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College of Agricultural, Consumer, and Environmental Sciences

Illinois Fruit and Vegetable News

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a newsletter for commercial growers of fruit and vegetable crops

"We are what we repeatedly do. Excellence, then, is not an act, but a habit." Aristotle

Address any questions or comments regarding this newsletter to the individual authors listed after each article or to its editor, Rick Weinzierl, 217-244-2126, weinzierl@illinois.edu. The *Illinois Fruit and Vegetable News* is available on the web at: <http://www.ipm.illinois.edu/ifvn/index.html>. To receive email notification of new postings of this newsletter, call or write Rick Weinzierl at the number or email address above.

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University of Illinois Extension Specialists in Fruit & Vegetable Production & Pest Management

Upcoming Programs

- **Organic Apple Field Day, August 8, 2008** ... at the University of Illinois Dixon Springs Agricultural Center, Simpson, IL. More information will be available soon on the [Illinois Small Farms](#) site at the [Sustainable Ag Tours](#) page. For more information on these tours in general, contact Deborah Cavanaugh Grant at 217-968-5512 or cvnghgrn@illinois.edu. This tour is being co-sponsored by the [Midwest Organic Tree Fruit Growers Network](#). A registration fee of \$20 per person will be charged for the tour, which includes lunch. To register online, visit <https://webs.extension.illinois.edu/registration/default.cfm?RegistrationID=1574>, or to learn more about the program, visit <http://web.extension.illinois.edu/smallfarm/>. To register by phone, contact Donna Cray at 217-241-4644.
- **Southwestern IL Sweet Corn and Tomato Twilight Meeting, August 13, 2008** ... Fournie Farms, Collinsville, IL. See the note below from Elizabeth Wahle and future issues of this newsletter for details.
- **Pumpkin Field Day, September 11, 2008** ... at the SIU Belleville Research Center. Details to come.

Regional Updates

From southwestern Illinois ... Elizabeth Wahle is away from the office on contractual leave, but she asked that this issue contain a correction on the date for the twilight meeting for tomato and sweet corn growers (the editor's error, not hers) ... this program is scheduled for **August 13, 2008**, at Fournie Farms in Collinsville. The meeting will begin at 6:00 pm. Fournie Farms is located between I-255 and IL-157 just off Horseshoe Lake Road. From I-255 take Exit 26. Take a left on to Horseshoe Lake Road. Go approximately mile; Fournie Farms is on the left. For those taking I-70/55, take Exit 11. Take a left at the light onto IL-157/Bluff Road. Make a left on to Horseshoe Lake Road. Go approximately mile; Fournie Farms is on the right. For those using MapQuest, the physical address is Fournie Farms, Inc., 925 McDonough Lake Rd, Collinsville, IL. For more information, contact Elizabeth Wahle, 618-692-9434 or wahle@illinois.edu.

In northern Illinois, we've had sunny days with average temperatures in the upper 80s to low 90s and night temperatures in the upper 60s to low 70s recently – so yes, very hot and humid, especially with temperatures over 90 in Chicago metropolitan area. Soil moisture content has reached very low levels in some areas, particularly near Kankakee, where less than 0.2 inches of rainfall was

recorded during the last two weeks and many growers are irrigating their vegetable fields. Other areas received 1 to 3 inches of rain, with the highest amount recorded on July 12 and 19. Rainfall amounts of more than 4 inches were recorded in northern counties bordering Wisconsin, particularly in Rockford and surrounding areas.

Apples are sizing well, and orchardists are continuing with summer spray programs, and it is time to include calcium sprays. Sour cherry harvesting is going on in many orchards, and orchardists are encouraged to check leaves for cherry leaf spot infection. Japanese beetle populations have increased during the last two weeks, and they are feeding on fruit and vegetable leaves, causing serious damage on sour cherry, raspberry, and grapes. Summer-bearing raspberry and blueberry harvesting is also going on in many farms in the region.

Tomato and pepper fruits are sizing well. Pumpkins and winter squash are starting to vine out in the northern parts of the region. In the Kankakee area, spaces between pumpkin rows are filled with vines. Squash vine borer and cucumber beetle adults are flying in pumpkin and squash fields, so growers are advised to scout and control these insects as needed. Imported cabbage worm adults were observed flying in cole crop fields, and Colorado potato beetles are feeding on eggplant and potato leaves. Corn earworm counts have been low, but growers need to check traps daily when the sweet corn crop is silking. In the Kankakee area, harvesting of sweet corn commenced last week, and picking of cucumbers, summer squash, green beans, and cabbage is going on as well. There were reports of angular leaf spot on muskmelons and bacterial spot on pepper leaves.

