

Disease Updates for a Very Unusual Season

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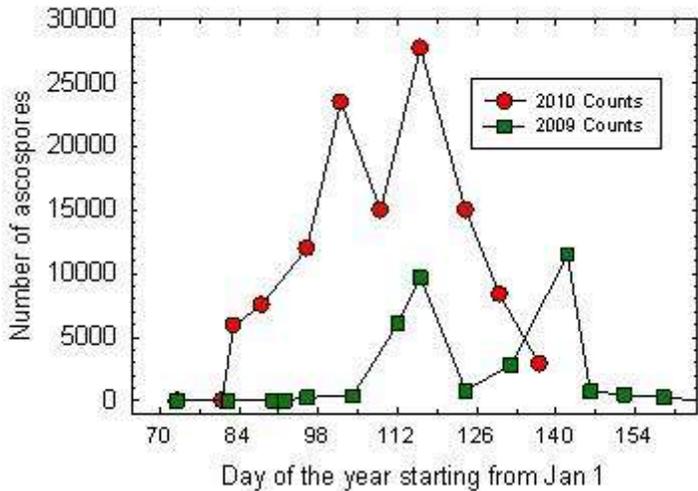
That this is an unusual season is now old news to everyone in the tree fruit industry in the eastern US. A more valid question, perhaps, is how the prevailing weather conditions are shaping disease scenarios in our orchards. Here, we attempt to answer this question by outlining the trends in weather and disease infection patterns based on our observations, experience and disease forecasting models with data from the FREC in Biglerville. We focus on apple scab and provide a few details for other diseases including bacterial spot of peach.

Apple Scab

The figure below is a plot of counts of ascospores, the spores of the scab fungus that initiate primary scab, at FREC over a three month period during the 2009 and 2010 seasons. Two

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observations that relate to scab development can be made from this graph. First, the curve for 2010 is shifted to the left by more than 21 days (three weeks) relative to that for 2009. This indicates that the release of ascospores this year began almost a month earlier than last year. The question that remains to be answered is whether spore release will continue to mid-June, as in normal years, which would make 2010 the longest primary scab season in recent history. Note that although the recent counts have dropped from their peaks of nearly 30,000, the last count this week at 3000 spores far exceeds our threshold of 500.

The other feature to be noted about this year's spore counts is the relatively much higher numbers. The peak count of 28,000 ascospores is three times as high as the long-term average peak of about 11,000 spores. Although these numbers are relative and we should be careful before placing undue emphasis on their meaning, the high numbers caught this year suggest that the scab fungus survived very well in the

Disease Updates, continued on page 2

Growing Season Models and Alerts:
<http://frec.cas.psu.edu>

winter. As you may recall from my presentations at our winter schools, the scab fungus overwinters on leaf debris on the orchard floor. It is likely that the snow cover protected leaves from degradation from the action of other micro-organisms. Another explanation for these relatively high numbers is that we concluded last fall with higher levels of leaf infections so we are starting off with a large number of lesions on leaves that are used to monitor spore release. Regardless of the actual explanation, the implication to the orchardist is that the inoculum pressure for primary scab is higher this year than in recent history.

The table below shows the number of severe scab infection periods during the months of April and May for the last three years based on three predictors. Based on the average of the three forecasting models, there were approximately 20 severe scab infection periods between April 1 and May 31 in both 2008 and 2009. Although the records are not complete for 2010, it appears that fewer severe infection periods will be realized this season. This is most likely because temperatures in April and May this year were generally low, thereby failing to meet the thresholds for severe infection in many of the days with sufficient wetness hours. Taken together, these observations suggest that primary scab pressure has probably been lower this year than in the last two years despite the high inoculum pressure. Indeed, we are only seeing modest levels of infection in our nontreated experiment plots so far. Whether more

Number of severe infection periods in April and May of each year from 2008 for Biglerville, PA			
Predictor	Year		
	2008	2009	2010*
Mills Tables	12	21	9
SkyBit	25	29	16
Spectrum Technologies	---	11	1
Average	19	20	9

*Values for 2010 are for the period up to May 20

severe disease will develop in the coming days as temperatures warm up is keenly being watched.

