



Healthy Fruit, Vol. 29, No. 17, August 17, 2021

Prepared by the University of Massachusetts Amherst Fruit Team

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The way I see it...

Jon Clements

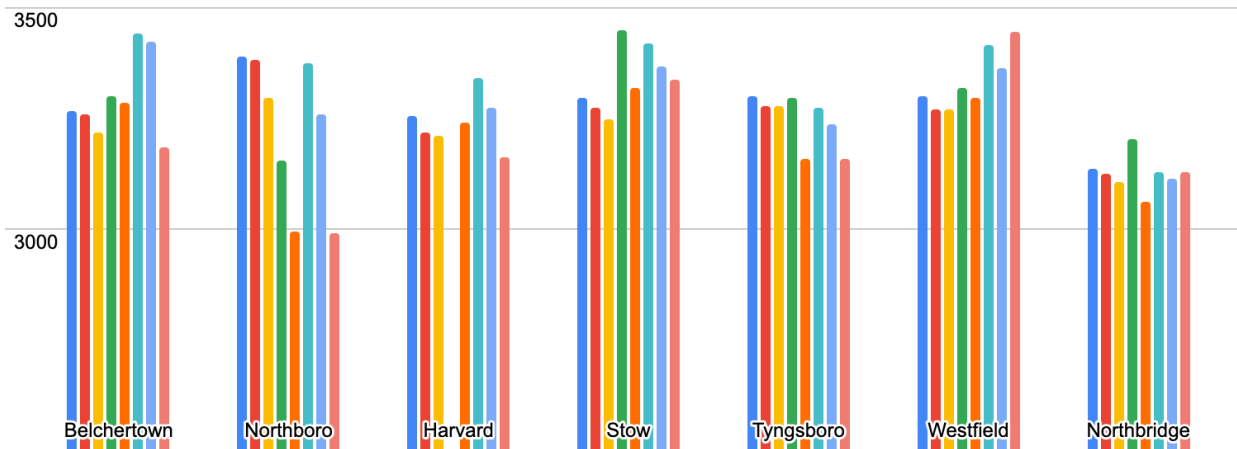
Is apple maturity in 2021 “normal?” I’ve mostly heard from growers that it is running ahead of “normal.” Maybe, maybe not, I am not convinced. (But I’ve been wrong before.) I have heard that out in western New York they track degree days Base 39 degrees F. from April 1 to compare years as it relates to apple maturity. So thanks to [NEWA](#), I used the [Degree Day Calculator](#) to see where we were through August 15 at several NEWA orchard sites in Massachusetts. The results are charted below. Indeed, compared to 2020, which I believe was fairly “normal,” DD accumulation is a bit ahead of last year (but not by much). A difference of about 25-30 DD’s per day can be used to judge days before or days after (+/-) a previous year. For example, looking at Belchertown, 2021 DD’s Base 39 F. accumulation through August 15, 2021 was 3267. For 2020, it was 3260, a difference of 7 DD’s. Hardly a difference, and last year, I believe, was fairly “normal” in terms of apple maturity and harvest. I am also thinking bloom was about average timing (maybe just a little early) this year. Everything points to average harvest timing, but your results may differ. Varieties may make up

their own mind and may be before or after average on their own. Keep in mind apples on lightly cropped trees will mature sooner, and with a heavy crop be delayed. Don't rush it, but don't dilly-dally either. :-) Join me for live apple maturity updates at noon on Tuesday's using this Zoom link: <https://umass-amherst.zoom.us/j/91024255201>

A reminder, using the starch iodine test to help assess apple maturity is highly recommended. It is [Painless and Efficient Maturity Testing](#). If you need some iodine solution, let me know.

Degree Days Base 39 F. (April 1 to August 15)

2021 2020 2019 2018 2017 2016 2015 2014









Apple Maturity Report

Jon Clements

All observations from UMass Orchard, Belchertown, MA unless otherwise noted. Target maturity numbers: red color, >50%; firmness, >14 lbs.; soluble solids, >12; DA, 0.60 to 0.40 for Honeycrisp, 0.65 for Gala, 1.00 for Golden Delicious, 1.15 to 1.00 for Red Delicious (higher DA = more "green"); starch index, 4-6.