Maurice Ogutu (708-352-0109; ogutu@illinois.edu)

Notes from Chris Doll

Some of the rain that ran off a couple of months ago would be appreciated now that summer temperatures have arrived. A week of 90+ temperatures takes out a lot of soil moisture and also has pushed fruit crops forward a little. Peach harvest and apple development are seven to nine days behind many of the recent years, and that makes it seem like a late harvest. Some Red Havens have been picked, but most are still firm. Color and size look good. Pristine apples are ready for harvest, and Galas are showing some change toward maturity too. Triple Crown blackberries are being picked, but Chesters remain behind.

The DD50 for a May 3 codling moth biofix for July 22 in the last Newsletter is very close for this site. The 30 DD's per day accumulate pretty fast. There should be some time made up, but in 1993 when Red Haven harvest began at the same time, Cresthaven harvest held off until August 23 and Encore were picked September 10.

Insects, except for Japanese beetles, have been low in numbers. A few first instar codling moth entries were found on July 21 in a block that had a spray interval of three weeks. The only other insects found in that orchard were a few San Jose Scales. Most trapping programs have reported low numbers too. Disease control in this area needs to be concentrated on bitter rot, sooty blotch, and flyspeck on apples, and brown rot of peach. There is plenty of peach scab showing in some orchards, but the bacterial spots were worse on the leaves than the fruit.

Mid July to mid-August is the suggested time for collecting leaves for analysis. This can be important in developing and maintaining optimal nutrition conditions in the orchard or berry field. The process may or may not identify problems, but it will show the amounts of nutrients present in the leaves or petioles and indicate what the plant is getting from the soil. In recent years, the orchards that I have sampled have shown trends toward low potassium, boron, sulfur and zinc.

The season may be late, but the time for applying Retain for slowing fruit maturity on apples is rapidly approaching. Since the suggested application time is about four weeks ahead of anticipated optimum harvest, maturity for apples is approaching the correct time for Gala and Honeycrisp, with Jonathans not far behind. On stone fruits, the timing is 1-2 weeks ahead of optimum harvest maturity. All of this is discussed on page 42 of the [2008 Midwest Commercial Tree Fruit Spray Guide](#).

According to the USDA, the 2008 peach crop is larger than 2007, and the Midwest, Georgia and South Carolina make up most of the difference by doubling to quadrupling last year's yields. California, Michigan, New Jersey and Pennsylvania are almost equal to 2007. For the U.S., the totals were 1,219 million pounds in 2007 and for 2008, 1,410 million pounds.

Two more orchard observations. The first is of considerable breakdown of sterilant type herbicides due to the excess rainfall. Mowing or diligent application of contact weed killers is the solution to weed problems. If glyphosate is used as a contact, make sure to keep it off green leaves and shoots of the trees, as it can be translocated to the roots at this time of the year and will show up as willow leaves or injured limbs next spring. The second observation is that there will be quite a few push-offs on apple varieties like Jonathan and Empire this year due to failure to thin clusters. Hand thinning now is a tedious and probably not too profitable job.