FYI—we have nearly completed analyzing isolates of the scab fungus collected from PA orchards for resistance to the SI fungicides. The outcome is not looking good especially for products such as Rally that have been in use for a longer time. Since the information from the survey is confidential, we encourage growers whose orchards were surveyed to contact Dr. Henry Ngugi at FREC, if they have not already been contacted, in order to discuss the results from their specific orchards.

Powdery Mildew

This has been a very high pressure season for powdery mildew so far. The major concern we have about this disease, however, is that there appears to be a reduced efficacy of the SI fungicides that we have come to rely on as the big guns for control of powdery mildew. The late season rains last year which resulted in late summer growth on trees appear to have worsened the situation by allowing for more overwintering inoculum. Whatever we think about the severe snow storms early in the year, the temperatures were often not low long enough to have had an effect on the overwinter survival of the powdery mildew fungus. We are observing a higher than normal incidence of primary powdery mildew infection even in plots receiving fungicide treatments. Perhaps the only consolation is that two new fungicides at an advanced stage of testing are showing a lot of promise in our field trials and we expect they will be available for use in PA in 2011. One of them is based on the SI active ingredient while the other is a new chemistry. Stay tuned!



Apple shoot on right has powdery mildew. Yoder, 1995, KTFREC Plant Disease Fact Sheet.

Fire Blight

The risk of blossom infection is now over except for new plantings on precocious rootstocks. In terms of disease pressure, this has been a moderate year so far. Although we have experienced numerous wetting periods when blossoms were open, and we have had protracted bloom in some of the cultivars, temperatures have generally been lower than optimal for infection. There were a few scares, for example, during some storm events when we felt we had to issue emergency spray advisories. Nevertheless, given the protracted bloom that we have witnessed, the situation could have been much worse had temperatures on average been 5 to 10°F degrees higher. Growers with new plantings (trees planted this year) on dwarfing rootstock are encouraged to either strip the blossoms or provide antibiotic or copper sprays as necessary till all blossoms are gone. In the event that you see fire blight on shoots, the recommendations on how to deal with the outbreaks that I issued in 2008 have not changed <http://fruittimes.cas.psu.edu/FT2704.pdf>. The one minor revision is that there is sufficient evidence now that indicates that sterilizing cutting tools between cuts is not as beneficial as originally thought. Rather, it appears that

time is best used removing more infected tissue. Clearly, cutting infected tissues on dry days and sterilizing where obvious ooze is present in the tissue is still recommended.

Recently, we have fielded questions about the use of Apogee for fire blight control. Please refer to my recent disease update (in April *Fruit Times*) and to the label for details on the rates. That said, the important things to note are: (i) used appropriately, Apogee is an effective tool for management of fire blight especially on shoots; (ii) Apogee is most effective on younger than on older shoots; that is, you get more response from rapidly growing shoots than those in the terminal phase of growth; (iii) it will take 10 to 14 days for the response to kick in. The mechanisms of action are being investigated but I can confirm they go beyond the mere slowing-down of shoot growth.

Bacterial Spot

The pressure so far has been low to moderate. Again, the key factor affecting the bacterial spot scenario this season is **temperature**. Generally, temperatures between 70 to 85°F in wet cloudy days are ideal for infection and bacterial spot development, and we have not had many days meeting these optimum conditions this year. This situation is likely to change from now on, and leaves and fruit are still in a highly susceptible stage of development. Applications of oxytetracycline products remain essential, at least for the next three weeks (till mid-June). Rotations with low rates of labeled copper products such as Kocide 3000 are good for resistance management and our research suggests that copper products provide at least as good if not better fruit protection. However, there is a need to be careful with the rates of copper as damage can occur even at the rates of 0.5 lb/A of Kocide 3000 as labeled. Specifically, avoid copper applications if rapid drying of the spray solution is not guaranteed.



Rusty Spot

Given the very severe pressure of powdery mildew on apples, we should anticipate a problem with rusty spot especially on highly susceptible peach cultivars. All things being equal, the closer the peach plantings are to apple powdery mildew hot-spots, the higher the rusty spot pressure on peach. A strong powdery mildew program on peach that combines a full rate of an SI fungicide with a protectant such as captan will be necessary.