2021 Date	Variety	Drop	Diameter (inches)	Color (% red)	Firmness (lbs.)	Brix	Starch Index	DA Meter	Comments	Picture
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8/16	Sansa	nil	3	45	18	15	3-4	0.27	Light crop, advanced maturity	
8/16	Premier Honeycrisp	nil	3.2	50	13	11.3	7	0.52	Spot pick on color	
8/16	Ginger Gold	none	3.1	NA	17	10	1-3	1.28	Immature	
8/16	Paulared	nil	3.1	70	15	10.8	3-5	NA	Some watercore, OK but I would not rush it	
8/16	Zestar!	none	3	40	14	10.9	4-6	0.69	Heavy crop, color lacking, wait another week!	

8/16	MN 55 (Rave, First Kiss)	nil	3.2	65	14	10.2	2-7	0.89	Had ReTain, watch closely (club variety)	
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Insects

Jaime Piñero

Weekly report of insect pest captures in monitoring traps at Cold Spring Orchard (Belchertown, MA)

Period: 8.3 - 8.9.2021

Insect	Average captures/trap	Notes
Obliquebanded leafroller	0	Pheromone-baited delta trap (CSO)
Codling moth	0	Pheromone-baited delta trap (CSO)
Oriental fruit moth	18	Pheromone-baited delta trap (CSO)
BMSB	0.2	Pheromone-baited clear sticky card (13 traps across MA)
SWD	150.15	Comparison of fresh and fermented diluted Concord grape juice vs. commercial lure (20 traps in all)

SPOTTED LANTERNFLY ALERT! This week, there was a report of one SLF individual collected in the Conway, MA, area.

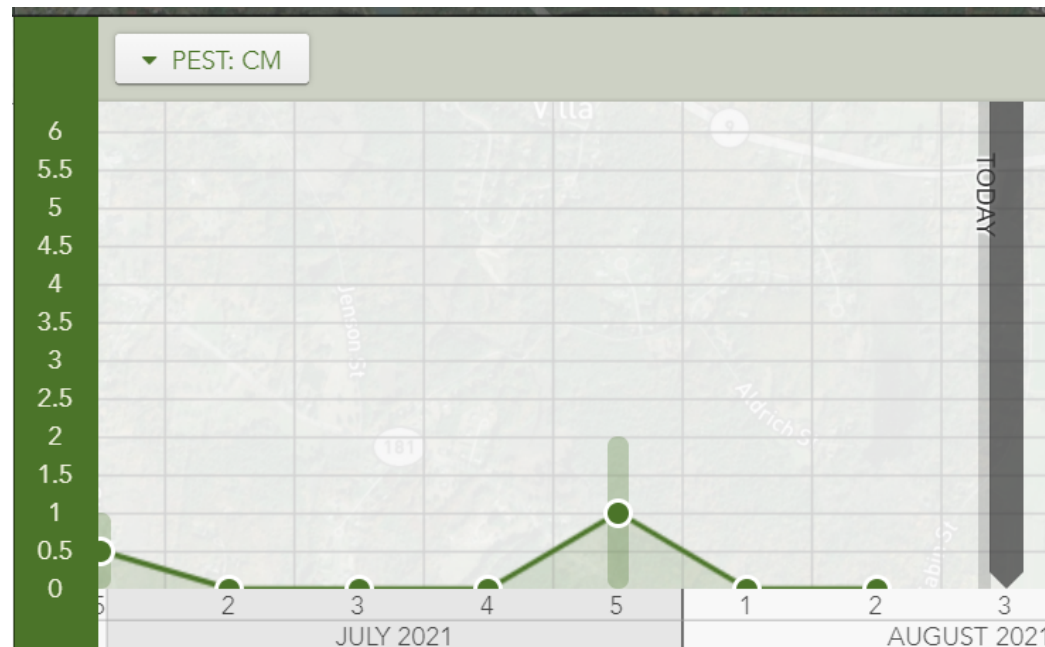
General information about SLF of relevance for MA and New England can be found [HERE](#)