Chris Doll

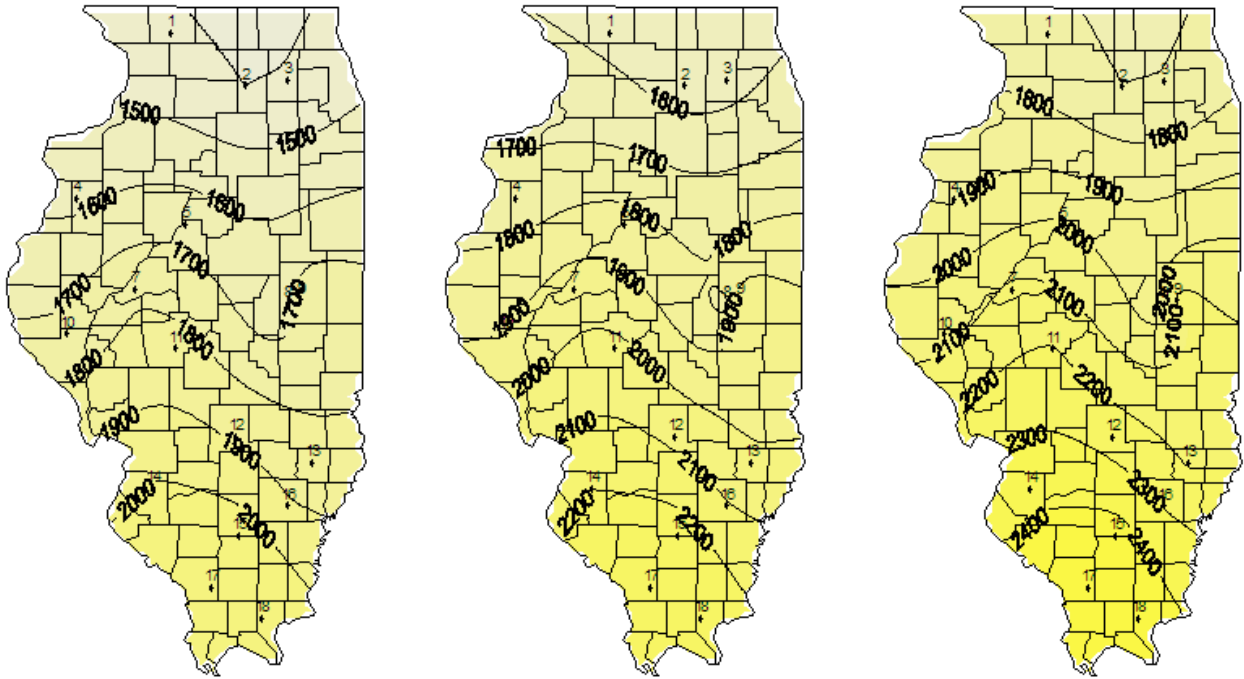
Degree-day accumulations

Degree-day accumulations presented below for weather stations in the Illinois State Water Survey WARM data base have been summarized using the Degree-Day Calculator on the University of Illinois IPM site (<http://www.ipm.illinois.edu/degreedays/index.html>). The list for 18 locations includes only degree-day accumulations and projections based on a 50-degree F developmental threshold and a January 1 starting date, but other options that use different thresholds and specific biofix dates are available on the Degree-Day Calculator. The degree-day calculator is available as a result of a joint effort of current and former extension entomologists (primarily Kelly Cook) and Bob Scott of the Illinois State Water Survey. If you have questions about how to use the site, contact me or Bob Scott (rwscott1@illinois.edu).

Rick Weinzierl (217-244-2126; weinzier@illinois.edu)

Degree-day accumulations, base 50 degrees F, starting January 1.

Station	County	Base 50F DD Jan 1 – July 21, Historic Average	Base 50F DD Jan 1–July 21, 2008	Base 50F DD Jan 1–July 28, 2008 (Projected)	Base 50F DD Jan 1–Aug 4, 2008 (Projected)
1. Freeport	Stephenson	1581	1418	1578	1734
2. Dekalb	Dekalb	1640	1400	1553	1701
3. St. Charles	Kane	1538	1410	1561	1707
4. Monmouth	Warren	1745	1574	1736	1892
5. Peoria	Peoria	1827	1672	1846	2013
6. Stelle	Ford	1722	Missing	Missing	Missing
7. Kilbourne	Mason	1961	1783	1954	2119
8. Bondville	Champaign	1850	1604	1772	1931
9. Champaign	Champaign	1887	1777	1955	2127
10. Perry	Pike	1876	1722	1898	2066
11. Springfield	Sangamon	2000	1839	2025	2205
12. Brownstown	Fayette	2102	1885	2075	2258
13. Olney	Richland	2083	1832	2016	2193
14. Belleville	St. Claire	2170	2011	2199	2379
15. Rend Lake	Jefferson	2260	2060	2256	2446
16. Fairfield	Wayne	2201	1913	2107	2294
17. Carbondale	Jackson	2184	2082	2272	2454
18. Dixon Springs	Pope	2238	2079	2271	2455



Degree-day accumulations, base 50 F, January 1 – July 21, 2008 (left), and projected through July 28 (center) and August 4 (right).

Fruit Production and Pest Management

Oriental fruit moth and codling moth phenology updates

(Yes, the text here and the tables below are similar in format to what has been in previous issues. The numbers are up-to-date, however, so be sure to look over the details for you location if you grow apples and/or peaches.)

