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UNIVERSITY OF KENTUCKY
College of Agriculture, Food and Environment

Kentucky Fruit Facts

June 2013/ (6/2013)

Fruit Facts can be found on the web at: http://www.uky.edu/hort/documents-list-fruit-facts

John Strang, Extension Fruit Specialist, Editor
Karen Shahan, Administrative Assistant

Fruit Crop News

By John Strang, U.K. Extension Horticulturist

Over all this season is looking very good as far as fruit and nut crops are concerned. Freezing temperature occurred in a few areas across the state on the mornings of April 20 and 25th. At our Lexington Horticultural Research Farm I initially thought that our only injury was to a plasticulture strawberry plot that wasn't covered, however it seems that our dwarf sour cherries, a relatively new bush cherry type developed in Canada and Rabbiteye blueberries suffered serious losses. In fact our Rabbiteye blueberry varieties had almost a complete crop loss, while highbush blueberries have a full crop. The strawberry crop was somewhat variable across the state. Some plasticulture growers had excellent yields, while others are just happy that the season is over. Matted row growers generally had heavy crops. The season seems late in contrast to the last several years, but floral development times were surprisingly close to normal. Figure 1, prepared by Matt Dixon in the UK Ag Weather Center shows growing degree day (GDD) accumulations for the years 2010 through 2013

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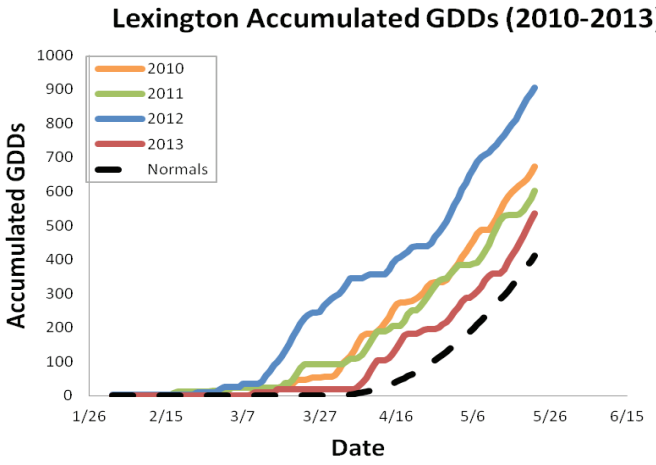

Figure 1. Growing Degree Day accumulations for Lexington, base 50° F.

as well as our normal accumulation. Many growers found that strawberry harvest was about five weeks later than in 2012. For some plasticulture strawberry growers fruit harvest occurred mostly after schools let out presenting marketing problems for those that were selling through the farm-to-school program.

This was a particularly difficult apple thinning year because of very heavy fruit set, frequent rain events and temperatures below 65°F where chemical thinners were ineffective early in the thinning period. Growers that applied thinners early were not sure if they has achieved thinning and most made a second thinning application hoping to take more fruit off, but were worried that they might severely over thin. Fortunately most growers that I have talked with are pleased with their thinning efforts and over thinning occurred on very few varieties.

The Plant Diagnostic lab has seen several more samples of plum curculio damage on cherries than in a typical season. Please note Ric Bession's article on this.

Upcoming Meetings

Jun. 27 UKREC Horticultural Field Day: Ornamentals and Fruit Program, UKREC, 1205 Hopkinsville Street Princeton, KY 42445. Tour starts at 9:00 a.m. CDT at the Center Building. The Ornamentals Tour includes the newly established trial gardens and ornamentals research with Dewayne Ingram, Sarah Vanek, Carey Grable and Win Dunwell presenting and on site for questions. On the Orchard Tour Nicole Ward and Ricardo Bessin will present information on controlling orchard and vineyard fruit disease and insect problems. John Strang will discuss tree and small fruit varieties, and Patsy Wilson will talk about vineyard management. Contact Winston Dunwell, 270.365.7541 x 209, wdunwell@uky.edu