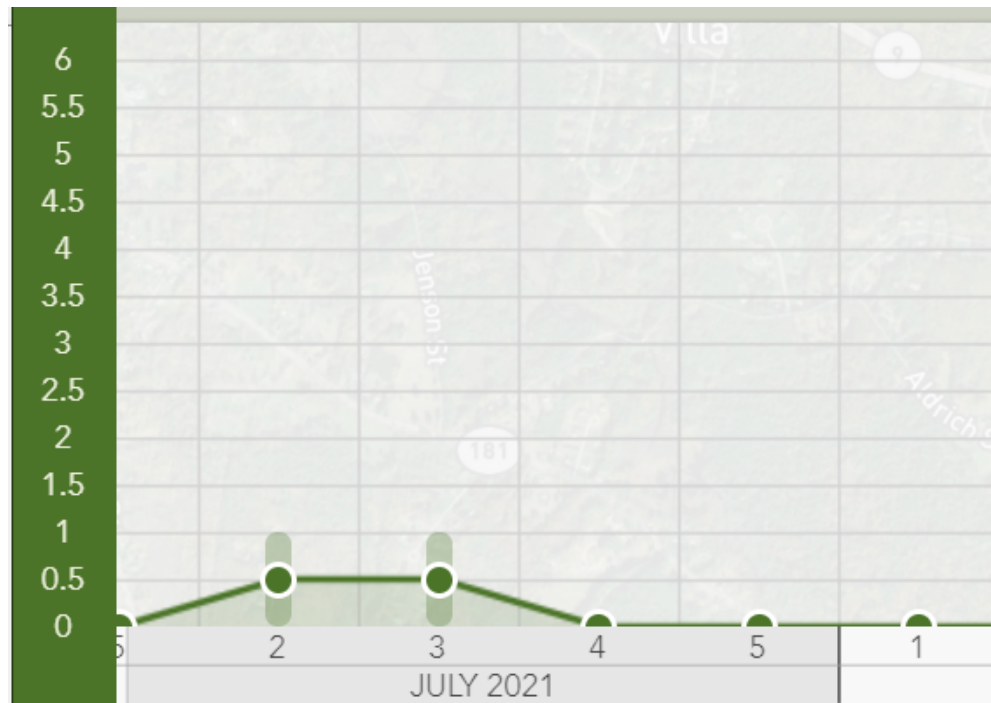
FREE virtual SLF Trapping Update

Tawny Simisky is working with Dr. Pinero, Dr. Elkinton, Dr. Andersen, and Dr. Cooperband to host a FREE virtual SLF Trapping Update from UMass on **August 31, 2021**. Pesticide and association credits will be provided. Registration information is available at: <https://ag.umass.edu/landscape/events/spotted-lanternfly-trapping-update-from-umass>

This research, monitoring, and free webinar is made possible by funding support from the Center for Agriculture, Food, and the Environment's Integrated Research and Extension grant program

Codling moth (CM), obliquebanded leafroller (OBLR), and Oriental fruit moth (OFM). At the Cold Spring Orchard for the past week: Zero CM and OBLR captures in individual pheromone-baited traps, and 18 OFM in a single trap. Data collected by Jon Clements using SmartTraps.

