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## Fall Urea for Apple scab management

You would think that with the dry weather this summer, that there would not be any overwintering apple scab to worry about. But *Venturia inaequalis* has seen lots of dry years in its millions of years on this planet, so this is not the first time it has had to persist through unfavorable conditions. The dry weather did result in low scab counts this summer, but there were still cases where inadequate protection resulted in high scab infestation despite the dry weather. So bottom line is that while apple scab risk is probably lower going into 2021 than in most years, there is still reason to apply fall urea to hasten breakdown of overwintered apple leaves that can carry the apple scab from one growing season to the next.

The recommendation is 42 lbs. per acre of feed-grade urea (46-0-0) per acre. A high volume spray is best to insure foliar coverage. The best foliar coverage is by application while leaves are still on the tree. For on-tree application it seems logical that a reduction in the amount per acre recommendation can be made for smaller canopy trees. But as with other TRV dose adjustments, even for the smallest trees the reduction should not go beyond 50-75% due to declining canopy spray-capture efficiency of smaller trees.

If it is not possible to make that application until leaves have fallen, then an orchard floor application with 42 lbs. urea per acre of orchard floor is the next best option. In that case, an acre of orchard floor is an acre of orchard floor, regardless of tree size. Ostensibly, there should be fewer leaves per acre with the smaller trees, but that doesn't change the amount of urea needed to cover the surface with enough urea per square meter to hasten microbial decline of fallen leaves. If fall application is not possible, a third option is early spring application. But in early spring the ground is often too wet to allow tractor traffic without creating ruts and damaging the soil.

In addition to urea application, physically shredding the leaves in the fall with a flail mower has the about the same scab reduction potential as urea application. Rotary mowers are not as effective at leaf shredding, but do enough shredding to make it also worth doing for scab suppression. As with urea, leaf shredding in the spring is also helpful, but less than in the fall.

Any one of these methods can reduce the amount of overwintered scab inoculum available inside the orchard by 50%. Combining methods, e.g. urea + flail mowing, can result in 90% or reduction.

## Spotted Lanternfly ... in Maine (but dead)

The Maine Department of Agricultural, Conservation and Forestry (DACF) announced finding egg masses of the invasive spotted lanternfly (SLF) on trees in Maine communities and is urging residents to report any sign of the invasive pest. The egg masses were found on trees from Pennsylvania, where SLF is established and planted in Boothbay, Freeport, Northeast Harbor, and Yarmouth.

DACF urges anyone who received goods or materials, such as plants, landscaping materials, or outdoor furniture, from a state with a known SLF infestation to carefully check the materials, including any packaging, for signs of SLF. There are currently known populations of SLF in Connecticut, Delaware, Maryland, New Jersey, New York, Pennsylvania, Virginia, and West Virginia.

If any life stages of SLF are found, residents should take a photo or collect the specimen and report any pest potential sightings to [bugwatch@maine.gov](mailto:bugwatch@maine.gov). Residents should look for large, gray insects, about one inch long, with black spots and red underwings, or inch-long, rectangular yellowish-brown egg masses covered with a gray waxy coating. Egg masses may be found on any flat surface.

“These most recent finds call attention to the fact that there are many ways that spotted lanternfly can travel here from other states,” said State Horticulturist, Gary Fish. “Early detection plays an important role in the protection of our state’s economic and ecological resources from invasive species, and we ask anyone who may have received shipments of wood, ornamental plants, or any other materials from Pennsylvania or other Northeastern states to help protect the natural resources and agricultural industries of Maine by checking for and reporting any signs of spotted lanternfly.”

The spotted lanternfly (SLF) is an invasive sap-feeding insect from Asia that was first found in the United States in 2014, in Pennsylvania. While the preferred host plant of this pest is tree-of-heaven (*Ailanthus altissima*), SLF attacks over 100 species of trees, shrubs, and vines, and has the potential to impact a broad range of agricultural commodities, including apples, peaches, grapes/wine, maple syrup, as well as the ornamental nursery industry.

