Volume 15, 2007

UMassAmherst Outreach UMass Extension

Healthy Fruit

Prepared by the University of Massachusetts Fruit Program

Healthy Fruit, Issue 14, July 31, 2007

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

The way I see it

Early peach harvest has started, and from what I can see, it is going to be a banner year. The hot weather forecast will move things along, so watch ripening and brown rot closely. Disease pressure has been high with the wet and humid weather, so maintain fungicide coverage on apples to prevent summer diseases from getting a foothold. I would also expect apple maggot fly to be active with the moister soil conditions we have had recently. I ran the Blanpied-Silsby model for predicting last date of McIntosh harvest for CA storage based on weather data from Belchertown -- including the full bloom date (May 10) and the average temperature for 30 days after bloom -- and came up with a date of September 20. (That is the last date to harvest fruit destined for CA storage, presumably with a starch-index of about 5-6.) I propose this is ahead of 'average,' and last year the prediction was September 22. The summer has been warm to date too (based on cooling degree days) so I expect apple harvest to start a bit on the early side. Be prepared, and if using ReTain, be sure to make timely applications. J. Clements

Healthy Fruit Disease Elements July 31, 2007

The disease discussion this week is definitely Monday morning quarterbacking for peach problems. Outbreaks of brown rot and bacterial spot gets into a discussion of what should have been done more than what can be done.

Brown rot. Brown rot is a disease that is similar to apple scab, but just enough different that it can lead to confusion. It's similar because it has a primary infection phase and a secondary phase. There should be a focus on the primary phase of brown rot, at bloom. However, and here's the difference, don't forget about brown rot if there isn't any sign of it after peaches set and start to grow. Fungicide sprays on ripening fruit are still critical to good brown rot management.

To understand why, look at where the disease starts. Primary inoculum comes largely from the fungus overwintering as a mummy. It's like invasion of the body snatchers. The mummies may look like dried up, withered peaches either in the tree or on the ground, but they are in fact a mass of fungus.

In the spring, the mummies on the ground push up tiny, mushroom-like growths that release ascospores. These float up, and infect blossoms or young leaves. If the weather is wet, then infections may grow into twigs. Pretty soon, these infections will release conidia, OR some blossom infections may not really show up. These will remain invisible, in developing fruit, until the fruit starts to ripen. Then, out they pop, and start producing thousands of conidia, that can cause new infections on ripening fruit.

Mummies in the trees are a little different. They may not produce apothecia, but they can produce conidia. These will wash down in the spring, causing new blossom infections, and leading to the same thing as primary ascospore infections do. The tree mummies may also just sit there, dripping conidia

onto ripening fruit.

So, unlike apple scab, it may appear that peaches are free of brown rot going into harvest, and then all the sudden it appears. It got there either as latent infections that happened around bloom, or as secondary infections that come from mummies or twig infections in the tree. Those mummy and twig infections may be from the current season, or from the previous year. In either case, they're bad news.

At this point, the best that can be done is to spray an SI fungicide (Indar, Orbit or Elite). Pristine is another option. Captan or sulfur may also be used, but are less effective, but are useful materials along with Pristine to alternate with the SIs for resistance management.

The take home message is not simply to spray fungicides as fruit ripens. That's important, but it's also important to get rid of mummies and old twigs, particularly in the tree, but also on the ground. Green peaches thrown on the ground during thinning aren't an issue, but peaches thrown on the ground during harvest because they have rot have a reasonable chance of becoming mummies.

Bacterial spot. Where do the bacteria that cause this come from? They overwinter in peach trees themselves, either in leaf scars and small cankers that they produced the previous fall, or in terminal buds. Being bacteria, if the weather is right, they can reproduce very quickly leading to leaf and fruit symptoms of bacterial spot. If the leaf symptoms are there, then the bacteria are being spread to fruit.

Again, this is a disease that people may not notice until the fruit start spotting, oozing gum and cracking. And by then it's more difficult to control. Growers need to remember that copper applications in the early season, and perhaps a shot in the fall after just after leaves drop where bacterial spot was bad, will pay off at harvest.

Dave Ritchie of North Carolina State talks about copper and other alternatives on the Southeastern Regional Peach Newsletter site (http://newsletters.caes.uga.edu/SRPN/3-2/SoutheastRegionalPeachNewsletterV3-2.pdf) I won't talk about copper any more here.

That's because the most effective bacterial spot material is oxytetracycline, sold as Mycoshield or Flameout. The preharvest interval on these materials is 3 weeks. They should be used from shucksplit on at 7 to 10 day intervals. Remember that Jon.