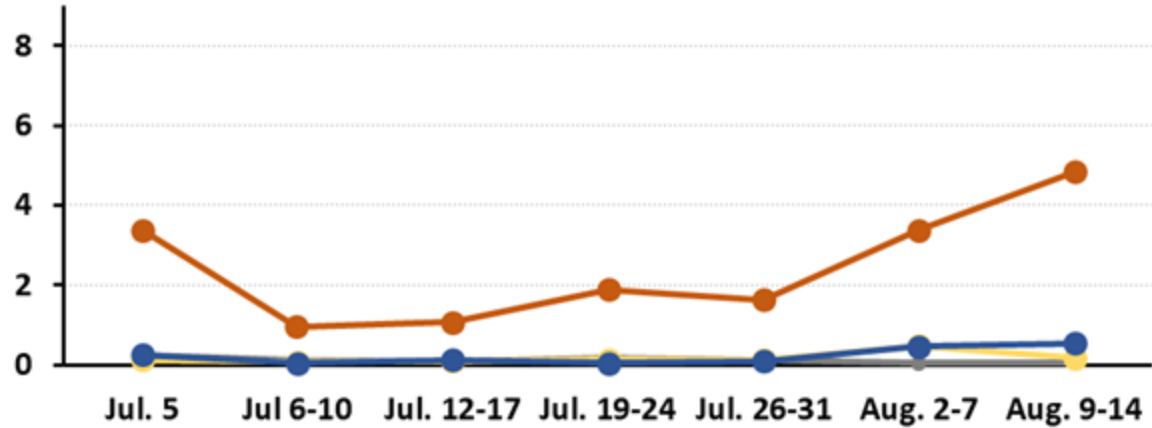




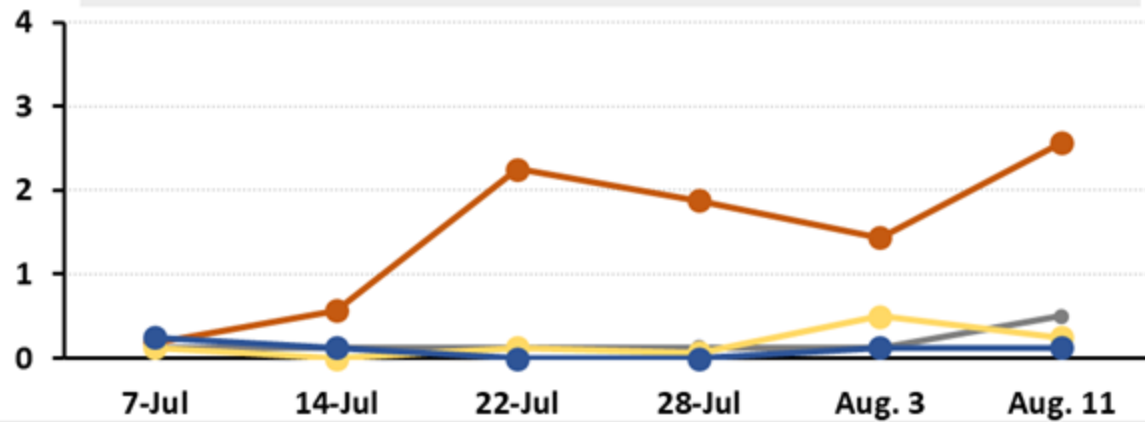
Apple maggot fly (AMF). In one Massachusetts block that is participating in the attract-and-kill study, AMF activity increased significantly over the last seven days, but that was not the case in all other blocks. The chart below shows the average number of AMF captured across all six MA orchards. The average looks higher than before because the number is being driven by the single block that had very high AMF captures. Overall, the trend is sustained or slightly greater AMF captures in most orchards both in MA and in NH*.

*Work in collaboration with Dr. Anna Wallingford, Heather Bryant, and Jeremy Delisle.

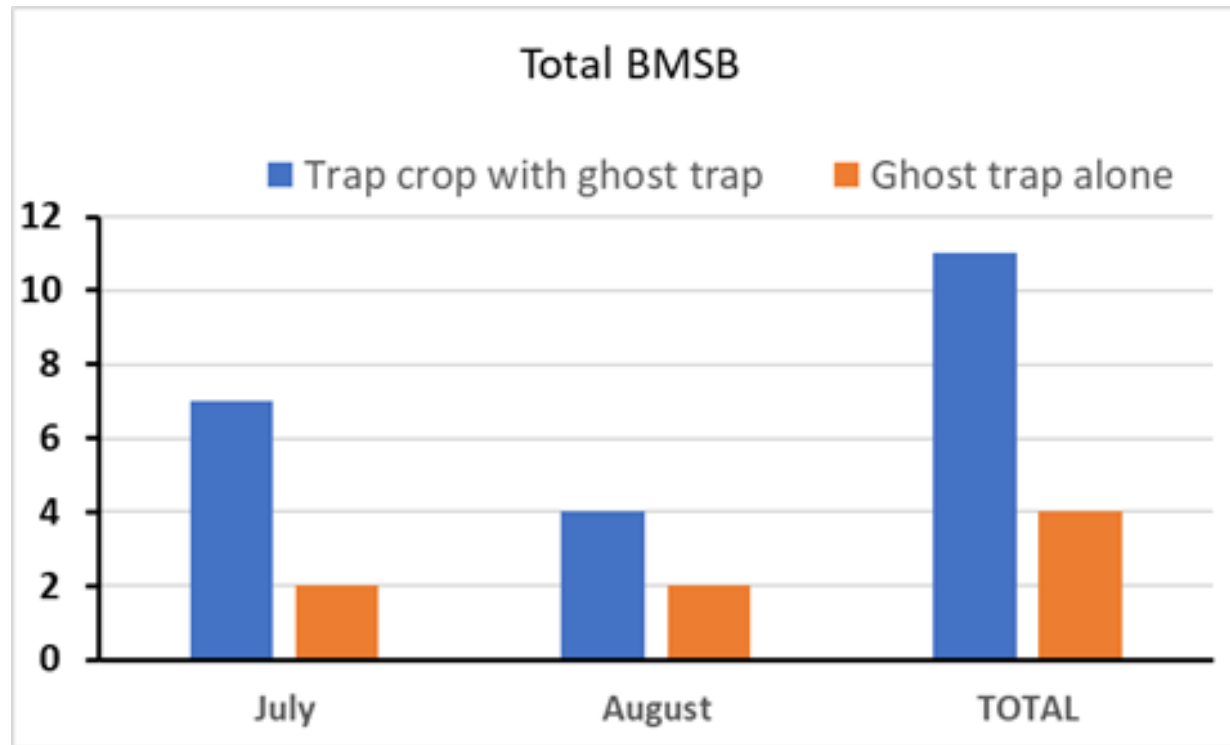
Massachusetts (average of 6 orchards)