Because **no live SLF has been found in Maine**, there is currently no evidence that SLF has become established. The DACF Horticulture Program has inspected all the suspect trees and asks the homeowners and landscape companies to keep an eye on the areas where egg masses were found to confirm that no live populations are present. Spotted lanternfly has not previously been found in Maine.

SLF adults develop from the nymphal stage starting in July, and will feed and lay eggs until they are killed by a hard frost. The overwintering egg masses can be laid on any surface, including vehicles, nursery stock, and other outdoor structures.

**For more information about the spotted lanternfly**, please visit: <https://www.maine.gov/dacf/php/caps/slf/index.shtml>



Adult Spotted Lanternfly

## Apple Pest Damage in 2020

Other than an unexpectedly early and intense influx of apple maggot fly trap captures as soon as we set traps out in the first week of July, there was not much generally remarkable about the insect situation in Maine orchards this summer. Roundheaded apple tree borers, a pest that commercial growers hardly pay any attention to, continued to show their presence in damage to low/no spray apple trees in home plantings. Apple and thorn skeletonizer caused noticeable damage to foliage and also fruit in similar low/no spray plantings.

European red mites required treatment in some orchards, but given a dry warm summer the mite situation was more notable for lack of problems than because of them. Obliquebanded leafroller caused extensive damage in a block of Honeycrisp at Highmoor Farm, more on that later. Codling moth continued to show up in traps like they always do, but I am not aware of substantial damage at harvest. No doubt insecticide applications for apple maggot helped prevent codling moth adult male trap counts from turning into damaged fruit. Brown marmorated stink bugs have not yet shown up in monitoring traps in Maine orchards. That situation probably will not last much longer, but the longer the better.

As for diseases, as noted above, apple scab while definitely down, is not out, and will remain a risk on susceptible cultivars next spring. Fire blight had some of the highest heat unit ratings ever this year. Growers that applied streptomycin did not seem to have many strikes to deal with, certainly fewer than if they had not sprayed strep. Growers that did not spray strep had more fire blight that they wanted, which is zero, but the infection severity in most cases was not too bad. Then again, it is the exception that proves (tests) the rule. And if your orchard was one of the exceptions, you don't need to hear me say that in general fire blight was not as bad as it might have been. Unlike previous years, there were no oddball disease situations that come to mind. One thing that was odd was seeing sooty blotch and flyspeck show up unexpectedly early (especially for a dry year) at the beginning of August on (lightly) sprayed trees.

## Sooty blotch and Flyspeck

Since it is the time of year for SBFS, here are some notes from a blast from the past article I bumped into the other day.

Biggs, A. R., Cooley, D. R., Rosenberger, D. A., and Yoder, K. S. 2010. Relative susceptibility of selected apple cultivars to sooty blotch and flyspeck. Online. Plant Health Progress doi:10.1094/PHP-2010-0726-01-RS.

<https://apsjournals.apsnet.org/doi/pdf/10.1094/PHP-2010-0726-01-RS>

While the list of fungi from other studies has now grown to over 100, this study found that the most common types of fungi associated with SBFS symptoms in Northeastern US study sites were the usual suspects: *Schizothyrium pomi* (flyspeck phenotype), *Peltaster fructicola*, *Geastrumia polystigmatis*, and *Pseudocercospora* sp. (sooty blotch phenotypes).

In comparing the prevalence and intensity of flyspeck and sooty blotch across numerous cultivars in test orchards not sprayed for these diseases, they found that cultivar itself did not seem to be a driving factor. More important was how late in the fall a cultivar remained on the tree, and whether the apple was a yellow or green light-skinned cultivar that makes SBFS easier to detect.

Across all cultivars and locations, mean disease incidence for flyspeck ranged from 0.5% incidence for Sansa (an early season apple) to 62% for GoldRush (a late season apple). Midseason cultivars had flyspeck incidence ranging from 17 to 46% on Arlet and Senshu, respectively.