Biofix dates for first flights of **oriental fruit moth** (OFM) are presented in the table below, along with degree-day (DD) accumulations based on a threshold of 45 degrees F. Generations begin to blur as the season progresses, but the earliest of third generation moths began flying at around 1900 degree days, base 45F, and that flight will continue over the next 2 to 4 weeks. Over the last 2 weeks traps in our “network” in the far south and at Urbana have continued to catch relatively low numbers of moths (with a little increase recently at Urbana), but as always, growers are advised to rely on data from traps in their own orchards. Check the [June 10, 2008 issue of this newsletter](#) for comments on making OFM control decisions based on degree-day accumulations.

<i>Oriental fruit moth</i>	OFM Biofix Date	DD Base 45 F, through July 21	DD Base 45 F, projected through July 28	DD Base 45 F, projected through August 4
Murphysboro (Dixon Springs weather data)	April 20	2254	2480	2698
Brussels (Brownstown weather data)	April 21	2131	2355	2572
Urbana (Champaign weather data)	April 25	1982	2195	2400

Biofix dates for codling moth at six Illinois locations are listed in the table below, along with degree-day accumulations (base 50F) and projections for weather stations near each location.

<i>Codling moth</i>	CM Biofix Date	DD Base 50 F, through July 21	DD Base 50 F, projected through July 28	DD Base 50 F, projected through August 4
Murphysboro (Dixon Springs weather data)	May 3	1661	1852	2035
Belleville (Belleville weather data)	May 7	1611	1798	1978
Brussels (Brownstown weather data)	May 9	1517	1706	1888
Urbana (Champaign weather data)	May 16	1436	1614	1784
Speer (Peoria weather data)	May 18	1311	1484	1651
Malta (Dekalb) (Dekalb weather data)	May 27	1074	1227	1374

Developmental events for the **codling moth** based on degree-day accumulations are presented below. Remember that “biofix” refers to the date of the first sustained capture of *first-generation* moths in traps.

First moths of second generation emerge	~900 DD ₅₀ after biofix
First hatch of second generation larvae	~1100 DD ₅₀ after biofix
50 percent of second generation moths emerged	~1340 DD ₅₀ after biofix
50 percent of second generation eggs hatched	~1580 DD ₅₀ after biofix
First moths of third generation emerge	~1920 DD ₅₀ after biofix
99 percent of second generation eggs hatched	~2100 DD ₅₀ after biofix
Beginning of third generation egg hatch	~2160 DD ₅₀ after biofix
*First moths of fourth generation emerge	~2900-3000 DD ₅₀ after biofix
*Beginning of fourth generation egg hatch	~3200 DD ₅₀ after biofix

(Table based on *Orchard Pest Management* by Beers et al., published by Good Fruit Grower, Yakima, WA.)

* Extrapolated from the model presented by Beers et al.

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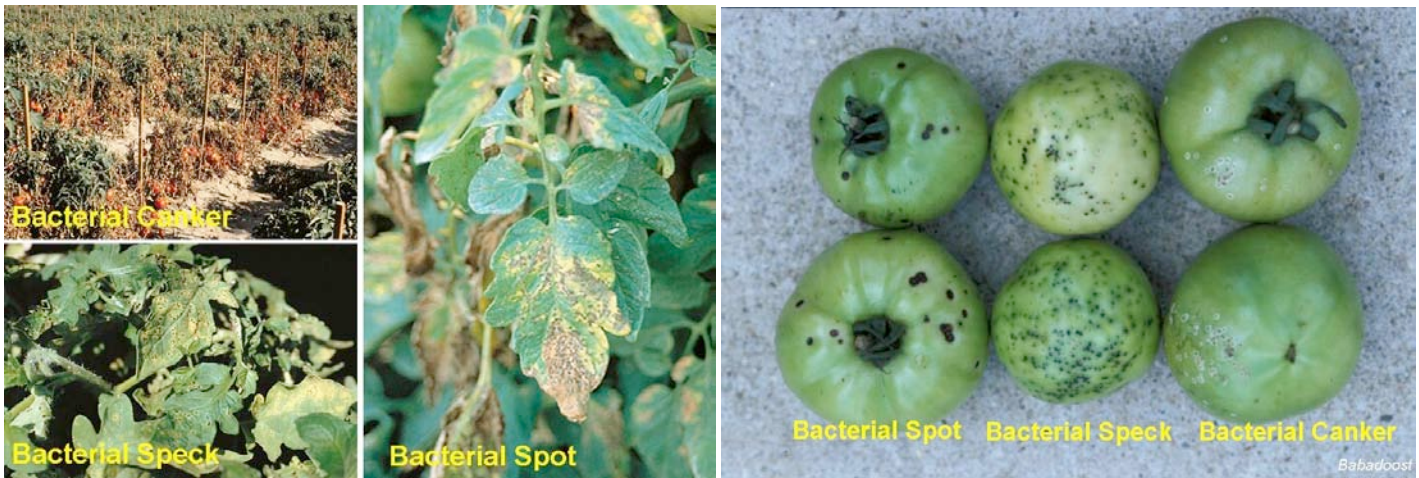
Vegetable Production and Pest Management

