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UMassAmherst Outreach UMass Extension

Healthy Fruit

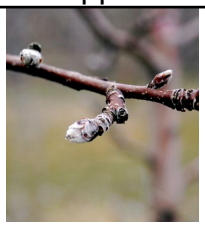
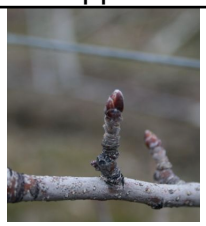
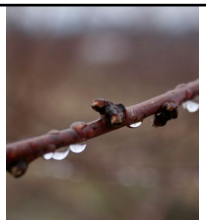
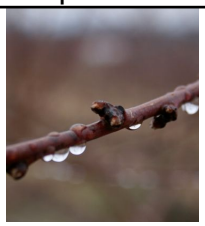
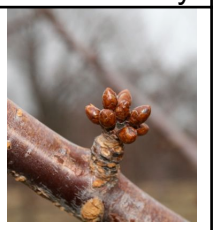
Prepared by the University of Massachusetts Fruit Program

Healthy Fruit, Issue 1, April 3, 2007

Current DD accumulations

Location	Base 43F	Base 50F
Belchertown, UMass CSO observed (01/01/07 – 04/02/07)	132	49
Belchertown, UMass CSO SkyBit (01/01/07 – 04/02/07)	NA	NA

Current bud stages

Location	McIntosh apple	Honeycrisp apple	Pear	Redhaven peach	Cavalier sweet cherry
Belchertown, UMass CSO (04/02/07)	 silver tip+	 silver tip	 swollen bud	 swollen bud	 swollen bud

Upcoming meetings/events

Date	Meeting/ event	Location	Time	Information
April 11	Fruit Team Twilight Meeting	**Ragged Hill Orchard**, 94 John Gilbert Rd., W. Brookfield, MA	5:30 PM	Jon Clements 413-478-7219
April 12	Fruit Team Twilight Meeting*	**Dowse Orchards**, 98 N. Main St., Sherborn, MA	5:30 PM	Jon Clements 413-478-7219

Two pesticide re-certification credits offered at each Fruit Team Twilight meeting. Please be on time to receive credit

* In cooperation with Rhode Island Fruit Growers' Assoc.

The way I see it

Welcome to the 15th year of publication of Healthy Fruit and a new growing season. Each week we try to bring you a synopsis of important events in the orchard, Integrated Pest Management (IPM) control methods for important pests, and horticultural techniques to to make you a more successful grower. In many cases we provide original content, but will also include guest articles and links to websites. Those of you that get Healthy Fruit by e-mail will find these additional sources of information very helpful, and as we move into the future it is likely we will cease publication of a weekly printed and mailed Healthy Fruit. As always, your comments and suggestions are welcome.

Briefly, tree phenology (bud stage) is beginning to lag a bit. (See Current Bud Stages.) Development is behind last year, and based on the forecast, is not going to move that much this week. Green tissue appearance is critical in both apples and peaches for scab and leaf curl management respectively. I expect rapid movement once the weather warms back into the 50's and 60's, so be prepared.
J. Clements.

2007 New England Tree Fruit Pest Management Guide

First, the good news: we will have our own Pest Management Guide in 2007 thanks to a collaboration between Cornell and the New England Extension tree fruit specialists. The Guide will be similar to the Cornell Guide, however, with adaptations to New England, and it will include both apples and stone fruit. Now, the bad news, we are a bit behind schedule but expect to have the Guide for sale by the end of this month. We will let you know. J. Clements.

Some new insecticides for 2007

Thanks to UNH's Alan Eaton who compiled this list of new apple insecticides for his NH IPM Newsletter, http://extension.unh.edu/Agric/AGPMP/IPMNews.htm. J. Clements

