong, we thinned at petal fall and often applied a second 8-14 mm spray. Many growers with rapidly sizing fruit felt they needed to thin again at 14-18mm. The Cornell Carbohydrate Thinning Model showed a severe carbohydrate deficit during this time period. Even though we were conservative with this spray, some blocks thinning more than desired (overthinned), resulting in some reduced crop.

Diseases

Apple Scab and Fireblight were monitored with NEWA (<http://newa.cornell.edu/>) (Milford, NJ) and Rimpro (<https://www.rimpro.eu/>) at my location (Baptistown, NJ). Rimpro is a paid subscription service at your location using either your own weather station data or using virtual weather forecasting via Metro Blue. NJ maintains a set of weather stations in NJ through the Rutgers NJ weather network (<https://www.njweather.org/>), and NJEAES/Rutgers Coop. Extension pays Cornell Subscription fee. You also can have your own weather station and pay NEWA a subscription fee directly to Cornell for connection.

Fireblight was not a severe issue in Northern NJ in 2020. Several fireblight infection events occurred during bloom. Growers that used the program of applying low rates of Apogee beginning at pink, through first cover fared best with the least amount of infection. Note that I work with growers in 5 states. One grower in Orange County, NY had a severe fireblight outbreak in a newly planted block of mixed apple varieties. The Rimpro and NEWA models showed close to 20 days of high susceptibility. Several streptomycin sprays did not control the infection, since they were not started soon enough, and not enough applications were made. It appears that fireblight may have come in on the susceptible M.9 Nic 29 rootstock from an out-of-state nursery. Tested by Cornell it was not a streptomycin-resistant strain. Late-blooming, newly-planted apple trees are always at risk for fireblight and must have the flowers removed before blooms open or be covered with streptomycin 24 hours before and after infections. A low-dose apogee program would also be helpful.

We are working on a new gibberellin formulation that will be used to treat trees in the production nursery to eliminate bloom of trees when they are planted in the orchard, this will be a big boon to apple growers. It looks very promising.

Brown Marmorated Stink Bug

We had several large populations of brown marmorated stink bugs (BMSB) in Northern NJ in late August through September that apple growers needed to treat. Rutgers has NOT been obtaining section 18's on key insecticides (Including Bifenthrin) for the past 3 years, so options were limited for control. Fortunately, thanks to Peter Jentsch/Cornell, we had the use information and the newly labeled Venerate XC biological insecticide that works on BMSB, and other insects to keep them from feeding on fruit. Several growers were able to applied Venerate XC to several large Honeycrisp blocks with good control. From Peter Jentsch -Cornell Blog: <http://blogs.cornell.edu/jentsch/2020/08/24/management-options-for-the-stink-bug-complex-on-pome-fruit-near-harvest-august-24th-2020/>.

Venerate XC is a novel approach. Keeping BMSB from feeding on the fruit is at the crux of our stink bug management program as we near harvest. Killing the insect as it moves into the orchard and onto the fruit is the traditional method of crop protection and proven to be very effective. Yet limitations, based on the material pre-harvest intervals constrain their use near harvest. There are no effective pyrethroids, neonicotinoids or pre-mixed insecticide tools that permit their use within the 7-day to harvest window with very few options available during the days prior to fruit harvest. The development of newer classes of insecticides that produce an anti-feeding response in the pest provides an additional mode of action for BMSB management. Both Corteva insecticide Closer 240 SC (classified

as a Group 4C insecticide / neonicotinoid – 7 days to harvest) and Venerate XC (microbial-based insecticide with multiple modes of action and 0 days to harvest) have anti-feeding activity against BMSB. The 0 days to harvest of Venerate provides BMSB management up to the day of harvest under high risk conditions. Peter's complete study on Venerate Xc can be found in his 2017 report, <https://cpb-us-e1.wpmucdn.com/blogs.cornell.edu/dist/f/3191/files/2013/10/2017-Final-Report.8.14.18-pnm7v2.pdf>.

The Venerate XC label requires a 4 hr. REI and has a 0 days PHI. In mixed blocks often requiring multiple picks, the use of Venerate XC has been shown to effectively reduce BMSB feeding injury to fruit 7 days prior to harvest. Although this insecticide provides no toxicity to the insect, it effectively reduced feeding over 7 days. A Technical Information Bulletin is available for the use of Venerate XC bio-insecticide brown marmorated stink bug on apple.