Mean disease incidence for sooty blotch ranged from about 13% for Sansa and Pristine in the early season group to 77% for Braeburn in the late season group. Mid-season sooty blotch incidence ranged from 27 to 61% on Arlet and Gala Supreme, respectively. GoldRush and Shizuka, also late season cultivars, had mean sooty blotch incidences approaching 70%.

And earlier study that examined sooty blotch incidence on several apple cultivars and selections harvested on the same date found that the sooty blotch severity varied significantly between cultivars, and suggested that this was the result of differences in fungal nutrients that leach from fruit. As apples mature, sugars and other substances leak into the cuticular wax that SBFS fungi feed upon. If true that would have consequences for estimate SBFS growth and treatment timing based on cumulative leaf wetness hours and temperature during those LW hours. But in this study, the authors were not able to identify differences in relative susceptibility of apple cultivars to colonization by the SBFS complex due to cultivar characteristics beyond color and harvest timing.



Fig. 2. Sooty blotch and flyspeck on the apple cultivar Cameo.

Photos from Biggs et al. 2010.



Fig. 3. Flyspeck and sooty blotch on apple cultivar Golden Delicious.

## **Apple insect pest damage survey in MA, NH, & ME**

Dr. Jaime Piñero provided the following report on insect damage observations.

“This year, in 11 orchards (7 located in MA, 3 in NH, and one in ME) we conducted various types of research that targeted a number of insect pests including apple maggot fly (AMF), codling moth (CM), and leafrollers.

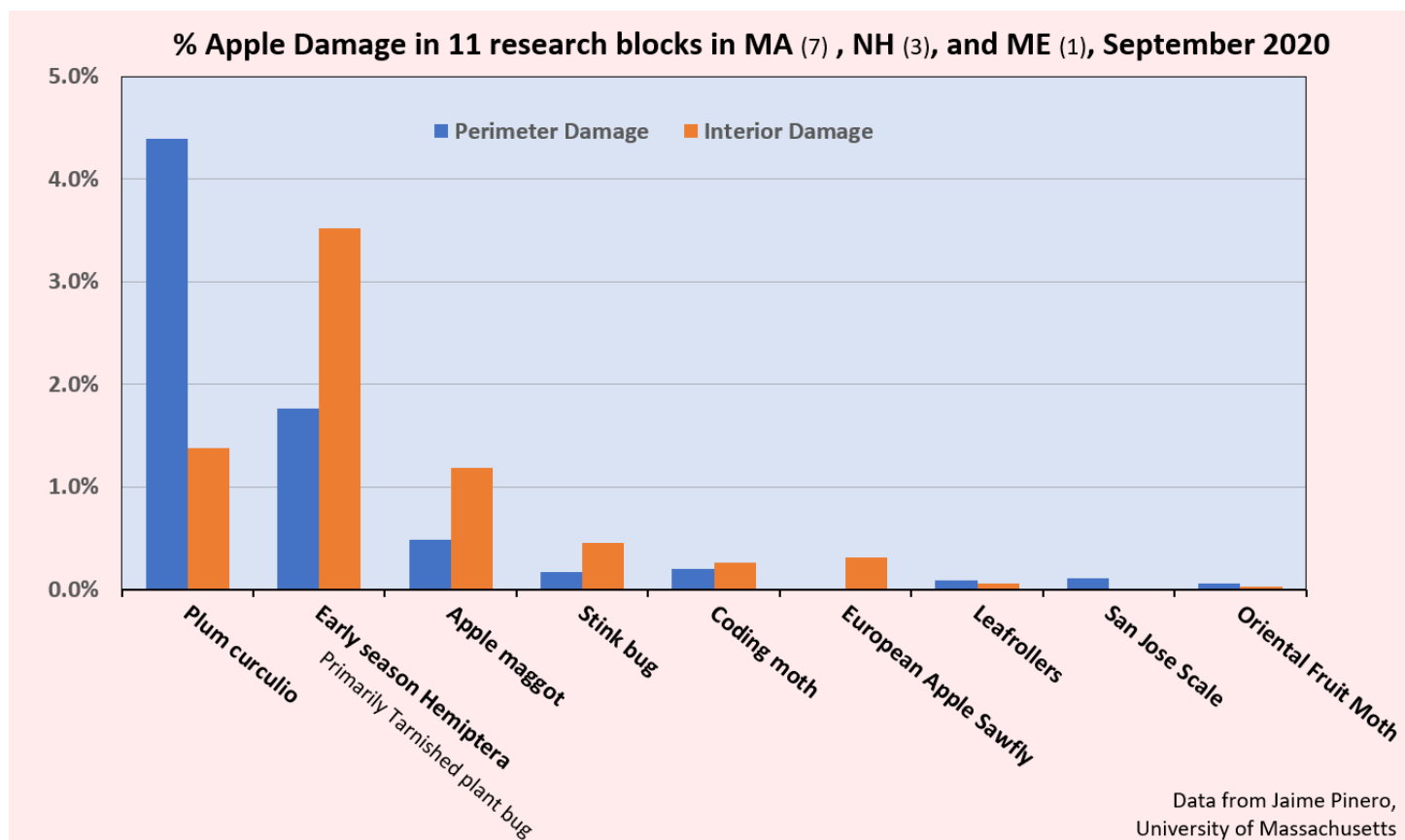
“In early September, non-destructive harvest surveys were conducted. Across all 11 orchards, 10,560 fruits were inspected for insect injury. Fruit samplings were conducted by J. Pinero and 3 graduate students (Ms. Prabina Regmi, Ms. Dorna Saadat, and Mr. Ajay Giri - thank you for your help!) who received proper training on identification of fruit injury by each of the insect pest species.”