- **ABBA** and **Epi-mek** have abamectin, the same active ingredient in Agri-mek (or Avid, for you greenhouse people). Some guides consider abamectin (also called avermectin) an antibiotic. We now have a very similar chemical, an analog, called Emamectin benzoate. The trade name for this new material, from Syngenta, is **Proclaim**. Most of the target pests for apple are caterpillars: leafrollers, leafminers, etc. For some pests, the label uses the term "suppresses", rather than "controls".
- **Acramite** is a new miticide from Crompton Uniroyal. The active ingredient is bifenazate, and it is registered on quite a few vegetables, also strawberries, tree fruit & nuts. Greenhouse growers know this active ingredient as floramite.
- **Adjourn** is a pyrethroid chemical, esfenvalerate. The same chemical is in Asana, so you should be familiar with its range of target pests.
- **Assail** is a relatively new chemical, acetampyrid, with a spectrum of activity that includes leafminers, codling moth, lesser appleworm and others.
- **Battalion** is deltamethrin, a pyrethroid from Arysta. Deltamethrin has been registered in Canada for a while, under the name **Decis**. Both products are now registered here. They have a broad range of targets, including TPB, curculio, Eur. ap.sawfly, apple maggot, leafrollers...
- **Baythroid** and **Tombstone** are both cyfluthrin, a pyrethroid insecticide that also is targeted for a wide range of apple insects.
- **Clutch** is an insecticide with clothianidin as the active ingredient. Arysta is the company, and curculio, leafminers, leafhoppers, codling moth, apple maggot and aphids are among the targets. This one is in activity group 4a, so that means it has the same mode of action as imidacloprid. Besides these targets, it is registered to control psylla on pears (any pear growers left out there?)
- We've had imidacloprid for fruit pests for several years, first as Provado, then Admire. Now added to the list are **Couraze**, **Imida, Nuprid** and **Pasada**. Leafminers, leafhoppers and San Jose scale are among the targets. There are some differences in the spectrum of targets, between the various imidacloprid products.
- **Envidor** is new to me. The active ingredient is spirodiclofen, and the company is Bayer. This miticide is targeted for Eur. red mite, two-spotted spider mite, and apple rust mite.
- **Govern**, **Nufos, Warhawk**, and **Whirlwind** are all new names to me, but the active ingredient is chlorpyrifos, which we've used for years as Lorsban. The products have limited insect targets

registered for apples, and they vary a bit from product to product.

- **Kanemite** is a new miticide directed at ERM & TSSM. It has a 14d pre-harvest interval on pears & apples, and it is also registered on strawberries (1 day to harvest).
- **Lambda-T** has l-cyhalothrin as the active ingredient. Helena is the manufacturer. It is registered for a wide range of insects and crops. **Silencer** and **Warrior** are made of the same stuff, a "fourth generation" pyrethroid. We also have gamma cyhalothrin now. It is different enough from the lambda isomer that it gets a different registration and different name, **Proaxis**. It is registered on LOTS of crops, and the list of pests on apple is a bit different than the l-cyhalothrin products.
- **Nexter** and **Pyramite** are relatively new. Sanmite (registered in greenhouses) has the same active ingredient, called pyridaben. It is a contact miticide, with some effects on a few insects; aphids, thrips, whiteflies and leafhoppers.
- **Perm-up** is a new name to me, for an older chemical: permethrin.
- Lorraine Los found a material that escaped my search. **Rimon** is an insect growth regulator, with novaluron as the active ingredient. The apple pests I see listed are caterpillars: codling moth, leafrollers, leafminers, oriental fruit moth. The label says it suppresses populations of young white apple leafhoppers.
- **Zeal** is a new miticide. Extoxazole is the active ingredient. It is registered for pome fruit, strawberries, and non-bearing fruit & nut trees.

And a few new ones of our own to add…

In addition to Alan's list, here are a few other new chemicals and/or notes of particular interest. J. Clements

- **Chateau** (flumioxazin) is a new herbicide with both pre- and post-emergent activity. It's strong point is pre-emergent broadleaf control (i.e. pigweed) and should be mixed with a contact herbicide in a spring application. It is now labeled for use in bearing orchards (all tree fruit) and grapes. Prowl H2O (pendimethalin) has a supplemental label now for use on bearing fruit trees. (Expires June 1, 2007, however, presumably will be incorporated in full label?) Prowl is particularly effective on annual grasses.
- **Centaur** (buprofezin) is an insect growth regulator that can be used to control leafhoppers, scale, and psylla in apples, peaches, and pears.
- **Guthion** on stone fruit (except cherries) is gone. The REI on **Imidan** is now 3 days.
- **Indar**, a mainstay of brown rot control on peaches and cherries now has a label (supplemental for 75WSP, regular for 2F) for use on apples (scab, summer diseases, rust, mildew) and plums (blossom blight and fruit rot). Use recommendations for apples are tentative at best, but it is an SI fungicide like Nova and Rubigan so think accordingly. See http://www.indar.com.
- **Gem 500 SC** (trifloxystrobin, same a.i. as Flint) is registered for use on stone fruit to control (cherry) leaf spot, mildew, and (peach) scab.