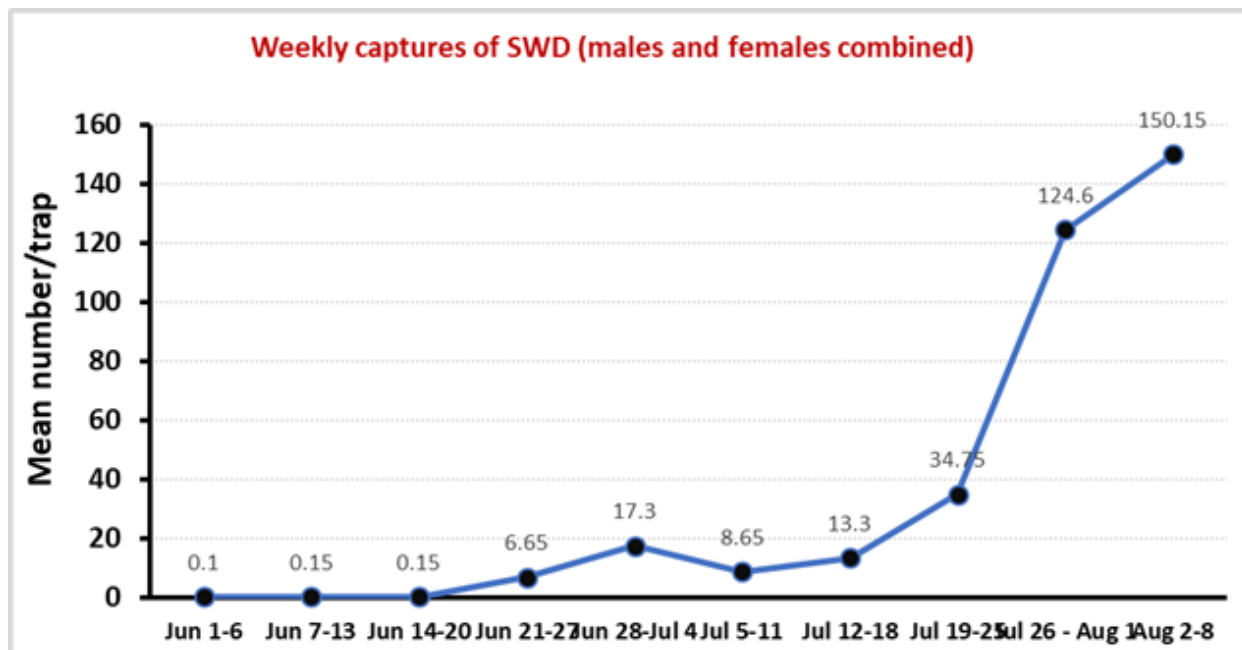
New Hampshire (average of 2 orchards)



Brown Marmorated Stink Bug (BMSB). BMSB activity during the month of August was expected to exceed that of July. Surprisingly, BMSB numbers continue to be low, even in hotspot areas. Below is an update of the trap cropping study, being conducted at four MA orchards. The graph shows the total number of BMSB killed by ghost traps deployed either, alone or in association with trap crop plants (sunflower and buckwheat). When we look at the total number of BMSB killed over a 6 week period (columns showing TOTAL), so far the presence of trap crop plant has resulted in a 2.8-fold increase in the number of BMSB killed by ghost traps, relative to ghost traps deployed in the absence of trap crops.