In the case of AMF, the actual level of injury may actually be lower than the injury level we are reporting here. This is because each fruit that was suspected to have egg-laying scars was taken to the laboratory. Fruit was incubated individually in containers with a substrate for pupation. We still need to confirm whether damage observed was caused by AMF.

The most damaging pest was PC (4.28% injury on perimeter-row trees). One orchard in particular contributed to this high average. In that orchard, the level of fruit injury by PC was 12.6% in the perimeter, and 4.06% in the interior. Tarnished plant bug (TPB) ranked second in terms of fruit injury. Comparatively more TPB injury in the interior of some blocks was recorded, compared to the perimeter.

Parameter	Location	PC	Stink bug	Early-season Hemiptera	AMF	PC feeding or other damage	Rollers	OFM	CM	EAS	San Jose scale
Average	PERIMETER	4.28	0.17	1.76	0.48	0.11	0.09	0.06	0.20	0.01	0.11
Average	INTERIOR	1.27	0.45	3.52	1.18	0.11	0.06	0.03	0.26	0.31	0.00
MAX	PERIMETER	12.66	0.47	3.28	1.56	0.31	0.78	0.63	1.88	0.16	1.09
MAX	INTERIOR	4.06	1.88	8.13	3.38	0.63	0.31	0.31	2.50	0.63	0.00
MIN	PERIMETER	1.09	0.00	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MIN	INTERIOR	0.00	0.00	0.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Here are the average perimeter and interior damage percentages in chart form:



## Gypsy moth in 2021?

Liz Garofalo of the UMass Fruit Team sent this photo collage to help growers keep an eye out for gypsy moth egg masses and larvae this fall and next spring. The fungus that normally helps keep gypsy moth populations in check was probably suppressed by the dry conditions this summer, which could result in a larger than normal population of gypsy moth showing up in apple trees. This typically occurs during bloom was larvae balloon in on air currents. Insecticide application to blooming apple trees is obviously problematic because of hazard to honeybees and other insect pollinators. But Bt formulations are effective against small caterpillars and not harmful to bees.



A gypsy moth gallery, showing, more or less, the insect's life cycle. Dry weather is likely to create an increased number migrating into plantings in 2021.

Top left; flightless female gypsy moth lays her eggs not far from where she emerged from pupation.

Top center; gypsy moth egg mass in the same fall it was laid.

Top right; close up of gypsy moth egg mass.