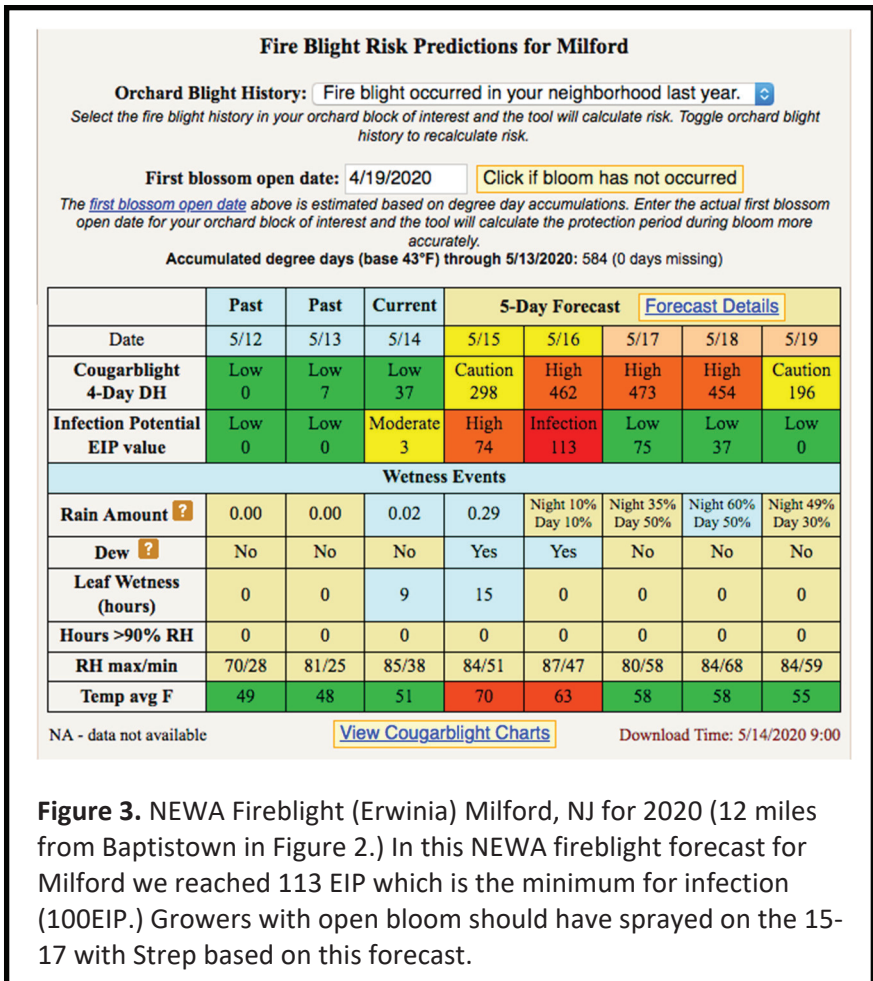
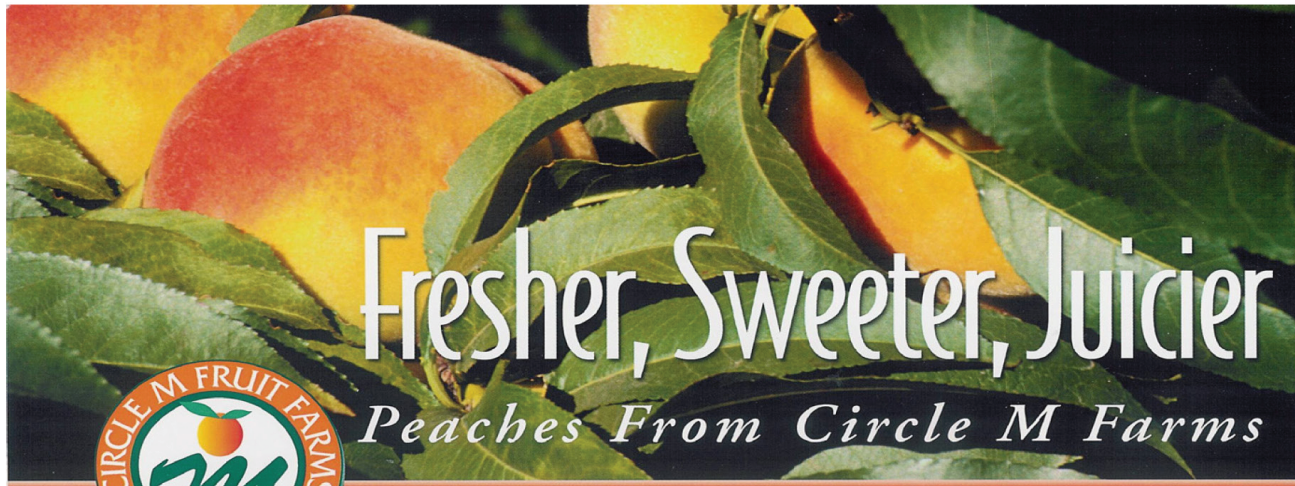


Figure 3. NEWA Fireblight (Erwinia) Milford, NJ for 2020 (12 miles from Baptistown in Figure 2.) In this NEWA fireblight forecast for Milford we reached 113 EIP which is the minimum for infection (100EIP.) Growers with open bloom should have sprayed on the 15-17 with Strep based on this forecast.



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