Spotted-wing drosophila (SWD). This is the last SWD update of the season. As of last week (Aug. 2-8) SWD activity continued to increase, as shown in the graph below



Horticulture

Jon Clements, Editor

ReTain use recommendation on the big three (McIntosh, Gala, Honeycrisp)

Excerpts from the [ReTain Technical Manual](#)

McIntosh

McIntosh is unique because it is a high producer of internal ethylene and has considerable variation in ripening. Some apples may mature early and produce significant ethylene, while many others on the same tree remain green. McIntosh starts producing ethylene up to 3 weeks before harvest in some fruits, resulting in early drop in some years. To successfully manage this early ethylene production tendency, McIntosh should be treated with ReTain no later than 14 days before harvest. If the first ReTain application is delayed until as late as 7 days before harvest, the risk of drop will increase. This is particularly important during years when summer heat/drought stress is high, as these stresses can elevate ethylene early and runaway fruit drop may occur.

RETAIN RATE/TIMING on MCINTOSH

STANDARD PROGRAM FOR MATURITY DELAY AND STOP DROP: ReTain 1 pouch per acre (333 g/acre) applied at 3-3½ weeks before harvest. ReTain at this timing will keep drop below 20% for 32-35 days.

PROGRAM TO MINIMIZE COLOR DELAY ON COLOR SENSITIVE STRAINS (e.g. Rogers Mac):

- One half pouch (167 g/acre) applied at 2 weeks prior to harvest for short-term delay and pre-harvest drop control. Fruit treated with half rates should be harvested within the normal harvest window. If drop is still a concern, higher rates should be used — a red apple is not very valuable if it is on the ground.
- For longer drop control and harvest management, use ½ pouch (167 g/acre) 3-4 weeks prior to harvest followed by ½ pouch 1-2 weeks prior to harvest. PoMaxa/Fruitone L 4 fl. oz. per acre (NAA at 10 ppm) may be included in the second ReTain application for additional drop control.

When fruit drop is a concern: NAA can be added in the second application. When NAA is included, a minimum of ½ pouch of ReTain should be applied at the same time as the NAA.

PROGRAM FOR MAXIMUM HARVEST WINDOW EXTENSION AND DROP CONTROL:

- Split application of 1 pouch (167 g/acre) at 3-4 weeks before harvest plus ½-1 pouch (167-333 g/acre) at 1 week before harvest. NAA at 10 ppm may be included in the second ReTain application for additional drop control (see NAA note above).

Gala

ReTain provides growers with numerous profit-driving benefits in **Gala** production. When ReTain is applied on Galas: 1) Fruit will remain on the tree an additional 7-14 days; 2) Improved fruit size is achieved; 3) Reduced stem end cracking and greasiness is achieved in second and third picks; 4) Maturity is delayed and more consistent overall, potentially reducing the number of picks.

RETAIN RATE/TIMING on GALA

STANDARD HARVEST MANAGEMENT AND FOR HIGH COLORING RED STRAINS (Brookfield®, Buckeye®, Gale® Gala, etc.):

- Single application program: ReTain ½-1 pouch per acre (167-333 g/acre) applied at 3 weeks before harvest. When very hot weather prior to harvest is expected, maturity may be hastened, and stem cracking and greasiness can develop very rapidly. Higher rates in this case should be used. In blocks prone to fruit cracking, no less than one full pouch of ReTain should be applied either as a single or split application.
- Split application program (to minimize color delay): ReTain ½ pouch per acre (167 g/acre) applied 3 weeks before harvest, followed by ½ pouch per acre applied 1 week prior to harvest. Note: Use of a single half rate should not be expected to provide more than 7 days of harvest management and fruit quality retention.
- Split applications of full rates: In situations where maximum maturity delay and quality retention is desired (including pick-your-own operations), apply 1 pouch (333 g/acre) per acre at 3 weeks before harvest and 1 pouch (333 g/acre) per acre 1 week before harvest. This program will allow

growers to postpone harvest for 3+ weeks without sacrificing fruit quality. It also allows for maximum fruit size attainment, since fruit will continue to grow while it remains on the tree.

When fruit drop is a concern: PoMaxa/Fruitone L 2-4 fl. oz. per acre (NAA 5-10 ppm) can be added in the second application. When NAA is included, a minimum of ½ pouch (167 g/acre) of ReTain should be applied at the same time as the NAA.

