THE UNIVERSITY OF MAINE
Cooperative Extension
Pest Management Office

Maine Tree Fruit Newsletter

Tuesday, March 6, 2018 Vol 25:1

Agenda for Preseason Tree Fruit Meeting

March 28, 2018, Ramada Inn, 490 Pleasant Street, Lewiston ME

5 Pesticide Applicator Recertification Credits.
Cost is $15 for Maine State Pomological Society Members, $20 for non-members.

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8:00 am Registration, Coffee, Meet & Greet
8:15 am ***Maine Tree Fruit IPM Update***
– Glen Koehler, University of Maine Cooperative Extension
8:45 am ***Early Season Caterpillar Pests and Other Creatures from the south***
– Heather Faubert, University of Rhode Island Cooperative Extension
9:30 am ***A Career Retrospective on New England Orchard Pests***
– Dr. Alan Eaton, Professor Emeritus, University of New Hampshire (not confirmed)
10:30 am **Break**
10:45 am ***Irrigation for Tree Fruit Orchards***
– Trevor Hardy, Brookdale Fruit Farm Inc.
11:30 am ***Fruit Quality and Storage***
– Dr. Renae Moran, University of Maine Cooperative Extension
12:00 pm ***Maine State Pomological Society update***
– Joel Gilbert, MSPS President, Berry Fruit Farm
12:15 pm **Lunch –** Sandwich bar, salad, dessert and beverages
1:00 pm ***Non-chemical orchard weed management***
– Dr. Terence Bradshaw, University of Vermont (via live video)
1:45pm ***How to Read a Tree***
– Dr. Alicyn Smart, University of Maine Cooperative Extension.
2:15 pm ***Biopesticides for Tree Fruit Production***
– Dr. Anissa Poleatewich, University of New Hampshire
2:45 pm **Break**
3:00 pm ***On-Farm Marketing Ideas***
– Heather Faubert, University of Rhode Island Cooperative Extension
3:30 pm ***Board of Pesticides Control Update***
– Megan Patterson, Maine Department of Agriculture, Conservation and Forestry
4:00 pm **Adjourn**

Maine State Pomological Society Nano-Survey

Just two questions folks, it doesn't get any easier than that. Pom Soc already does a lot for Maine tree fruit growers, and is interested in your ideas for how to be even more helpful. Please copy your answer to these two questions in an email to: Joel Gilbert at joel@berryfruitfarm.com

1. What are your biggest challenges as an agricultural enterprise in the year ahead?

2. How can the Maine State Pomological Society best serve you with your enterprise?

Browntail moth removal

From Maine Department of Agriculture, Conservation and Forestry

"Now is the time to remove browntail caterpillars from trees that are accessible. Browntail caterpillars cause a poison ivy-like rash and they are impacting a broad swath of Maine. Contact with this caterpillar's hairs can cause severe reactions for some individuals.

Browntail caterpillars spend the winter webbed in silken-wrapped leaves on the tips of branches of oak and apple trees. NOW is the time to look for the bright white silk tying a few leaves to the TIPS of your apple and other fruit trees and oak tree branches. If you see a web CLIP IT OUT and destroy the web by dropping it in a bucket of soapy water and soaking it overnight, do not just leave it on the ground. The caterpillars are ready to go once warmer weather arrives, so do this task as soon as possible!