Jul. 9 Apple Budding Demonstration, Bell County Extension Office, 101 Courthouse Square, Pineville, KY 40977. 10:00 a.m. Contact Stacy White 606-337-2376

Jul. 11 Growing Nut Trees, Whippoorwill Festival, 500 Floyd Branch Rd., Berea, KY. 3:00-5:00 p.m. $20 pre-festival registration. The Festival runs from July11-14 and covers many other topics. Questions contact Dave Cooper davecooper928@yahoo.com phone: 941-323-40565; website: The Whippoorwill Festival - Skills for Earth-Friendly Living

Jul. 19-20 Field to Fork Festival, Halcomb's Knobb Farm, 430 Wallacetown Rd., Paint Lick, KY 40461, Everything You Always Wanted to Know about Berries, Farmhouse Classroom, July 19, 10:00-12:30 a.m.; Basic Fruit Tree Care Workshop, Farmhouse Classroom, July 19, 1:30-4:00 p.m.; Grape Growers, General Store, July 20 9:00-10:00 a.m.; Apple Diseases: A Common Sense Approach to Disease Management, General Store, July 20, 1:00-3:00 p.m.; Pawpaws & Persimmons, Barn Classroom B, July 20, 2:30-4:00 p.m. See the website for registration information and sessions costs http://www.fieldtoforkfestival.com Contact 859-925-9936.

Jul. 29 Home Fruit Tree Production and Spraying, Robertson County Field Day, Kevin and Susan McGee Farm, 1:30 - 3:30 p.m. Contact Shelby Clifford 606-724-5796.

Jan. 6-7, 2014 Kentucky Fruit and Vegetable Conference and Trade Show, Embassy Suites Hotel, Lexington, KY. Contact John Strang 859-257-5685; email: jstrang@uky.edu

Update on Spotted Wing Drosophila

Dr. Ric Bessin and Patty Lucas, UK Extension Entomologist and Entomologist

Patty and I have been working with county agents and producers of small fruit crops in strategic locations across Kentucky to trap for spotted wing drosophila (SWD). In these locations we have been using apple cider-baited traps that have been placed in fields of small fruits as the initial fruits begin to turn color and soften. The good news is that with each of the locations, with the exception of one, we have captured a number of drosophila fruit flies but no spotted wing drosophila. In these early summer locations we have been trapping in strawberries and blueberries. As the summer progresses we will trap in other small fruit crops as they progress toward harvest. So far, this is very good news for our small fruit producers.

Figure 2. A spotted wing drosophila male on a sticky card.

In one location Patty Lucas did find one female fruit fly that is a SWD suspect. That suspect was from Warren County and at the same farm where we did confirm SWD last year. This week I will look at the suspect to see if it is our first SWD of the year.

While searching a cherry tree in Fayette County for SWD damage this spring, I came across a large number of brown lesions on the fruit and found brown marmorated stink bugs on the foliage. The damage was consistent with BMSB.

Some Principles of Fungicide Resistance I: The Basics of Resistance Development

By Paul Vincelli, U.K. Extension Plant Pathologist

Fungicides are important tools in modern crop production. Unfortunately, one of the risks of using these products is that fungi sometimes develop resistance to them. Resistance development is a concern because the products may become less effective—or even useless—for controlling resistant pathogens and pests. This is a concern for all pesticides, including fungicides, insecticides, and herbicides. This is the first in a series of short articles intended to help understand this process better.

The basic process of resistance development is illustrated in Figures 3-5, as follows:
Figure 3: Resistance can only develop in spore populations where there is the genetic potential to resist the disease (represented by the filled circles in the figures). Normally, resistant spores occur at extremely low numbers: one in a million to one in a billion. But that is all it takes to start the process.
Figure 4: When a fungicide spray is applied, many of the fungal spores are killed. This is the objective of using a fungicide, of course. However, resistant spores can survive the treatment. Note that some of the sensitive spores also survived, because they "escaped" the fungicide treatment. This means that they were lucky enough to be in a microsite that was not treated with fungicide. (This can result from incomplete spray coverage, for example.)
Figure 5: If environmental conditions favor continued disease activity, the surviving spores grow and produce a new crop of spores. Note that this new crop of spores has a higher percentage of resistant spores, because the resistant spores preferentially survived the fungicide treatment (Figures 3-5).