BRAND NEW -- Tree Fruit Field Guide to Insect, Mite, and Disease Pests and Natural Enemies of Eastern North America

Quoted from Scaffolds Fruit Journal, Vo. 16, No. 1, March 19, 2007: "The Tree Fruit Field Guide to Insect, Mite, and Disease Pests and Natural Enemies of Eastern North America (Agnello, Chouinard, Firlej, Turechek, Vanoosthuyse, and Vincent) is a 238-page handbook of fact sheet-type entries, including color photos, descriptions and actual-size drawings, distribution, damage symptoms and general management recommendations, to help growers identify pest insects, mites, and diseases that cause damage in the orchard, as well as beneficial insects, spiders, and mites that can be found in tree fruit plantings. It includes over 25 pages of diagnostic keys to insect and mite damage and disease symptoms, a glossary and an index/cross-reference to common, scientific, and family names; also, a list of recommended sources for further information, including useful Internet sites. The book is

available through NRAES (Natural Resource, Agricultural, and Engineering Service) in Ithaca, through its website: http://www.nraes.org, and can be ordered online for $32 retail (pub No. NRAES-169). Quantity discounts are available."

Pear psylla and young tree pruning videos

Thanks to Mike Fargione, Steve Hoying, and Peter Jentsch of Cornell's Hudson Valley Lab for producing a couple short videos on timely topics. In the first, entomologist Peter Jentsch explains control option for pear psylla. In the second, horticultruist Steve Hoying shows how to prune four distinctly different nursery trees at planting. You can see the videos here:

- http://hudsonvf.cce.cornell.edu/photogallery.html

Guest article -- 'Plant food for thought, spring fertilizers.' Steve Hoying, Horticultural Sciences, Highland

Reprinted from SCAFFOLDS Fruit Journal, Geneva, NY, Volume 16, No. 2, March 26, 2007

With the increase in the price of gas and oil, fertilizer prices have also gone through the roof. It is more important than ever to carefully assess your tree fruits' fertility needs. Leaf and soil analysis and careful observations of last year's tree vigor combined with crop load, fruit quality and other orchard circumstances can be used to craft a program that will satisfy the nutritionalneeds of your orchards and maximize their performance.

Mature apple orchards require nitrogen, potassium, and boron on an annual basis. Nitrogen needs vary according to the N carrying capacity of the soil and the variety. In New York, 20–40 lbs of additional N are needed to sustain tree growth and fruiting. Leaf analysis values should be between 1.8–2.0 for soft varieties and 2.0–2.2 for hard varieties, with average terminal shoot growth between 8–12 inches. Nonbearing trees should have leaf analysis values about 2.4 with 12–18 inches of terminal shoot growth. Apply 10% more or less nitrogen for every 0.10 analysis values are above or below recommended levels. If leaf analysis values and shoot growth are adequate, early ground of N can be reduced or eliminated and if conditions dictate, foliar urea can be used to boost early growth and strengthen flowers and fruit set. Foliar N can be applied at 3 lbs/100 gallons at pink and/or 5 lbs/100 gallons at petal fall for this early boost.

Apples are a heavy user of potassium and a full crop removes 70–80 lbs of K2O per acre per year which must be replaced annually. Muriate of potash or sulpomag are the most common fertilizers and can be applied in either late fall or early spring. Soil boron is also important and should be applied in addition to foliar boron since this nutrient does not easily move from foliage to roots where it is also needed. The easiest and most economical way to apply the 2 lbs of B needed per acre is to have it mixed with your nitrogen and potassium for a single spring application. Your fertilizer supplier should be able to make custom mixes that satisfy N, K, and B needs for each of your orchard blocks. These mixes should be in a 1-0-2 ratio for fresh fruit and closer to a 1-0-1 for processing fruit.

Complete fertilizers are unnecessary and a waste of money since phosphorous does not move through the soil to established tree roots. Phosphorous should only be applied pre-plant and mixed deeply into the soil.

Special fertilizer applications may be needed where winter injury has occurred. The so-called "Tonic Applications" are applied to the tree and foliage at Green tip and consist of 1 lb Boron (such as Solubor), 1 qt zinc chelate, and 3 lbs feed grade low biuret Urea.

Stone fruit nutrient needs are similar to apple but have important differences. The common orchard fertilizer mix suggested above is not recommended for stone fruit. Stone fruit do not use the same large amount of potassium that apples do and careful analyses of leaf samples are important to judge the amount of potassium needed. In addition, stone fruit are very sensitive to chlorides and large applications of the muriate form should be substituted with the sulfate form when applications of K_2O is called for in the leaf analysis. Both excess and defi ciency of Boron can reduce fruit quality in stone fruit. Rates of boron for soil application in stone fruit orchards should not exceed 1/2 of the rate indicated for apples and pears unless both soil and leaf analysis results indicated that greater amounts are required. Nitrogen needs for stone fruit are generally higher than for pome fruit. Desired leaf analysis levels for cherries, plums and apricots should be between 2.4–3.4% and peaches which set fruit on one year old wood and require more annual growth for maximum fruiting potential should exceed 3.0%, and be closer to 4.0%. Healthy pencil sized shoot growth produces the best peaches.