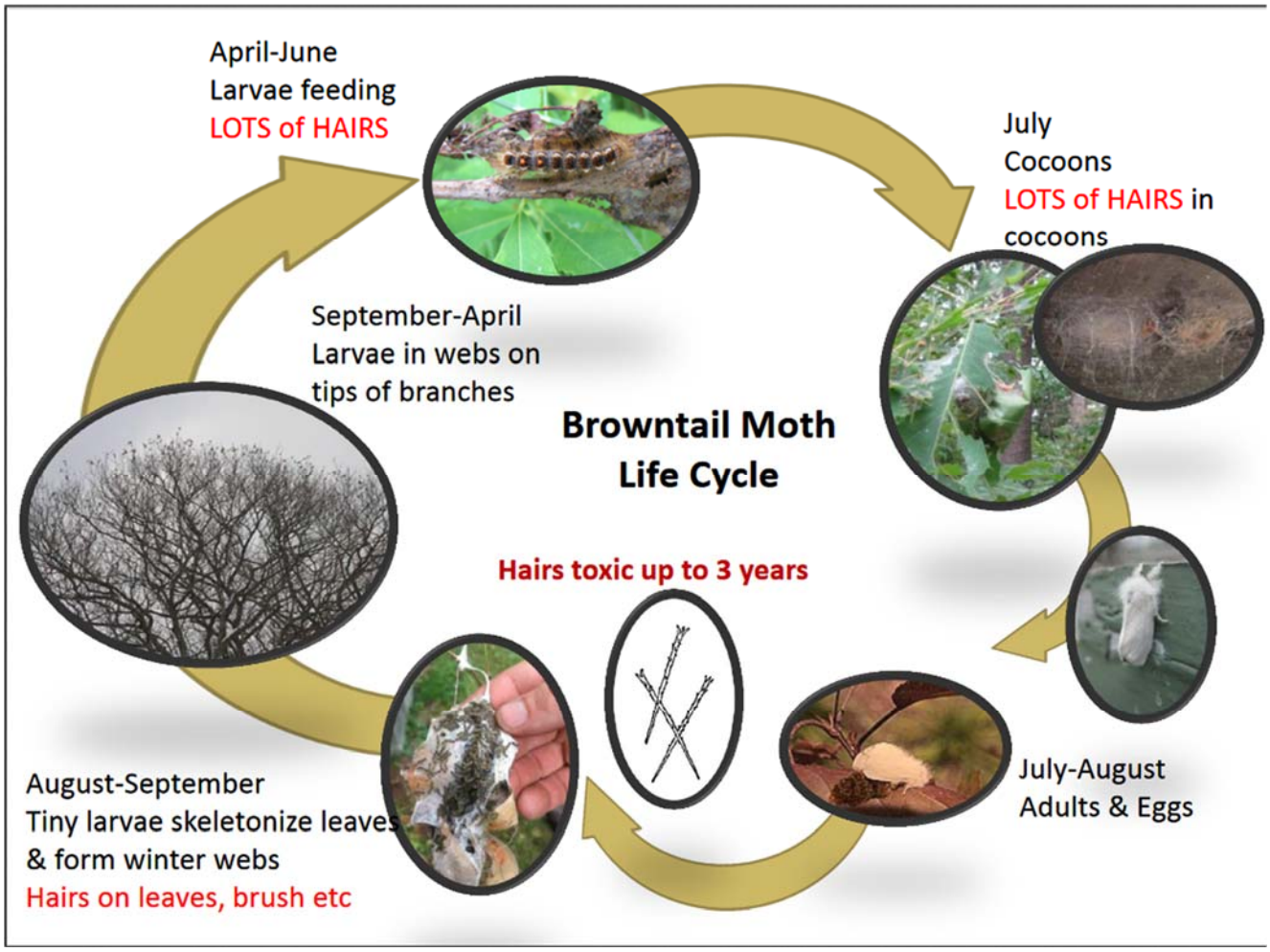
Browntail caterpillar webs can be found regularly in Maine from the New Hampshire border to Deer Isle, and inland to Raymond, Turner, Rome, Smithfield, Burnham and Eddington. They are worst along the coast from Falmouth to Bristol and up the Kennebec River to Richmond. In 2017, outlying patches of defoliation were found in the towns of Belgrade, Burnham, Eddington, Liberty, Lincolnville, Turner and Whitefield. The moths have been seen all the way west to Kingfield, north to Ashland and east to Topsfield on the New Brunswick border.

As we all have heard, "an ounce of prevention is worth a pound of cure." People have known that to be true of browntail for more than 100 years. Learn how to recognize browntail moth webs by visiting the websites below, then go out and check your trees for their presence. If you find them and can reach them, clip and destroy them. If you can't reach them and plan to treat them, now is the time to line up professional help for this spring

Don't have trees? Survey a public space in your town. If you think you've found webs, but are not sure, contact the forest service for help http://www.maine.gov/dacf/mfs/forest_health/tree_ailment.html.