Bottom left; overwintered egg mass. Note the lighter color of protective "hairs" surrounding eggs than fresh egg mass exhibits.

Bottom left interior; newly hatched gypsy moth larvae.

Bottom right; early instar gypsy moth larvae feeding on apple flower parts.

## USDA COVID-19 Food Assistance Program 2

The USDA is now accepting applications for a second round of the Coronavirus Food Assistance Program to assist agricultural producers who face market disruptions and associated costs because of COVID-19. Signup began September 21 and runs through December 11, 2020. A complete list of eligible commodities, payment rates and calculations are available at [farmers.gov/cfap](https://farmers.gov/cfap).

Here are the payment details for Apples:

Payments for apples will be based on the producer's 2019 sales of eligible commodities in a declining block format using the following payment factors, and will be equal to:

The amount of the producer's eligible sales in calendar year 2019,  
multiplied by the payment rate for that range.

2019 Sales Range	Percent Payment Factor for the Producer's 2019 Sales of Eligible Commodities Falling in the Range
Up to \$49,999	10.6%
\$50,000-\$99,999	9.9%
\$100,000-\$499,999	9.7%
\$500,000-\$999,999	9.0%
All sales over \$1 million	8.8%

**Example:** A producer's 2019 sales of eligible commodities totaled \$75,000. The payment is calculated as (\$49,999 times 10.6%) plus (\$25,001 times 9.9%) equals a total payment of \$7,775.

Payments for apple producers who began farming in 2020 and had no sales in 2019 will be based on the producer's actual 2020 sales as of the date the producer submits an application for payment under this section.

## Weather Outlook newsletter

The 'Weather Outlook' is now being sent as a separate newsletter. If you would like to receive the 'Weather Outlook' newsletter, please send an email message to [glen.koehler@maine.edu](mailto:glen.koehler@maine.edu). It will continue to be issued until November as time allows, and then resume next spring.

## Online Sessions

1) **Apple harvest virtual open house.** The last of Jon Clements' recorded sessions is at <https://www.youtube.com/watch?v=zx6KRVDjaNw>. It is 12 minute YouTube video in which he discusses maturity as of October 5 of some less common cultivars at the UMass Cold Spring Orchard in Belchertown MA.

2) **MOGFA Farmer to Farmer Conference 2020** – Virtual sessions on November 2, 4 and 6, 2020. Agenda and registration info at <https://www.mofga.org/MOFGA-Events/farmer-to-farmer-conference-2020>

3) **Produce Safety Alliance Grower Training** (grant funded; limited to Maine residents). The course will provide a foundation of farm food safety best practices and co-management information, FSMA Produce Safety Rule requirements, and details on how to develop a farm food safety plan. Includes training manual, Produce Safety Alliance (PSA)/Association of Food and Drug Officials (AFDO) course completion certificate. Online/Virtual, November 5 AND 6, 2020 (Two separate mornings back-to-back) Nov 5, Thursday: 8:30 AM – 12:30 PM & Nov 6, Friday: 8:30 AM – 12:30 PM Registration is \$20 and closes on October 25. 3 pesticide applicator recertification credits.

4) The Tree Fruit Extension staff from the six New England states are putting together a list of webinars for pesticide applicator recertification credit this fall-winter-spring.

The **Maine Preseason Tree Fruit IPM Meeting** is being replace by three Zoom webinars on successive Wednesdays, March 3, 10, and 17, from 12 -1:30pm.

Guest speakers are Dr. Suzanne Blatt from Ag Canada, Kentville Research Station, speaking about her apple maggot research; Dr. Jaime Pinero from UMass presenting on early season insect pest control, and Dr. Renae Moran speaking about bitter pit on Honeycrisp. Other shorter presentations are also planned within each 90 minute session. Each session will qualify for one pesticide applicator recertification credit.

5) The Maine Ag Trade Show has been not be held in person this year but instead as a **Virtual Maine Agricultural Trades Show**.

