



UMassAmherst Outreach UMass Extension

Healthy Fruit

Volume 15, 2007

Prepared by the University of Massachusetts Fruit Program

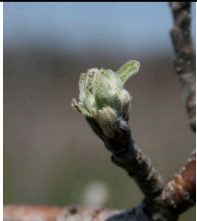
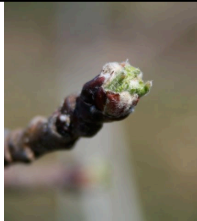
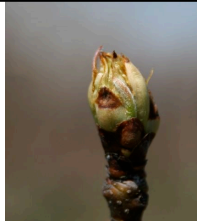
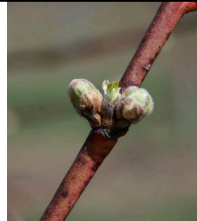
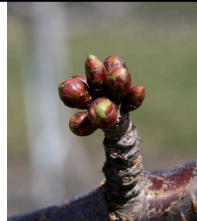
Healthy Fruit, Issue 4, April 24, 2007

http://www.umass.edu/fruitadvisor/healthy_fruit/

Current DD accumulations

Location	Base 43F	Base 50F
Belchertown, UMass CSO observed (01/01/07 – 04/23/07)	226	111
Belchertown, UMass CSO SkyBit (01/01/07 – 04/23/07)	142	NA

Current bud stages

Location	McIntosh apple	Honeycrisp apple	Bartlett Pear	Redhaven peach	Cavalier sweet cherry
Belchertown, UMass CSO (04/23/07)					
	early half-inch green	green tip ++	early bud burst	swollen bud ++	early bud burst

More bud stages at: <http://www.umass.edu/fruitadvisor/clements/2007budstages/042307/042307.html>

Upcoming meetings/events

Date	Meeting/event	Location	Time	Information
May 15	Fruit Team Twilight Meeting	UMass Cold Spring Orchard , 391 Sabin St., Belchertown MA	5:30 PM	Jon Clements 413-478-7219
May 16	Fruit Team Twilight Meeting*	Brookdale Fruit Farm , 36 Broad St., Hollis, NH	5:15 PM	George Hamilton 603-641-6060
May 17	Fruit Team Twilight Meeting*	TBA , somewhere in Rhode Island	5:30 PM	Jon Clements 413-478-7219

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

* In cooperation with New Hampshire Fruit Growers' Assoc. and UNH Cooperative Extension

** In cooperation with Rhode Island Fruit Growers' Assoc.

The way I see it

Spring has sprung. Apples have moved from silver tip to what one grower described as “seeing some pink” in a little over a week. Oil applications (1.5-2%) are being made for mites (apples and peaches) and psylla (pears) as long as night temperatures do not approach freezing. Rain forecast for late in the week will likely result in the first scab infection period. Therefore, apple trees should also be covered up with a good protectant fungicide (most likely an EBDC such as Manzate, Penncozeb, Dithane, etc.) at full rate. Should peaches be approaching bloom by the end of the week, a brown rot (blossom blight) spray is in order. Bravo, Captan, Indar are good choices. Insect pest monitoring focuses on mites (oil application), leafminer, and tarnished plant bug. A trunk directed spray of Lorsban can also be applied for dogwood borer control in apples beginning at half-inch green and continuing through petal fall if it fits your schedule. Dwarf trees with burr-knots will always benefit from this treatment.

If you are planting trees this year, you should be taking advantage of this dry weather to get the trees in the ground. Early planting pays off with more growth and better establishment. Incorporation of pre-plant phosphorous is recommended, and be sure to plant the trees ‘high’ vs. ‘low.’ Apple graft unions should be 4-6 inches above the ground to allow for settling. The higher you plant the tree, the more dwarfing expression of the rootstock you will get. Whips should be headed at waist height after planting. Trees with one or two feathers, well then the feathers should be removed and the tree treated like a whip. If your trees have three or more feathers, leave them, tip them back perhaps a bit, and do not head the leader. Simple. Peach trees should be planted with the graft union at ground level or slightly above. J. Clements.

Monitoring for plant bug

Half-inch green through pink is the time to start monitoring for tarnished plant bug (TPB). White sticky traps placed at knee-height (lower scaffolds), one every three to four acres, and a cumulative trap capture of about 4 TPB triggers an action threshold. Traps should be placed near the periphery of the orchard. Scouting your orchard during a warm, sunny day at pink is also a good way to get a handle on TPB activity.

Now, sometimes I think we underestimate the damage done by this pest, and those growing for the wholesale market can't put up with much TPB injury. Unfortunately, a pyrethroid (Asana, Ambush/Pounce, Danitol, Warrior) spray at pink is the best management option when trap levels exceed threshold. (It would also go a long ways towards controlling sawfly.) But, that goes against all conventional wisdom if trying to implement a solid IPM program in apples -- pyrethroids are hard on mite predators. But in peaches, mites are less of an issue, so a pyrethroid spray at pink is a very viable option there.