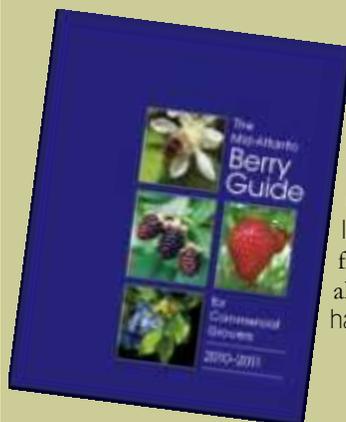
Cherry Leaf Spot

As of today, we have not seen any symptoms of cherry leaf spot in our orchard that had severe disease last year, or in a grower orchard neighboring the FREC. This leads me to believe that the risk of cherry leaf spot infection is low this year. If crop set in your orchard is as poor as in mine, please scout for disease symptoms before making sprays that may not be economically justifiable. Research from my program indicates that the goal of cherry leaf spot spray programs in our region is to delay onset of tree defoliation from cherry leaf spot to late August or early September. Note, however, that the effectiveness of post infection sprays for diseases with multiple cycles within a season such as cherry leaf spot relies critically on how soon they are detected. This implies the need for regular scouting, which should focus on leaves in the lower parts of the tree canopy to increase the chance of early detection.

In summary, the relatively low temperatures have probably resulted in a better disease scenario than would otherwise have been the case given other weather and biological factors that drive disease epidemics in this early part of the season. We should therefore seize this opportunity to take control and stay on top of things in terms of disease management programs for the remainder of the cropping season.

Berry Crop Protection Label Changes

Kathy Demchak, Penn State Department of Horticulture



The 2010 Mid-Atlantic Berry Guide for Commercial Growers contains a number of pesticide label changes, including recommendations for the herbicide Prowl H₂O on strawberries, Chateau (flumioxazin) on blueberries and Callisto (mesotrione) prior to bloom on blueberries. Omega (fluzinam), tano (famoxadone + cymoxanil), Rally and Evito 480 (fluoxastrobin) fungicides; Assail (acetamiprid), Brigade (bifenthrin), Intrepid (methoxyfenozide) and Avaunt (indoxacarb) insecticides and Acramite (bifenazate) miticide also have newly registered uses. The commercial berry guide can be accessed online at <http://pubs.cas.psu.edu/freepubs/MABerryGuide.htm> or through many county Extension offices for \$20. Quoting Extension Educator Scott Guiser, “At 275 pages, it’s a bargain!” The guide can also be ordered from Penn State’s Ag Publications office at 814-865-6713. There is a \$5 shipping and handling fee that applies to your entire order.

Take Time to Check Orchard Blocks for Internal Fruit Damage from Freezing Temperatures that Occurred after Fruit Set

Dr. Rob Crassweller, Penn State Department of Horticulture

Last week we were out in the western end of Pennsylvania for twilight meetings. At orchards around the Pittsburgh area we saw some extensive frost/freeze damage (see images). This is the most unusual injury I have ever seen. Normally when I have seen frost damage it occurs when the center pistil area is dead as indicated by blackened tissue or the seeds may be damaged and brown colored. In the damage we saw last week it was actually the cortex of the developing fruit that was injured with generally green pistils and healthy seeds. My expectation would be that fruit showing the damages in the images would likely drop in the next few weeks. We also saw frost damage that will likely lead to scarring and russetting. You may also see “pumpkin-shaped” fruit where growth continues (see image from 2002). This occurs from damage to either the sepals or to the vascular bundles in the outer edge of the cortex. Fortunately, I do not think the frost/freeze damage is too widespread although some educators indicated they had some in the northeastern section of Pennsylvania and on some high ground in Adams County. The damage most likely occurred on the morning of May 17 but some growers also indicated damage back in April. The early bloom (as much as 3 weeks earlier than normal) has resulted in the potential for the observed damage. Growers would be advised to check their blocks to ensure the damage is not present in other areas. The orchards at Rock Springs seem to have avoided any of the frost damage as well as golf ball size hail that hit about 4 miles east.



2010 freeze damage to apples.



2010 green centers with cortex damage.



Frost crevices from early damage in 2002.