The Maine Dept. of Agriculture, Conservation and Forestry that hosts the event is looking for participant feedback to help plan it. "Because so many of us rely on the show to promote products and services, host annual meetings, receive credits, and hear updates about departmental programs and more, we want to create an online model for virtual meetings, webinars, and training presentations. In creating the Virtual Agricultural Trades Show, the Department wants to hear from you."

**What would you most like to see and participate in during the virtual event?**

**What are the technical needs of agricultural groups to robustly participate in the online venue?**

**Are there promotional opportunities that would be beneficial?**

To help answer these questions and solicit feedback, the Department invites everyone to provide their ideas and suggestions by emailing [acfagtradeshow@maine.gov](mailto:acfagtradeshow@maine.gov) or completing an **online survey at** <https://tinyurl.com/MaineAgTradeShowSurvey>



## Bulletin Board

1) **An Apple History of Maine** – an online talk by John Bunker for the Maine Historical Society. Wednesday, October 14, 6:00 – 7:00 pm. Free, but registration required, limited to 500. [https://mainehistory.zoom.us/webinar/register/WN\\_S4zyVTFITVm0A1qTyxIqSA](https://mainehistory.zoom.us/webinar/register/WN_S4zyVTFITVm0A1qTyxIqSA)  
<https://tinyurl.com/JohnBunkerAppleTalk>

“Ever since the first Europeans arrived over 400 years ago in what is now Maine, apples have been with them. For forty-five years pomologist John Bunker has been pulling over by the side of the road to marvel at ancient apple trees, has picked his way through old books and diaries, hung out with old timers, grafted new trees, and made lots of pies, sauce and cider in his quest to re-discover and the identity of the forgotten apple varieties of Maine. The connection between apples and Mainers tell the story of the state's history from Kittery to Fort Kent. Join John for a look at the history of apple farming in Maine's 16 counties from its colonial beginnings to the present and long partnership that has no sign of letting up any time soon.

2) **COVID-19 at Champlain Orchards in VT** (email received from Dr. Terry Bradshaw).

“I am passing this request from UVM Extension on to the greater fruit growing community. It is rare that I use this list to promote a specific farm, and this should not be read as preferential treatment. What happened at Champlain could have happened on any of our farms, and this is a chance to support each other as a farming community, and to consider what we may need if such a situation befalls any of us. I've talked with Ginger and she has indicated that much of the need involves housing upgrades, including dishwashers and laundry facilities to help the workers maintain quarantine while keeping the farm running. She suggested, and I agree, that mundane features like this are something that all farms that have communal housing may want to consider moving forward. Take care, everyone, and please let me know if you have any issues or concerns.

-Terry

By now most of you have probably heard that some of the Jamaican crew members at Champlain Orchards have contracted COVID.

Many of us have worked with Champlain Orchards over the years through our jobs in Extension, and some of us have even had the privilege of working alongside the Jamaican guys as fellow employees of the orchard. They are an amazing group of people, and it is hard to imagine how challenging it must be to be dealing with the pandemic while so far from friends and family.

You can find out more about the situation on Champlain Orchard's website. While the state is helping in some ways, there is still going to be considerable cost associated with taking care of the men, making adaptations to housing to keep everyone as safe and able to quarantine as possible, etc. If you would like to help, you can make donations by scrolling down to the green button at the bottom of the Champlain Orchard webpage at <https://www.champlainorchards.com/covid19>

These funds will go towards purchasing supplies for the crew, and making improvements to labor housing. If you have ideas of other kinds of assistance you may be able to offer, please contact [marketing@champlainorchards.com](mailto:marketing@champlainorchards.com) to help coordinate.”

3) Link Moser [link@linkmoser.com](mailto:link@linkmoser.com) is **searching for an existing farm business** like a PYO orchard/berry farm and/or farm stand in Maine or New Hampshire that whose owners are looking to retire or sell in the next few years.

## Closing Words

"There are two ways to be fooled. One is to believe what isn't true. The other is to refuse to accept what is true."

~ Soren Kierkegaard

"We didn't leave the stone age because we ran out of stones."

~ Anonymous

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