Background information, a video showing how to clip the webs, a list of arborists who could prune webs out of your reach and a list of licensed pesticide applicators that can treat the webs can be found at:

http://www.maine.gov/dacf/mfs/forest_health/invasive_threats/browntail_moth_info.htm "



Climate adaptation survey

We want to hear from you! Survey on how growers are adapting to extreme weather in New England. Six farmer organizations from across the region are participating in a project to exchange knowledge on adaptive management strategies. Results from the survey will be shared back to the community at farmer conferences next year and distributed in a report. Please consider adding your voice and experience to the project. It is not a short 2-question survey, but they will send you a bar of fair trade chocolate or other treat if you take the time to fill it out!

No one else can replace your perspective. Please share your experience and concerns through the survey at this link: https://www.uvm.edu/agroecology/adaptationsurvey/

https://www.climatehubs.oce.usda.gov/hubs/northeast/news/farmer-storytelling-session-raises-awareness-climate-and-agriculture-issues

Salvaging Wind Damaged Apple Trees

Excerpt from: Marini, R.P., J.A. Barden, and J.R. Schupp. 2001. Wind effects on apple in the eastern United States. HortScience 36:247-249 (slightly edited for clarity)

SALVAGING INJURED TREES

No experiments appear to have been designed to evaluate different methods of up-righting apple trees that are leaning or uprooted during a severe wind event. Most recommendations are based on observations in commercial orchards following a storm. Hurricanes and tropical storms often occur just before or during the harvest season. Because labor is usually limiting, growers often decide to upright their trees after harvest, which may be 6 weeks after the storm. In 1994, Hurricane Fran damaged several Virginia orchards, especially in intensive plantings where trees were supported with 48-mm-diameter wooden posts and no wire. Many of the affected trees were not righted until after harvest, 6 or 7 weeks after the storm. Some of the trees were broken at the graft union and many trees had broken roots and were lying flat on the ground. About 5% of the trees died the next season. Some trees seemed to grow normally, but many grew very poorly for a year and then seemed to recover within 2 or 3 years.

In Sept. 1985, Hurricane Gloria passed through New England and damage to apple trees varied from slightly leaning to complete breakage or blow-down. Because little new information was available to advise apple growers requesting information on caring for injured trees, Autio (1985) offered the following suggestions based on information written in the 1930s for restoring trees to an upright position. A summary of his comments follows.

1) Salvage work should be completed as soon as possible, because tree roots are very sensitive to cold temperatures. If the temperature drops below –10 °C (14 °F) roots may be injured, so trees must be straightened before early winter.

2) It is often not feasible to salvage 20-year-old or older apple trees. Younger trees can recover more easily and have more potentially productive years ahead of them.

3) Trees uprooted with 30% to 50% of the root system exposed may not respond well enough to make salvage possible. Growers should give the most immediate attention to the most desirable trees.

4) Any movement of a tree trunk from vertical may result in disruption of the root system. While straightening a tree, attempt to return the root system to its original position to encourage the development of new roots. If the root system has been lifted it may be necessary to remove soil beneath it to allow repositioning. Puddling of the soil with water may improve the success of pulling the tree back to a vertical position, especially with larger trees. Once returned to the vertical position the tree must be secured by wires to stakes or “dead men,” positioning these so that prevailing winds do not cause excessive tree movement. After anchoring the tree, the soil should be replaced around the roots. Root development should be encouraged, and mulching may help by stabilizing the soil around the roots.

5) Some trees may be leaning slightly or not at all, but have an area around the trunk where soil has been compacted by trunk movement, leaving a space between the trunk and soil. This area should be filled with soil or gravel to prevent vole injury. Vole control is critical in hurricane-damaged orchards. There may be two reasons that uprooted trees may be more vulnerable to vole injury (R.E. Byers, personal communication).

a) Voles may be displaced as a tree is uprooted, causing the vole population to disperse into areas of the orchard not previously inhabited by voles;

b) The loose, moist soil under uprighted trees provides an ideal habitat for voles.