2010 cross section of damage.

Spray Pattern Testing

The “Cornell Patterator,” designed by Dr. Andrew Landers of Cornell University, is a device used to calibrate spray patterns of airblast orchard sprayers. Differences between what a grower wants the nozzles to spray and the pattern that is actually applied to the tree may lead to inadequate coverage or off target spray. The Patterator can help a grower prevent waste of spray materials, decrease spray drift, and ensure proper spray application and coverage.



Any grower interested in using this Patterator to calibrate their sprayers should contact Penn State Extension Intern Russell Rohrbaugh: rlr5158@psu.edu or 717-334-6271, ext. 329.



INSECT BYTES

Drs. Greg Krawczyk and Larry Hull, Penn State FREC Entomologists

First Generation Codling Moth

At the Fruit Research and Extension Center (FREC) in Biglerville, PA biofix for codling moth (CM) occurred on April 30 (during the 2009 season it was May 09). The first recommended application of larvicidal insecticides to control this pest (at 250 DD base 50°) in most orchards occurred over the weekend of May 22-23. The recommended, broad-spectrum larvicidal insecticides to control CM include Altacor, Assail, Avaunt, Belt, Calypso, Delegate, Guthion, Imidan, Tourismo and Voliam Flexi. A second application, depending on pest pressure, is usually needed around 550 DD (base 50) or 14 to 17 days after the first application. Please refer to the article published in the April issue of *Fruit Times* for detailed information and recommendations related to the various options for controlling CM during the 2010 season (<http://fruittimes.cas.psu.edu/FT2904.pdf>).

It is very important to monitor the CM population in every orchard using pheromone traps. During the last few years we observed an unusually extended flight of this pest species, sometimes lasting until the end of June. If you continue to catch significant numbers of CM adults in orchards during the mid- to latter part of June and you have already made two applications for CM, a third insecticide application may be needed during this period.

First Brood Tufted Apple Bud Moth and Obliquebanded Leafroller

The biofix for the first brood tufted apple bud moth (TABM) at the Penn State FREC in Biglerville orchards was established on May 02, while the biofix for obliquebanded leafroller (OBLR) is not yet established (as of May 21). In the majority of PA orchards where leafrollers are present, TABM is the dominant leafroller species responsible for most fruit injury. If Altacor, Belt, Delegate, Tourismo, Voliam Flexi, Intrepid or Rimon are to be used for TABM control, 1 to 2 complete, precisely timed applications of those products per brood are recommended. Use of Altacor, Belt, Delegate, Tourismo and Voliam Flexi by mid-June or later (i.e., second CM control timing) should provide excellent control of both leafroller species. If applying two complete sprays dedicated against TABM, the first application should be applied at about 10 to 30 percent egg hatch (500-600 DD base 45°) followed by a second application (if necessary) at about 60 to 70 percent egg hatch (800-850 DD). The low rate of Intrepid (8-10 oz/acre) should provide excellent control of TABM larvae but this low rate of Intrepid will not control CM or OFM. If applying only one complete application of the above mentioned compounds against TABM, this spray can be made at 30 to 40 percent egg hatch (640-695 DD).



Obliquebanded leafroller.

Insecticides that are effective against TABM should also provide good control of OBLR larvae, but at least one additional application of an effective insecticide may be necessary to control this pest in orchards with a history of OBLR infestation. Phenologically, the most effective timing for controlling OBLR larvae usually occurs about the timing for the second applications of insecticides for TABM, followed by an additional application 10 to 12 days later. Two sprays are usually needed for high populations of OBLR. Since young OBLR larvae prefer to feed inside growing terminals, the insecticide coverage of fresh growth plays a critical role in the control of OBLR larvae. Only complete sprays are recommended against this pest. The better the coverage, the better the level of larval control that will be achieved. The insecticides recommended for the control of OBLR during this time of season include Altacor, *Bacillus thuringiensis* products, Belt, Delegate, Intrepid, Tourismo, Voliam Flexi or Rimon.