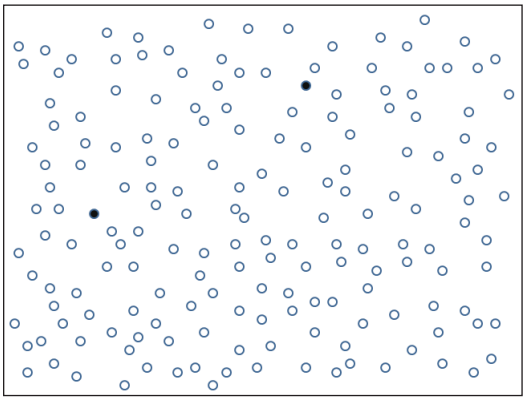

Figure 3. Population of spores before fungicide use. Most spores are sensitive (open circles), but sometimes a very low number are genetically resistant to the fungicide (filled circles).

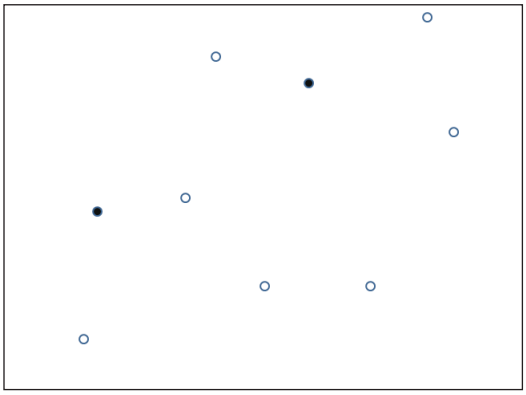

Figure 4. This illustrates the result of a fungicide application. The number of surviving spores is greatly reduced. Note that the resistant spores survived the treatment. Also, some sensitive spores (open circles) escaped the treatment.

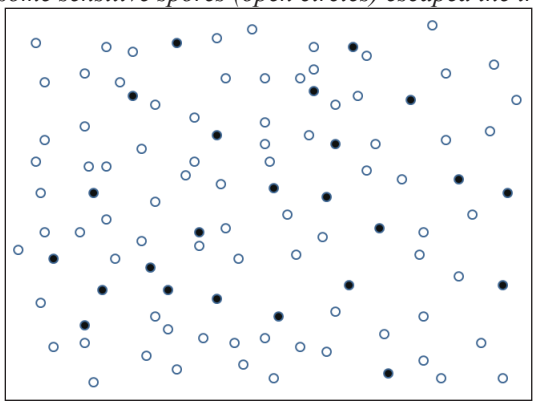

Figure 5. If environmental conditions favor a new cycle of disease activity, the next generation of spores will have a higher percentage of resistant spores. Continued use of the fungicide selects for these resistant spores.

In a nutshell, the development of resistance is a form of evolution, and it happens if two conditions are in place:
Genetic variability: The fungus has spores with the genes necessary to resist the toxin.
Selection: The toxin is used repeatedly.

The first of these conditions—the genetic potential—is out of human control (for the most part). The mutant either exists in the field or does not. The second condition—selection—is what happens when we apply the at-risk fungicide. (The phrase "at-risk fungicide" means that the fungicide has a moderate to high risk of resistance development.) Our use of the fungicide selects for those spores that can survive the presence of the toxin. That condition is clearly under human control. It is a natural outcome of the use of at-risk fungicides.

Cherry Fruit Fly

Dr. Ric Bessin, UK Extension Entomologist

There have been a number of reports of cherry fruit fly this summer as people begin to harvest cherries from their backyard trees. Some of the fruit that was sent to me revealed plum curculio larvae rather than cherry fruit fly. We do have both of these pests that need to be managed on sour and sweet cherries in Kentucky, but how we manage them can be different.