6) Pruning salvaged trees should be delayed until spring, and heavy pruning should be avoided. To encourage recovery of these trees, stresses (drought, heavy cropping, and weed competition) should be minimized for a few years.

Following are some additional suggestions intended for apple growers in New York's Hudson Valley following the same storm.

1) As soon as possible, preferably immediately following a rain, straighten trees, because rerooting begins immediately after root damage occurs. Root growth will continue as long as soil temperature remains above 15 °C (59 °F).

2) After straightening the tree, fill and pack soil and space around the tree trunk to prevent water accumulation and possible early winter freeze damage to exposed root and crown area.

STRAIGHTENING TREES

Several methods have been used to straighten trees. The most popular method is to attach a rope or chain well up on the trunk. The tree is pulled to the vertical position, taking care not to twist or pull remaining roots from the soil. To prevent tearing the bark, cloth or some other protective material can be placed between the chain and the trunk. The tree is then tied to a post at least 5 feet long set ≈ 2 feet in the ground. Shorter stakes probably will provide inadequate support. Sometimes a hole can be drilled through the trunk, and a wire, attached to a large washer, run through the hole and twisted around the stake. Less severely damaged trees can be propped with wooden 2 × 4 inch construction lumber. Propping is fast and inexpensive in terms of material and labor. Sometimes sandbags are placed on the upwind side to stabilize the tree.

Frost Protection

Understanding frost events and protection

- **There are two types of frost event: an advection frost and a radiation frost.** An **advection frost** occurs when a cold air mass blows into the area bringing temperatures below the critical low threshold. This type of frost does not have a temperature inversion. There is not much you can do once an advection frost event is underway. Fortunately, advection frosts are less common than radiation frosts

- A **radiation frost** occurs when clear night sky and calm winds allows energy loss from the ground and from apple buds to create temperatures lower than that of air above the orchard. A wind of 5mph is usually enough to mix the air layers enough to prevent the inversion that leads to a radiation frost. Without enough wind, there is insufficient mixing of the higher warmer air to alleviate the cold temperatures near the radiating surface. The colder air stays near the cooling surface because cold air is denser than warm air and thus does not rise.

- A radiation frost event usually ends when sunlight begins warming the ground the next morning. However, note that the coldest temperatures often occur in the first hour AFTER sunrise. This is because radiation cooling continues until the amount of sunlight energy warming the ground exceeds the losses. So do not assume that the frost event ends right at sunrise.

- The condensation of water vapor releases heat. When the temperature of a surface drops below the dewpoint temperature, water vapor in the air contacting that surface will transition to water (condensation) which releases a large amount of energy. Also, moist humid air absorbs more longwave energy being lost from the ground as radiation cooling. After absorbing energy, humid air releases it more slowly than dry air, keeping the energy closer to the ground and reducing radiational cooling loss near the surface. Thus, humid air reduces the chance for a radiation frost event, and dry air increases the risk.

<u>Actions to help minimize potential frost damage to apples</u>

Orchard preparation

- Consider air drainage in planting site selection. Avoid low spots where cold air pools as planting sites for fruit trees. Conversely, despite excellent air drainage, the tops of hills can also be colder than surrounding ground.

- Fruit trees on north facing slopes develop later than those on south facing slopes, and as a result are less susceptible to late spring frosts.

- Vegetation, fences and other structures can block the flow of cold air out of the orchard. Pushing back the woods line or opening a path for cold air to drain into can reduce frost susceptibility.

- Small temperature differences can make have a big impact. I have seen the frost line in orchards exactly follow a very slight slope with a distinct line in the canopy showing where temperature was above and below the critical threshold.

- Herbicide strips. Bare soils will absorb heat during the day radiate it back at night providing up to a 2F gain. Likewise, mowing orchard alleys short can help. Tall vegetation reflects sunlight away from the soil, keeping it cool. Short grass will allow sod to absorb heat during a sunny day to release at night, providing up to a 2F gain.

- Nutrient sprays can strengthen fruitlets to resist freezing temperatures and increase resistance to freezing by up to an additional 1F.

Before and during a radiation-type frost event

- Frost protection spray products can be useful, but are not consistent. They work by reducing or displacing the number ice nucleating bacteria on the surface of the fruit.