Monitoring for San Jose Scale Emergence

Historically, San Jose Scale (SJS) crawlers emerge in the southern part of the state at the end of May or the first couple of weeks in June. In order to determine the exact time of crawler emergence for your orchards, black electrical tape coated with petroleum jelly can be placed in the trees near an infestation of scale and observed at least twice a week. The crawler stages are very susceptible to insecticides during the growing season. Two insecticides, Esteem and Centaur, are specifically registered for the control of this pest. Apply the first spray when crawlers are found and a second application about 7 to 10 days later when peak emergence is occurring. Coverage and control are better achieved if higher volumes of water are used, especially in the top part of large trees. Centaur-treated crawlers may remain alive on the plant for 3 to 7 days but the feeding damage during this time is typically very low. Centaur may be applied only once per growing season on apples while no more than twice on pears and peaches.

Second Generation Pear Psylla Control

A critical time to control the second generation of pear psylla is during the first week of hatch of the young nymphs; a repeat application should be made 12 to 14 days later. We expect egg hatch of this second generation to begin around May 21-24. An action threshold of 1 nymph per leaf is recommended. If chemical control is required, Provado 1.6F (16 fl oz per acre), Actara 25WP (4.5-5.5 oz/acre), Assail 30SG (5-8 oz plus a quart of summer oil) or Calypso 4F (4.0-8.0 oz) are very effective. Nexter 75WP (at 8.8 oz per acre) or Portal (at 32 fl oz/acre) should also provide good to excellent control of pear psylla and excellent control of European red mites. A good coverage of Surround also could help to control pear psylla although the product residues on fruit may create potential marketing issues.

If Centaur is used for SJS control on pears, it will provide excellent control of pear psylla. Sucker growth on the inside of the tree should be removed at this time to aid in the reduction of psylla populations. Please remember to read the pesticide label before any pesticide application.

Adult Potato Leafhoppers

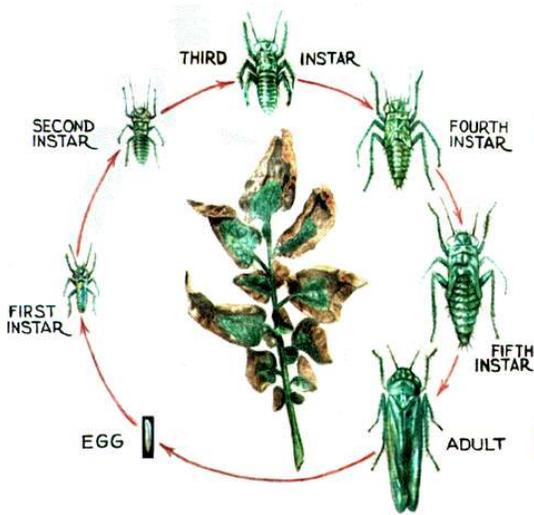
During last week orchard observations (week of May 17), we noted the first adults of potato leafhoppers present in Biglerville, PA area orchards. Below is an article from the latest issue of the Cornell University fruit newsletter related to this pest.



Top: Electrical tape coated with petroleum jelly to monitor crawlers. Bottom: SJS damage on apple. Hogmire, 1995.

At the Front, by Dr. Art Agnello, Cornell University, Geneva, NY. (Reprint from the Scaffolds Fruit Journal Vol. 19, No.9, 2010. May 17, 2010)

Potato leafhopper (PLH) does not overwinter in the Northeast but instead migrates on thermals (warm air masses) from the south. Because PLH comes in constantly during the season, there are no distinct broods or generations and the pest may be present continuously in orchards from June through harvest.



<http://www.life.illinois.edu/entomology/illustrations/gifs/leafhopper.gif>

PLH feeds on tender young terminal leaves. Initially, injured leaves turn yellow around the edges, then become chlorotic and deformed (cupping upward) and later turn brown or scorched. Damage is caused by a toxin injected by PLH while feeding. PLH also occasionally causes symptoms similar to the effects of growth regulators, such as excessive branching preceding or beyond the point of extensive feeding. PLH damage is often mistaken for injury caused by herbicides, nutrient deficiency or over-fertilization. PLH injury may not be serious on mature trees but can severely stunt the growth of young trees. Nymphs and adults should be counted on 50 to 100 randomly selected terminal leaves in an orchard. Older trees should be sampled approximately every three weeks during the summer. Young trees should be sampled weekly through July. PLH nymphs are often described as moving sideways like crabs, whereas WALH generally move forward and back. No formal studies have been conducted in NY to determine the economic injury level for PLH on apples, so we suggest a tentative threshold of an average of one PLH (nymph or adult) per leaf. Little is known about the natural enemies of PLH, but it is assumed that they cannot effectively prevent damage by this pest in commercial NY orchards.