In the frozen North, bacterial spot was not that big a problem until about 10 years ago. I'm not sure why it has become a larger problem, but it has. I'd urge all growers putting in new plantings to factor in susceptibility to bacterial spot when planning new peach and nectarine plantings. Like those California varieties, Jon. What were you thinking? D. Cooley

(Editors note: well Dan, you have not tried those sub-acid peaches compared to a traditional peach! It's like the difference between Honeycrisp and McIntosh in apples! J. Clements)

Managing apple harvest with ReTain in 2007

Win Cowgill, Rutgers Cooperative Extension

(Editors note: although written for NJ fruit growers, most applies to Massachusetts conditions. My additional comments in italics. J. Clements)

New Jersey growers focus harvest management strategies for optimum fruit quality. Consumer demand, market, storage requirements and labor availability all influence harvest decisions. One tool that allows for increased flexibility in management decisions is ReTain Plant Growth Regulator from Valent BioSciences.

Now is the time to consider planning for the use of ReTain for early ripening cultivars, the first major one is Gala followed my Macs. Remember to apply at least 3-4 weeks before *(normal)* anticipated harvest.

ReTain is a harvest management tool that slows the maturation process. It is an excellent stop drop material that can delay fruit maturity from 7-10 days and give growers a longer picking window on many cultivars. Retain works by retarding the development of ethylene, the chemical that causes ripening. Retain will increase fruit firmness, decrease watercore and allow for longer cold storage. Retain may also indirectly enhance fruit size and color by allowing the fruit to remain on the tree longer.

Note #1 – Gala strains: the full rate of Retain may delay harvest too much to tap the wholesale window and even the half rate will delay maturity only slightly. Consider using 1/2 rate of ReTain on Gala at 3 weeks before anticipated harvest. *(I would suggest the timing for ReTain application on Gala in Massachusetts is about August 12, based on anticipated harvest during the first full week in September.)*

For some growers it is a tradeoff for the absolute early market vs. the ability with Retain to hang the fruit a bit longer to get color and size. For the PYO market Retain is a wonderful tool on Gala and most other cultivars. At the Rutgers Sndyer Farm we have used Retain for three years at one half rate on Gala cv. Treeco#2 without delaying the maturity excessively and gaining fruit firmness. *(ReTain will also help prevent cracking and greasiness of Gala.)*

Note #2 – McIntosh: For Macs we are recommending going back to the traditional timing for ReTain. Dr. Terence Robinson suggested Hudson Valley growers apply Retain 4 weeks prior to the normal harvest date for McIntosh in 2007 based on research and observations last year. McIntosh is a high ethylene producing variety and as such ReTain does not always give the most consistent results. Our experience in NJ is that ReTain reduces pre-harvest drop on McIntosh from 10-30%. *(There is some disagreement on application timing, as applications 2-3 weeks before anticipated harvest have also been quite effective on McIntosh. In some years the later applications may be better (longer-lived) at holding the fruit on the tree and not delaying color development as much. The danger, however, is once the ethylene train is out of the station, there is no stopping it. Thus, too late applications of ReTain may also not be as effective as desired. It's a bit of a judgment call and gamble. Overall, it's probably best to apply a little early vs. a little late. (Although some may disagree.) So, assuming the start of normal Mac harvest to be sometime during the latter half of the first full week in September to the beginning of the next week, appropriate timing for ReTain application to Macs would be about August 20, give or take.)*

Note #3 – Honeycrisp *are prone to pre-harvest drop, and a ReTain application can be effective at keeping these very valuable fruit on the tree also. Like Gala, Honeycrisp are very responsive to ReTain application, hence a 1/2 rate of ReTain is recommended too. Timing for ReTain application on Honeycrisp would typically be 3 weeks before harvest, or about August 15.*

General Comments on ReTain

The active ingredient is the natural occurring product aminoethoxyvinylglycine (AVG), which is produced by fermentation. The fermentation process required to produce AVG is very difficult and very expensive. Because of this, Retain should only be used in high value blocks with large crops of unblemished fruit.

Fruit treated with ReTain can be picked during the normal harvest period for enhanced retention of firmness in regular cold storage, or harvest may be delayed, allowing the fruit to continue to grow and develop red color for an extended time.

Research also indicates that stem-end split (SES) and internal ring crack (IRC) may be reduced on susceptible varieties, such as Gala and Fuji, with the use of Retain. Although these disorders will not be eliminated with its use, ReTain reduces the stress fluctuations that are thought to cause these disorders.

ReTain must be applied three to five weeks prior to anticipated harvest to be effective, therefore it is essential growers carefully project ripening dates of each individual block where they plan to use ReTain this season.

Note #3: **ReTain is less effective** when applied to drought and heat stressed trees. Keep this in mind when deciding when to treat and which blocks to treat.