- **Frost fans** provide warming by breaking up a temperature inversion to mix warm air into a trapped layer of cold air near the ground (perhaps 5 degree F heat gain). Fans must be started BEFORE temperature at crop level is nearing the critical low temperature threshold, and should be started before a temperature inversion is established, i.e. before temperature at 5 feet above ground is below the temperature at 30 feet.

- **Trickle irrigation.** Wet soil down a 1 foot depth absorbs heat better than dry soil while temperatures are above the critical value during the day, and then slowly releases it back later to buffer the impact of the lowest temperatures during a nighttime frost event. Soil moisture below 1 foot has little effect on radiation cooling/heating. Trickle irrigation to absorb heat during the day may provide up to a 4F gain during a freeze period the following night/morning.
  Start trickle irrigation early enough to thoroughly wet orchard before the frost. If possible, run trickle irrigation all night during the freeze. Trickle irrigation lines may freeze up during the frost event.

- **Under-tree micro-sprinkler** will provide heat from water into the orchard. Start the system a couple of hours before temperatures get too cold and freezes up the system

- **Over-tree sprinklers** protect plants by the heat released from ice formation, but require large amounts of water and careful scheduling to prevent running out of water during a freeze event. Starting and stopping overhead sprinklers for frost protection should always occur when the wet-bulb temperature is above the crop's critical damage temperature.

The decision about when to start and stop the sprinklers for frost protection should be based on both temperature and humidity in the orchard. When a sprinkler system is first started, the air temperature in the sprinkled area will fall to the wet-bulb temperature. This initial drop will be followed by an increase in temperature as the water freezes on the ground and plant parts to release heat. At 100% relative humidity, the wet-bulb temperature is the same as the air temperature. But if the relative humidity is low, then the wet-bulb temperature can be considerably lower than the air temperature and the initial temperature drop can lead to damage. Thus, because of this web-bulb temperature affect, the air temperature alone is not a complete indicator of frost risk.

- If soil waterlogging is not a problem, permitting the wet-bulb temperature to exceed the melting point (32°F) before turning off the sprinklers adds an extra measure of safety. Even if the sun is shining on the plants and the air temperature is above 32F, sprinklers should not be turned off unless the **wet-bulb temperature** in the orchard is above the critical damage temperature for the current budstage.

- Once you start overhead irrigation it is very important to keep it running until temperatures are above the critical temperature for current budstage, or better yet, above freezing. Overhead irrigation works to protect buds by the heat released as water freezes. If the water supply stops while temperatures are below freezing, then the ice-encrusted buds will lose heat faster than if they had not been encrusted by ice. Thus, overhead irrigation that does not last beyond the frost period can increase rather than decrease damage.

Sources:

"Apple Frost Guide for 2017" by Phil Scwallier and Amy Irish Brown, Michigan State University Extension, at http://msue.anr.msu.edu/news/apple_frost_guide_for_2017,

"Principles of Frost Protection" by Richard Snyder, University of California, Davis, at http://biomet.ucdavis.edu/frostprotection/Principles of Frost Protection/FP005.html ,

"Critical Spring Temperatures for Tree Fruit Bud Development Stage" by Mark Longstroth, Michigan State University Extension, at http://msue.anr.msu.edu/uploads/files/picturetableoffruitfreezedamagethresholds.pdf

Temperature – relative humidity – wet bulb temperature relationship

Air Temperature F	Wet-bulb temperature F * at different % Relative Humidity			
	@ 40% RH	@ 60% RH	@ 80% RH	@ 90% RH
15	11	13	14	14
18	14	15	17	17
21	17	18	20	20
24	19	21	22	23
27	22	23	25	26
30	24	26	28	29

* Estimates based on typical air pressure of 30.5 inches mercury in April for Lewiston ME.

Critical temperatures for apple, pear and peach bud stages.