It is helpful to distinguish between plum curculio and cherry fruit fly in order to better manage them in subsequent years. Cherry fruit fly is a maggot without a distinct head capsule and without legs. Some people refer to this as a 'headless' larva which isn't correct, it is just that the head is not easy to distinguish from the rest of the body. The fruit fly larva has a whitish body that tapers toward the head. The plum curculio larva is also legless, but has a distinct brown head capsule. The body is widest in the middle tapering at both ends.

Plum curculio females lays their eggs singly after shuck fall and creates a crescent wound and lays an egg in the flap. This egg laying wound results in a small visible scar at harvest. (Fig. 6) Plum curculio sprays are usually most effective at shuck fall and the following two cover-spray periods. Cherry fruit fly sprays begin about 10 days after the shuck fall stage with the first cover spray and are reapplied at 10 day intervals. For homeowners, Sevin can be a good spray for cherry fruit fly.

Figure 6. Plum curculio egg laying scar.

Figure 7. Plum curculio larva in fruit. Note the dark colored head which distinguishes this pest from the cherry fruit fly.

Backyard Bug-Zappers: Don't Expect Much Help

By Lee Townsend, U.K. Extension Entomologist

Insect electrocuters provide some impressive crackles, flashes, and sizzles on summer nights but apparently little pest control around the home landscape. Homeowners expect to rid the area of mosquitos, and perhaps a variety of other pests, by using these devices. Research has generally shown little positive effect. A study from Delaware investigated the "catch" from electrocuters placed around some homes near potential mosquito breeding sites during June and July. Of the 13,000+ insects eliminated by the electric grids, only 0.2% (31 specimens) were biting flies. On the other hand, more than 1,800 beneficials- including predators and parasites- were dispatched (about 13% of the catch). Not much return on the investment -- actually a loss, considering that more than 45% were aquatic insects that were at least, harmless and at best, important fish food.

Several factors contribute to this performance. For example, UV lamps that give off a lot of visible light are less attractive to mosquitoes and other night-biting flies than those that give off only UV light. That is, the more visible the light to us, the poorer it is in luring biting flies. Also, many species of mosquitoes are not attracted by black lights at all. For species that do respond to UV, only a portion will actually make it to the charged grids.

Fungicide Recommendations for Home Orchards

By Nicole Ward Gauthier, U.K. Extension Plant Pathologist

Home orchards and backyard fruit plantings often operate on simplified, reduced spray schedules. Following are fungicide recommendations suitable for these situations. For more information or for specific product listings , refer to fact sheet PPFS-MISC-07 Homeowner's Guide to Fungicides http://www.ca.uky.edu/agcollege/plantpathology/ext_files/PPFShtml/PPFS-MISC-7.pdf.
Also available is publication ID-21 Disease and Insect Control Programs for Homegrown Fruit in KY http://www.ca.uky.edu/agc/pubs/id/id21/id21.pdf .

Homeowner's Guide to Fungicides

	captan	chlorothaloni	copper	lime sulfur	mancozeb	myclobutanil	propiconazole	streptomycin sulfate	sulfur
Apple & Pear									
scab	X			X	X	X	X		X
fire blight			X					X	
powdery mildew				X		X	X		X
rust				X	X	X	X		
fruit rots	X								X
Peach, Plum, Cherry									
brown rot	X	X		X		X	X		X
peach leaf curl	X	X	X	X					
scab	X	X		X					X
black knot of plum	X	X		X					
cherry leaf spot	X	X		X		X	X		
Grape									
black rot	X		X		X	X			
powdery mildew			X	X		X			X
downy mildew	X		X		X				
phomopsis cane & leaf spot	X		X		X				
Brambles									
anthracnose			X	X					
cane blight			X	X					
spur blight			X	X					
Strawberry									
leaf spot	X								
fruit rots	X								
powdery mildew									X
Blueberry									
mummy berry	X								
phomopsis twig blight	X								

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