Important considerations to follow with Retain applications in New Jersey

- Use the full rate of ReTain (1 pouch or 333 grams/Acre of formulated product) with an organo-silcone surfactant at 0.05% to 0.10 % (v/v).
- ONLY use one of the approved organo-silcone surfactants such as: Silwet L77 at 6.5-13 fluid ounces per 100 gallons, or Sylguard 309 at 6.5-13 fluid ounces per 100 gallons. When high temperatures prevail, the lower rate of surfactant is recommended.
- **Apply 3-4 weeks before anticipated harvest, but has a 7 day PHI.**
- ReTain should be applied with a sufficient amount of water to ensure thorough wetting of the fruit and foliage while avoiding spray run-off. 100 gallons per acre has been shown to be effective. Adjust water volume based on tree size and spacing. Do not apple with alternate row spraying.
- For optimum results apply during periods of slow drying weather conditions. No rainfall or irrigation should occur within six hours of ReTain application. *(Research suggests that as long as the ReTain spray has dried -- usually within 1-2 hours -- and it is applied with the organo-silicone surfactant, then wetting after that should not be an issue.)*
- **Do not apply ReTain to trees under stress. They may not respond to the benefits of ReTain.**
- Do not tank mix ReTain with other agricultural products.
- NAA may be used according to label directions after the use of Retain if very long drop control is desired, or fruit begin to loosen. Be aware that NAA may accelerate fruit maturation.
- The interaction of ethephon (Ethrel) and ReTain is not well understood but research continues

Aquaculture twilight meeting

Farm Pond and Recirculating Systems
Northfield, MA August 9 - 4:30 to 6:30 pm

Last summer, Four Star Farms began construction of three ponds to grow largemouth bass. Last fall, they constructed an indoor recirculating system to attempt early spawning of bass. We will begin our meeting at the pond, to discuss progress and challenges since last year. Then we will move to the barn to view the recirculating system.

Four Star Farms is located on Route 63, south of Northfield Center.
Go North on 63 from the intersection of Route 2 and Route 63 (Millers Falls):
About 2 miles after entering Northfield, look for signs on the left.
Park at the house. It is several hundred yards down to the ponds.
For Information, contact Craig Hollingsworth at 413 545-1055 or
chollingsworth@umext.umass.edu

Jmcextman blog

I have started a blog, http://jmcextman.blogspot.com. It's mean't to be less formal than this Healthy Fruit newsletter, and updated more frequently. I have lots of observations as I go about my daily business, particularly at the UMass Cold Spring Orchard, so jmcextman is an outlet for these. In addition I run across lots of interesting and useful websites related to the topic at hand, so I can point to those, as well as using pictures and embedded (YouTube) video. The blog is archived and searchable, and you can leave comments. You can also subscribe to is using RSS and will be automatically notified when a there is a new post. Check it out and let me know what you think. In the meantime, here are my last two posts.

Japanese beetle and Honeycrisp

Chalk up another Honeycrisp disorder. At the UMass Cold Spring Orchard in Belchertown, MA, I planted an orchard in 2006 with Honeycrisp and McIntosh (cvs. Rogers and Snappy Mac) on three different rootstocks (MM.106, M.26, and B.9) and three tree training systems (NZ central leader, vertical axis, and tall spindle). The point is to demonstrate training systems and collect some yield and economic data. But, although there has been lots of anecdotal evidence that Japanese beetles are particularly attracted to Honeycrisp, I am now able to put some numbers on it. This morning I did a quick look at all trees (150 total, 75 of each cultivar divided across the three rootstocks) and determined that 36% of the Honeycrisp had reached a treatment threshold -- which to me was active beetle feeding -- vs. 0% (that's right, zero) on the McIntosh. Now, if McIntosh were the only choice, would they be on those? I don't know. But clearly Honeycrisp are significantly more attractive to Japanese beetles than McIntosh, requiring some kind of treatment for control. And although the beetles are largely foliar feeders, which is bad enough in itself, they can also damage fruit. And Honeycrisp are just too darn valuable to lose any!

Duck weather

Duck weather and brown rot go hand-in-hand. And we have duck weather. I am seeing a little more brown rot than I would like to see already, and as peaches, plums, and nectarines mature, expect more. There are many fungicide options on the fruit rot phase of brown rot, including the SI's -- Indar, Orbit, Elite, etc. -- and Captan, Topsin-M, sulfur, Pristine, etc. Resistance development to SI's is a real concern, so rotate classes of fungicides whenever possible. SI's rotated with Captan and/or Pristine would be a wise idea. If the weather stays like this, brown rot sprays applied to ripening peaches will have to be applied every 3-5 days in the one to two week window preceding harvest. Good luck.

Briefly, I noticed the latest issues -- including Spring 2007 -- of the New York Fruit Quarterly are on-line. A tremendous resource and every article should be of great interest to you.

And, check out this Zestar! tree -- would make a beautiful tall spindle.

And finally, Earliglo and Garnet Beauty peaches are being harvested in Belchertown at the UMass Cold Spring Orchard and in eastern Massachusetts.

Note: Healthy Fruit is now on a once every two weeks publication schedule. The next HF will be published in approximately 2 weeks.