APPLE Budstage	10% bud kill temperature F	90% bud kill temperature F
Silver Tip	15	2
Green Tip	18	10
Half Inch Green	23	15
Tight Cluster	27	21
First Pink	28	24
Full Pink	28	25
King Bloom	28	25
Full Bloom	28	25
Postbloom	28	25

Source: Apples – Critical temperatures for blossom buds. Washington State Univ. factsheet EB0913. http://extension.wsu.edu/benton-franklin/wp-content/uploads/sites/27/2013/12/critical-temp-bud-apples-eb0913.pdf

Notes: Values are for Red Delicious. Golden Delicious and some other cultivars may be 1F hardier before Petal Fall. All cultivars considered equally tender Postbloom. Earlier developing cultivars such as McIntosh and Cortland can be more sensitive on same date than later developing cultivars.

PEAR Budstage	10% bud kill temperature F	90% bud kill temperature F
Scales separating	15	0
Blossom buds exposed	20	6
Tight Cluster	24	15
First White	25	19
Full White	26	22
First Bloom	27	23
Full Bloom	28	24
Postbloom	28	24

Source: Critical Spring Temperatures for Tree Fruit Bud Development Stages, Mark Longstroth, Michigan State University Extension.
http://msue.anr.msu.edu/uploads/files/PictureTableofFruitFreezeDamageThresholds.pdf

Derived from Pears – Critical temperatures for blossom buds. Washington State Univ. factsheet EB0978. http://extension.wsu.edu/chelan-douglas/wp-content/uploads/sites/43/2014/05/budctpn.jpg

Notes: Values are for Bartlett pears. Anjou values are the same for given budstage, but Anjou but may develop earlier than Bartlett and thus may be at more advanced and sensitive budstage than Bartlett.

PEACH Budstage	10% bud kill temperature F	90% bud kill temperature F
First Swell	18	1
Calyx green	21	5
Calyx red	23	9
First Pink	25	15
First Bloom	26	21
Full Bloom	27	24
Postbloom	28	25

Peach, Plum, Apricot Source: Critical temperatures for blossom buds. Washington State Univ. factsheet EB0978.

http://extension.wsu.edu/chelan-douglas/wp-content/uploads/sites/43/2014/05/budchph.jpg
Values are for Elberta cultivar. Earlier developing cultivars can be more sensitive on same date than later developing cultivars.

European PLUM Budstage	10% bud kill temperature F	90% bud kill temperature F
First Swelling	14	0
Side White	17	3
Tip Green	20	7
Tight Cluster	24	16
First White	26	22
First Bloom	27	23
Full Bloom	28	23
Postbloom	28	23

APRICOT Budstage	10% bud kill temperature F	90% bud kill temperature F
Swollen Bud	15	---
Tip Separation	20	0
Calyx Red	22	9
First White	24	14
First Bloom	25	19
Full Bloom	27	22
Petal Fall (in the Shuck)	27	24
Green Fruit - Shuck Split (Postbloom)	28	25

Additional spring frost notes from Mary Concklin, University of Connecticut:

If you are using overhead irrigation for frost protection, it needs to be turned on before 32 degrees and operated at the rate of 1/10 inch per hour at the temperatures predicted; up to 2/10 inch per hour for temperatures in the mid 20s.

Do not turn it off until the temperatures rises above 32 and the ice is melting.

Wind machines should be started a couple of degrees above the critical temperature, and should not be operated when wind speeds are 5 mph or greater

- Burning wood and hay will provide heat for only small areas near the fire (perhaps up to 4 degrees F localized gain). Place small piles of firewood down the center of every other row and light every other pile at 3am, and then at 5am start the other piles. Each will burn for roughly 2 hours. The heat plume from such fires can help break through an inversion layer that traps cold air near the ground.
- The smoke from fires is of no value. Ground heat radiates skyward through the smoke.
- Orchard heaters to provide convective warming of the air around trees can be effective but requires renewing the warmth at a regular and fairly short interval.

Characteristics that reduce susceptibility to spring blossom frost

- Cool temperatures prior to a frost night. Conversely, sensitivity is higher when warm weather has preceded a frost night.
- Abundant bloom. Numerous flowers can survive a light to moderate frost event.
- Flowers at a wide stage of development (pink to petal fall) will have different critical minimum temperatures and thus some will survive better than others at a specific low temperature.
- Abundant foliage. Leaves provide protection to flowers hiding under the foliage. Foliage can reduce radiation of heat from flower buds.
- Flowers pointing downward will not radiate their heat as much as flowers pointing toward the sky.