COLOR-SENSITIVE, MULTI-PICK VARIETY PROGRAMS (Standards, Royals, Imperials, etc.):

- ReTain 1 pouch per acre (333 g/acre) applied at 1-2 weeks before harvest. Applications closer to harvest will have less impact on color development; therefore, higher rates can be used. Half rates at this timing will have limited effect on fruit quality retention for second and third picks (7+ days after the first pick). Less than full rates may not provide adequate control of skin cracking. First harvest will be “on time;” second harvest will be delayed, but quality maintained.

Honeycrisp

Honeycrisp is prone to several storage disorders (e.g. bitter pit, soft scald, soggy breakdown, and senescent breakdown) and storage rots, which make long-term storage challenging. It is a low-ethylene producing variety, but Honeycrisp can have significant pre-harvest drop in hot years. Honeycrisp has an intermediate level of sensitivity to ReTain.

Split applications and higher rates of ReTain can greatly extend the harvest window of this variety. This strategy also helps delay harvest until weather conditions are generally cooler and more favorable for red color development. As ReTain can also cause delay in red color development in warmer regions, applications closer to harvest will allow more natural color development while maintaining good fruit quality and drop control. Extended harvest windows may also be particularly beneficial to pick-your-own operations that do not intend to place fruit into long-term storage.

RETAIN RATE/TIMING on HONEYCRISP

STANDARD PROGRAM FOR HARVEST MANAGEMENT, DROP CONTROL: ½-1 pouch per acre (167-333 g/acre) applied at 3 weeks before harvest. Higher rates result in longer delays in maturity and color development of up to 2-3 weeks.

PROGRAM FOR EXTENDED HARVEST WINDOW AND DROP CONTROL:

- Split application of ½-1 pouch (167-333 g/acre) applied at 3 weeks before harvest plus ½-1 pouch at 1 week before harvest;
- Higher rates (2 pouches total–666 g/acre) will result in longer delays in maturity (up to 4 weeks).

When fruit drop is a concern: PoMaxa/Fruitone L 2-4 fl. oz. per acre (NAA 5-10 ppm) can be added in the second application. When NAA is included, a minimum of ½ pouch of ReTain should be applied at the same time as the NAA. Combinations with NAA are not recommended in regions with very warm conditions at harvest, as NAA may counteract the ReTain effect. Note: Do not store Honeycrisp that have been harvested more than 2 weeks outside the normal harvest window for longer than 4-6 weeks.

PROGRAM TO MINIMIZE COLOR DELAY ON COLOR SENSITIVE STRAINS:

- ReTain ½-1 pouch per acre (167-333 g/acre) applied at 7-14 days before harvest. NAA 10 ppm may be added for additional drop control (See NAA note above).
- Lower rates (less than ½ pouch) will provide shorter drop control and quality retention.
- When ReTain is applied close to harvest, the first pick may occur “on time,” but subsequent harvests are likely to be delayed. Monitor fruit maturity closely.

RECOMMENDED ADJUVANT (ALL PROGRAMS)

Organosilicone surfactant at 0.05-0.1% v/v (6.4-12.8 fl. oz./100 gal). Use lower rate during periods of hot weather

Guest article

No Guest article this week...

Facebook Me



Honey Pot Hill Orchards is at Honey Pot Hill Orchards.

20h · 🌐



95 years old and still lookin' good 🧑🌾



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Useful links

UMass Fruit Advisor: <http://umassfruit.com>

[UMass Extension Fruit Team YouTube Channel](#)

[UMass Fruit Loop IPM Podcast](#)

[Scaffolds Fruit Journal \(1995-2020\)](#). With the retirement of Dr. Art Agnello from Cornell University, this publication has come to an end. See Peter Jentsch's blog below.

Network for Environment and Weather Applications (NEWA): <http://newa.cornell.edu>

Follow me on Twitter (<http://twitter.com/jmcextman>) and Facebook (<http://www.facebook.com/jmcextman>)

[Acimovic Lab at Hudson Valley](#)

[Peter Jentsch's Blog](#)

The next Healthy Fruit (apple maturity report) will be published (maybe) on or about August 31, 2021. In the meantime, feel free to contact any of the UMass Fruit Team if you have any fruit-related production questions.

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