Note that eliminating broadleaf weeds and/or crops in fields adjacent to orchards and within the orchard can go a long ways towards decreasing populations of TPB. J. Clements

Healthy Fruit Disease Elements

Key Management Activities:

- Reconsider fungicide selection

Mapping the next week in scab. With green tip in Massachusetts, the apple scab season has officially begun. The next rain is predicted for Friday and Saturday of this week, at which point most trees will be somewhere around half-inch green to tight cluster. Scab spores should be mature and ready to pop out with the rain, setting the stage for potential infection.

The most reliable approach to this predicted infection would be to insure that a protective fungicide is on the trees. Those growers who put on copper over the weekend or yesterday should be protected

going into the infection. (Note: if you're at quarter-inch green or beyond, there is a good chance that any new copper applications will lead to russet on fruit.) Growers who have yet to put on a fungicide should get one out prior to the rain, captan or mancozeb being the least expensive and effective options.

It's still not too late to get some benefit from shredding leaves.

Going organic. Scab is very hard to manage. It can be even harder with the limited fungicides available in an organic program. The details are available in Dave Rosenberger's *Scaffolds* article from this March - <http://www.nysaes.cornell.edu/ent/scaffolds/2007/070319.html#disease>. At this point, sulfur or lime sulfur are the most effective options. There are more exotic things suggested, such as compost teas and potassium bicarbonate. To date, the effectiveness of these materials against scab doesn't match that of the sulfurs, though tests are continuing.

Why Indar? Indar is another SI fungicide that has recently received a supplemental label for apples. While Indar is a very good SI, and is effective on brown rot of peach as well as apple scab, powdery mildew and cedar apple rust, it's surprising that the company decided to market it for apples. At this point, with what appears to be widespread resistance to the SIs by apple scab, growers should be looking carefully at whether they will continue to use them.

Where resistance to SIs exists, Indar is no better than Rubigan, Nova or Procure. Where scab is still sensitive to the SI fungicides, then Indar may have an edge. Tests in the Northeast have indicated that Indar is relatively better at controlling fruit scab infections than other SIs. It also may postpone resistance development a bit, relative to the other SIs.

Indar also would work well in orchards growing both peaches and apples. There's a difference in the maximum rate of Indar 75WSP allowed in each crop: 2 oz/A in peaches, 2.6 oz/A in apples. Growers would, however, be able to apply at the 2 oz/A rate on both crops. However, if growers were interested in using Indar on both crops, a better solution would be to mix at the 2.6 oz/A rate for apples, and adjust speed or pressure to decrease the rate per acre in peaches. Or mix up a whole new tank for the peaches, but that defeats some of the advantage to using a single fungicide. The maximum rate on apples will give the best results in terms of fruit scab control.

Indar already has proven to be an excellent brown rot fungicide. Its use to control blossom blight on peaches would coincide more or less with the timing for maximum apple scab risk.

The resistance question again. So, now that we know that of the New England orchards tested, virtually all had some resistance to Rubigan, Nova, Procure and Indar, should they be used or not?

There's no quick answer to that. The expert in the area, Wolfram Köeller, stresses that resistance profiles are specific to an orchard. So it is possible that there are a number of orchards in New England that still have scab that is susceptible to SI fungicides. The only way to know for sure is to run the resistance test at Geneva. Or try using an SI alone, but if scab in an orchard is resistant, well, the results could be costly.

So a conservative approach would be to try to get scab tested, and not depend on SI fungicides for post-infection treatments until the results are known. If the scab is NOT resistant, then it won't become resistant as long as the SIs are not used. If it is resistant, then nothing is lost, and some money may be saved, by stopping their use right away. D. Cooley

Pre-bloom nutrient sprays for apples

A tight cluster spray containing nitrogen (N), boron (B), and zinc (Zn) is recommended for most apples. Many leaf analyses I look at are deficient in Zn, and the annual needs of apple trees for N and B can be partially supplied by this foliar nutrient spray. Typically, at tight cluster, use (per 100 gallons

dilute):

- 3 lbs. of urea (feed grade, <0.25% biuret)
- 1 lb. Solubor
- A Zinc-EDTA product at label rates (typically 1-2 quarts 9%)

Please see guest article (next) for more information on foliar nutrients. J. Clements.

Guest article: 'Apple Foliar Nutrient Suggestions for 2007, Win Cowgill, Rutgers Cooperative Extension and Jeremy Compton, Fruit Grower'

The addition of foliar nutrients has become standard practice for most progressive apple growers to help set fruit and prevent certain physiological disorders. Research by Dr. Ed Stover, formally of the Cornell Hudson Valley Lab, conducted two years of research on Nitrogen, Boron and Zinc as pre bloom sprays on apple. He concluded pre bloom nutrient treatments enhance cropping by increasing retention of flower buds that would otherwise abscise during early bud development. He indicated “the most obvious use of these treatments (N, B, Z) would be on apple blocks where cropping is expected to be light. There is potential to increase fruit size as along as aggressive thinning practices are followed”.