Publications

1) **"Orienting New Farm Employees in Maine: A Checklist for Maine Agricultural Employers"** is available at https://extension.umaine.edu/publications/1060e/

2) **2018-2019 New England Vegetable Management Guide**

Copies of the guide are now available at Highmoor Farm. The guide contains the latest information on management control options for the major vegetable pests as well as scouting information. This guide has been significantly revised and updated. We recommend all earlier editions of the guide be discarded, in favor of this latest edition.

Cost of the guide is $25.00 plus $3.68 postage for a total of $28.68. To order the guides, please send your check made payable to **UMaine Cooperative Extension** mailed to: Highmoor Farm, P.O. Box 179, Monmouth, Maine 04259, C/O Pam St. Peter. For more information, contact Pam St. Peter at 933.2100 or pamela.stpeter@maine.edu.

Members of the Maine Vegetable & Small Fruit Growers Association (MVSFGA) or the New England Vegetable & Berry Growers Association receive free copies of the guides. For MVSFGA membership information, contact Bill Jordan at 799.1040.

2017 Census of Agriculture

The U.S. Department of Agriculture's (USDA) National Agricultural Statistics Service (NASS) starts mailing the 2017 Census of Agriculture to over 3 million U.S. producers this week. Farm operations of all sizes that produced and sold, or normally would have sold, $1,000 or more of agricultural product in 2017 are included in the census.

Conducted once every five years, the census aims to get a complete and accurate picture of American agriculture. The resulting data are used by farmers, ranchers, trade associations, researchers, policymakers, and many others to help make decisions in community planning, farm assistance programs, technology development, farm advocacy, agribusiness, rural development, and more.

The census gives every producer the opportunity to be represented so that informed decisions can support their efforts to provide the world with food, fuel, feed, and fiber. Every response matters. The census is the only source of uniform, comprehensive, and impartial agriculture data for every state and county in the nation.

"Producers can respond to the census online or by mail. We highly recommend the updated online questionnaire. We heard what people wanted and we made responding to the census easier than ever," said NASS Administrator Hubert Hamer. "The online questionnaire now has timesaving features, such as automatic calculations, and the convenience of being accessible on mobile and desktop devices."

The original deadline is passed, but the census is still collecting responses. Federal law requires NASS to keep all information confidential, to use the data only for statistical purposes, and only publish in aggregate form to prevent disclosing the identity of any individual producer or farm operation.

For more information about the 2017 Census of Agriculture, visit www.agcensus.usda.gov or call (800) 727-9540.

Basic Apple Spray Schedule

Most of this newsletter is directed at commercial scale growers, but most of the readers are backyard hobby growers. Here is a nice summary fact sheet by Dr. Alan Eaton, Professor Emeritus, and Dr. Cheryl Smith, University of New Hampshire, that gives a nice overview of apple pesticide timings.
Source: https://extension.unh.edu/resources/files/Resource005256_Rep7402.pdf

Table 2: Spray Schedule for Apple Trees

Apple			
Approximate Dates	**Development Stage**	**Full Spray Schedule**	**Minimal Spray Schedule**
Late fall, winter, or spring	Dormant	Fire blight Prune out affected twigs/branches.	
April 15-25	Half-inch Green: 2 or 3 sepals	Spray with oil at least once every three years (for mites).~ Rust	Spray with oil at least once every five years (for mites).~
May 1-10	Tight Cluster: Opening flower buds still in tight clusters	Scab Rust Bud moth Plant Bug	Scab (fungicide only)
May 10-20	Pink: Blossom buds separated & stems elongated some	Scab Sawfly Tent caterpillars	Scab Sawfly Tent caterpillars
May 15-30	Bloom: Flowers open	Scab (fungicide only)	Scab (fungicide only)
May 25-June 8	Petal Fall: 75-90% of petals off	Scab Curculio (if using Surround)	Scab
June 7-14	1st Cover: 1 week after petal fall	Scab Curculio Leafrollers Mites	Scab Curculio
June 15-21	2nd Cover: 1 week after 1st cover	Scab Curculio Codling moth	
July 1-10	3rd Cover: 2 weeks after 2nd cover	Scab § Apple maggot ¥ Codling moth	Scab § Apple maggot ¥
July 14-20	4th Cover: 2 weeks after 3rd cover	Scab § Apple maggot ¥	Scab § Apple maggot ¥
July 28-August 5	5th Cover: 2 weeks after 4th cover	Scab § Apple maggot ¥	Scab § Apple maggot ¥
August 14-21	6th Cover: 2 weeks after 5th cover	Apple maggot ¥ Codling moth	Apple maggot ¥