Damage by this migratory pest is usually worse when it shows up early. PLH can cause significant damage to newly planted trees that are not yet established. When PLH, white apple leafhopper (WALH), rose leafhopper (RLH) and aphids are present, control measures are often warranted. Field trials were conducted during 2000 in the Hudson Valley to evaluate reduced rates of Provado against all three species

of leafhoppers. Provado was applied in combinations at a full rate (2 oz/100 gal) and a quarter rate (0.5 oz/100 gal), at varying intervals (3rd to 5th cover). Nymphs of PLH, WALH and RLH were sampled and leaf damage by PLH was monitored.

Because of Provado's translaminar activity, all rates and schedules produced excellent control of WALH/RLH nymphs (however, reduced rates will not control leafminer). Against PLH nymphs, the number of applications was shown to be more important than rate (i.e., better protection of new foliage). Considering the percentage of leaves with PLH damage, the number of applications again appeared to be more important than application rate. We also know that Provado is an excellent aphicide, and the same principle would hold as for PLH — maintaining coverage of new growth is more important than rate. Moreover, reduced rates are likely to increase the survival of cecidomyiid and syrphid predators that are common and effective biological control agents. Other management options include Actara, Agri-Mek, Assail, Avaunt, Calypso, Centaur, Lannate, Leverage, Sevin, Thionex, Vydate or any of the pyrethroids.

Insect Pest Seasonalities

2010 season weekly capture of adult moths in pheromone traps located at Penn State FREC, Biglerville, PA (Adams County):

Species	4/01	4/08	4/15	4/22	4/29	5/06	5/13	5/20
RBLR	38	59	28	8	1	1	0	0
STLM	1	577	449	86	14	10	0	2
OFM	0	44	83	62	87	24	4	4
CM	-	-	-	1	1	50	18	33
TABM	-	-	-	0	0	14	18	20
LPTB	-	-	-	0	0	6	1	0
OBLR	-	-	-	-	-	-	0	0
DWB	-	-	-	-	-	-	2	5
PTB	-	-	-	-	-	-	-	0

Key to acronyms: RBLR - redbanded leafroller; STLM - spotted tentiform leafminer; OFM - Oriental fruit moth; CM – codling moth; TABM – tufted apple bud moth; OBLR – oblique-banded leafroller; LPTB – lesser peach tree borer; DWB – dogwood borer; PTB – peach tree borer.



Potato leafhopper damage on young apple tree. MSU IPM Fact Sheet. apple tree.

Temperature Measurement and Frost/Freeze Damage on Berry Crops

Kathy “Still-Learning” Demchak, Penn State Department of Horticulture



What was it someone told me the other day? Oh yeah. Maybe it was in response to my daily mutterings that the older I get, the less I know. The comment went something like “Yep, once you have a degree, all you *really* can be sure of is that you have a degree.” Well, I’m still learning about frost protection, among other things.

Those low temperatures the morning of May 10 resulted in damage to various berry crops, mostly in colder areas of the state, and this time things were a little different. The need to protect strawberry blossoms from cold temperatures is not unusual, but the fact that plant growth was 2 to 3 weeks ahead of schedule, coupled with really cold low temperatures, was a perfect setup for causing problems.