Urea (N) Urea is beneficial on apples for helping to improve fruit set and increase size on apple cultivars that are low in nitrogen as indicated by leaf tissue analysis. Use 2-3 pounds of urea per 100 gallons of water at pink bud, full bloom, and/or at petal fall to improve fruit set and

tree vigor. Use 5 pounds per 100 gallons in cover sprays after petal fall **only** on nitrogen-deficient trees. Foliar nitrogen is not a replacement for ground applied nitrogen as it does not translocate down into the wood, rather its an aid to fruit set and fruit sizing.

Boron (B) Solubor sprays of 1 pound in 100 gallons of water applied at full bloom and at 1 week after full bloom may reduce cork in apple flesh if boron is deficient. Boron aids calcium movement into fruit. Adequate boron is essential; excessive boron hastens apple maturity and increases fruit drop. Both soil and leaf analyses are essential in determining the need for boron. Apply no more than two sprays per season.

Note: Boron may be added to pesticide sprays. Do not premix Solubor with calcium chloride. Do not apply boron with oil or apply boron when trees are wet with oil as an increased uptake of boron may result causing boron toxicity.

Zinc (Z) — Low levels of Zinc are know to cause small fruit size especially in Red Delicious, even when no other symptoms of zinc deficiency are evident. Most of our New Jersey soils and orchards are deficient in Zinc.

Tight Cluster to Pink —If Zinc level is low (as indicated by leaf tissue sample) apply zinc chelate (EDTA) at 1 qt liquid formulation per 100 gallons dilute equivalent at tight cluster to pink. Caution: some Zinc products are labeled for repeat applications 2-3 weeks after petal fall and again 4-5 weeks later. Some varieties may be sensitive to Zinc with regard to fruit finish. A better time might be after harvest applications to increase zinc levels.

Calcium (Ca)— The quickest and most effective short-term corrective treatments for control of bitter pit and cork in apple are for **Bitter Pit** control, spray trees with a solution of either calcium chloride or calcium nitrate. Use 2 pounds of calcium chloride or 4.25 pounds of calcium nitrate per 100 gallons of water plus a wetting agent. Calcium nitrate should not be used on trees that contain high to excessive amounts of nitrogen in the leaf tissue as measured by leaf analysis or that are making excessive shoot growth. Make applications at 2-week intervals with the last spray 2 weeks before harvest. These calcium sprays can reduce bitter pit in apples by 50 to 90 percent.

To control **Cork** in apple flesh spray trees with 1.5 pounds of calcium chloride or 3.2 pounds of calcium nitrate per 100 gallons of water with first cover spray and include in each subsequent cover spray until a total of 18 to 24 pounds per acre has been applied. The calcium nitrate sprays will apply 2 to 3 pounds of

actual nitrogen (N) per acre and should be used only on trees that do not contain high to excessive nitrogen levels as measured by leaf analysis or reflected in excessive shoot growth.

For Calcium sensitive varieties such as Enterprise, Braeburn, Fuji, York, and Cortland apply:

Calcium Chloride (CaCl₂):

2-3 lb/100 prior to August 1

3-5 lb/100 after August 1

Late season calcium sprays are usually more effective against cork than early season sprays

Reduced rates of CaCl₂ should be applied if there was no rain between applications, or if it is very hot and humid.

Suggested Compounds, Rates and Timing for Foliar Nutrients for Apples - follow label rates

Timing	Material	Rate	Element
Delay Dormant	TriBasic Copper Sulfate	(2 lb/100 dilute equivalent)	Cu
Pink	Urea	(2-3 lb/100 dilute equivalent)	N
	Zinc Chelate	(1 qt/100 dilute equivalent)	Zn
Bloom	Urea	(2-3 lb/100 dilute equivalent)	N
	Solubor	(1 lb/100 dilute equivalent)	B
Petal Fall	Epsom Salts	(15 lb/100 dilute equivalent)	Mg
	Solubor	(1 lb/100 dilute equivalent)	B
1st Cover	Calcium Chloride	(2 lb/100 dilute equivalent)	Ca
	Epsom Salts	(15 lb/100 dilute equivalent)	Mg
	Zinc Chelate	(1 qt/100 dilute equivalent)	Zn
	Manganese Sulfate	(4 lb/100 dilute equivalent)	Mn
Cover Sprays (2nd)	Epsom Salts	(15 lb/100 dilute equivalent)	Mg
(All)	Calcium Chloride	(2 lb/100 dilute equivalent)	Ca
Post-harvest	Zinc Chelate	(label rate)	Zn

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