Notes:

~ Spray Oil (60-70 second or "superior" oil).

§ Spray for Scab only if scab lesions are visible on leaves or fruit.

¥ Add carbaryl (Sevin) to mix. Treat with Sevin at the frequency stated on the label, starting when adults appear on traps. Stop when no more maggot flies are trapped.

A few comments are in order to adapt this schedule for use in Maine.

Using premixed multipurpose spray products – Use on the backyard planting scale probably poses no real pest resistance. The key point here is that products that contain insecticide should not be applied to flowering plants because of the potential harm to pollinating insects.

Cedar Apple Rust – While it occurs in Maine, it is so rarely a problem, and almost never a serious problem that it does not need to be a concern to backyard orchardists.

Fire blight – The fact sheet says it "primarily affects spurs and twigs". It is important to realize that fire blight can spread quickly and can progress quickly to kill young trees. When planting young trees, pinch off flowers that develop after normal bloom time in the first year. You do not want fruit on first year trees anyway, and open blossoms during the heat of summer can allow fire blight infections to enter the tree. I do not think streptomycin application is practical for backyard tree fruit growers, but proper sanitation to remove dead wood is the first line of defense. It is important to not overfertilize trees. Lush growth in late summer and early fall makes apple and pear trees more vulnerable to fire blight and can also reduce winter hardiness.

Apple Maggot – Along with apple scab fungus, apple maggot larval infestation is the most common pest damage seen on backyard fruit.

Gypsy moth, Leafrollers, Codling moth – As noted, these are usually prevented from reaching noticeable pest status by two insecticide applications in the weeks right after bloom, with follow-up sprays in late July and August.

Borer – The NH factsheet discuss peach tree borers, but not Public Enemy #1 of backyard apple trees in Maine – the nefarious and ubiquitous Roundheaded apple tree borer. Home orchardists too often assume that until there are fruit on the tree, there is no need for insecticide protection. Unfortunately, RATB attack a high proportion of unprotected trees.

Older established trees are also attacked, but because of their thicker bark, and more importantly because of their thicker trunks, RATB infestation of larger trees is of less consequence than on young, small trunk diameter trees. Not only does the borer tunneling introduced diseases, it weakens the physical structure of the trunk and girdles, or partially girdles the vascular system that carries water and sugars between roots and leaves. Infested young trees often die or break off in a stiff wind. A large portion of backyard apple plantings are lost to this one pest.

RATB adults are active during the months of June – September. RATB damage is not much of a problem in orchards where canopy insecticide applications are made against plum curculio and apple maggot, presumably because those sprays also kill RATB adults when they feed and rest in the canopy before laying eggs on the lower trunk. Because young trees are so vulnerable, it would be prudent to add trunk only insecticide application to each of the canopy spray timings listed in the table. If you do not want to spray the canopies that often, then trunk application every 2-3 weeks will help reduce the risk of borer infestation.

A roundheaded apple tree borer factsheet is online at

Title page link: https://ecommons.cornell.edu/handle/1813/43070

Direct link to full PDF:
https://ecommons.cornell.edu/bitstream/handle/1813/43070/apple-boring-beetles-FS-NYSIPM.pdf?sequence=1&isAllowed=y

Spotted Wing Drosophila – Does not attack apples, but can infest peaches left to fully ripen on the tree. SWD are found in every Maine county. Without control, this pest can devastate berry crops.

Closing Words

"Life is a learning experience, only if you learn."

~ Yogi Berra

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