Even though many of us thought we had done a sufficient job of frost protecting, we had damage anyway. Why might this have been? In at least a couple of instances, I think there probably was some damage from evaporative cooling when the irrigation was started. At Rock Springs, the dew point was about 24° (lower than we usually expect for this time of year). With a dew point that low, assuming a critical temperature of 30°, the recommended temperature at which to start irrigating would have been 37°. Not many of us start irrigation at temperatures that high. The temperature also dropped like a rock, so until the irrigation was fully running and the foliage was completely wetted, the temperatures could have dropped another couple of degrees. Finally, it’s possible that the actual blossom temperature was colder than growers thought. Most of us still just use a good old fashioned thermometer for temperature measurements. If you use a min-max thermometer, the bulb is at the top of the thermometer, and that is probably good, as the bulb is exposed if the thermometer is placed vertically in the field at strawberry level. If you are using a typical porch thermometer, the bulb is at the bottom, and if it’s placed vertically in your strawberry foliage (which is good, but...), the bulb could be nestled in a nice bed of straw or could be protected by the strawberry foliage itself. So, you might want to consider placing your thermometer in such a way so that the bulb is located at the same height as the strawberry blossoms, and is as exposed as possible.

There can be quite a difference in readings between different thermometers, and it appears that the readings can change a bit over time. I had checked ours in a crushed ice and water slurry 2 years ago. It turns out that checking them every few years isn’t good enough. One of my min-max thermometers was reading 3° too warm, and the other one was reading 2° too cold. They would have averaged out to about right, but I didn’t want an average reading – I wanted a reading that I could trust.

Someone asked me what the critical temperature was for pea-sized blueberries. I didn’t know (and still don’t), but observationally, it seems that pea-sized or larger green blueberry fruit may be more sensitive to freeze damage than smaller green fruit. If you noticed your previously-fine blueberries shriveling up as they were thawing out, there might have been a temperature problem.

Also, I generally tell folks that they don’t need to worry about frost-protecting raspberries, since they don’t bloom until after the last frost. Wrong again. Frost-damaged raspberry blossoms look just like frost-damaged strawberry blossoms. Nice and black in the center. Just thought you might want to know... I can’t find any information on what the critical temperature is for raspberry blossoms, but I’d go with 32° just to be safe.

continued from page 6, Insect Bytes

Degree-Day Table

Accumulated degree-days base 43°F from Jan 01 for each reported year (courtesy of SkyBit, Inc.). The accumulated degree-days for the last date of the current year (May 27) mentioned in the table are based on the weather forecast.

Site/Date	4/21	4/28	5/05	5/12	5/19	5/27
Biglerville, 2010	486	550	707	791	907	1111
Biglerville, 2009	305	439	543	664	781	971
Biglerville, 2008	355	472	552	652	746	866
Biglerville, 2007	290	396	510	645	758	942
Biglerville, 2006	447	514	625	725	823	958
Biglerville, 2005	343	400	477	569	678	791
Rock Spring, 2010	408	462	596	656	752	933
Rock Spring, 2009	226	345	427	520	616	786
Rock Spring, 2008	240	352	421	504	573	664
Rock Spring, 2007	218	301	398	528	619	788
Rock Spring, 2006	342	398	504	590	663	767
Rock Spring, 2005	264	301	351	438	523	621



Orchard Meetings and Tours



Thurs, June 3, 3:30 to 5:30 pm—Tri-State Grower Meeting at Allenberg Orchards (23319 Barth Spring Lane, Smithsburg, MD)

Orchard tour featuring low profile quad V peaches, diversified production for metropolitan farm markets, Apogee for fire blight control

Current Disease Situation and a Look Ahead
Dr. Alan Biggs, WV Univ

Orchard Monitoring and Insect Pest Management
Dr. Greg Krawczyk, Penn State

The Latest on Strawberry Cultivars
Dr. Joe Fiola, Univ MD

Horticultural Best Management Practices
Dr. Rob Crassweller, Penn State

Wed, June 23, 1:15 pm - 3:15 pm, Institutions Buying Local Workshop (Harrisburg Area Community College, Gettysburg)

To register, call 717-337-4137

Thurs, July 8, Maryland State Horticultural Society Summer Tour, 9:30 am - 3:30 pm

Contact: Susan Barnes, 301-432-2767, sbarnes6@umd.edu

Tours of Strite's Orchard, Brown's Orchard and Farm Market, and Flinchbaugh's Orchard in Southeastern Pennsylvania
(Bus will pick up growers in Thurmont, MD and Gettysburg, PA)

July 28-30, International Fruit Tree Association New York Study Tour 2010, Geneva, NY

For more information, please visit: www.ifruittree.org or call (636) 449-5083

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