Managing Tomato Diseases: Septoria Leaf Blight, Early Blight, and Bacterial Diseases



Septoria Leaf Spot of Tomato

Early Blight of Tomato



Septoria leaf blight (*Septoria lycopersici*), early blight (*Alternaria solani*), bacterial canker (*Corynebacterium michiganense* pv. *michiganense*), bacterial spot (*Xanthomonas campestris* pv. *vesicatoria*), and bacterial speck (*Pseudomonas syringae* pv. *tomato*) have been observed in many commercial fields and home gardens in Illinois in the past two weeks. You need to take apply all effective measures to manage these diseases; otherwise, crop losses could be substantial. Management of these diseases should be through preventive practices rather than eradicant approaches.

Septoria Leaf Blight. Septoria leaf spot usually appear on lower leaves after the first fruit sets. Lesions also appear on stems, petioles, and the calyx. Spots are circular, 1/16 to 1/5 inch in diameter, with dark brown margins and tan to gray centers dotted with the fruiting bodies (pycnidia) of the pathogen. A narrow yellow halo is often associated with leaf lesions. The disease spreads upward from oldest to youngest growth. If the leaf lesions are numerous, the infected leaf may turn to yellow and then brown, and then wither. Fruit infection is rare.

Early Blight. Early blight occurs on leaves, stems, and fruit. The disease appears first on older leaves as small brownish black lesions. The tissue surrounding a spot may become yellow, and when spotting is abundant the entire leaf may become yellow. The spots enlarge rapidly, and by the time they are 1/2-inch in diameter or larger, concentric rings may be distinguished in the dark brownish portion of the spot. Affected plants may become defoliated, exposing the fruit to sunscald. The fruit becomes infected, generally through the calyx or stem attachment, in either the green or ripe stage. The fruit lesions attain considerable size, occasionally involving the entire fruit, and usually have concentric rings. The diseased areas appear leathery and may be covered by a velvety mass of black spores.

Management of Septoria leaf spot and early blight. Management strategies for Septoria leaf spot and early blight include the following practices: planting resistant cultivars wherever available; disposing of crop refuse after harvest by plowing under; controlling weeds in and around the field; crop rotation with non-host crops (e.g., cereals) for 3 years or longer; minimizing wetness period of plants by adjusting timing of irrigation; staking plants to improve air circulation; keeping workers and equipment out of fields with wet foliage; and applications of effective fungicides every 7 to 10 days or more often when weather is warm and wet. Several effective fungicides [Amistar, Cabrio, chlorothalonil (Bravo, Echo, Equus), Endura (early blight), Flint, Gavel, Quadris, Reason, Scala (early blight), and Ziram] are available for control of Septoria leaf spot and early blight of tomato.

Bacterial Canker. Infected seedlings may be quickly killed. The early symptoms of the disease on the foliage are wilting, curling of leaflets, and browning of leaves. Foliage infected with the canker pathogen has distinct black leaf edges with no spotting on the interior of the leaves. Sometimes a thin yellow border is present between the dead leaf margins and healthy tissue. As the leaves die, the petioles remain green and firmly attached to the stem. A cut through the stem shows yellowish brown discoloration of the vascular element. Fruit symptoms may be observed at any age but are usually seen first on green fruit 1/2-2 inches in diameter. White spots 1/8 inch in diameter develop on the fruit. The spots have a dark brown center, which becomes raised, and are surrounded by a distinct white halo; they have been termed "bird's-eye spots."

Bacterial Spot. Leaves, stems, and fruit may be infected. Infected leaves show small, irregular, dark lesions, which can coalesce and cause the leaves to develop a general yellowing. Fruit lesions are initiated only on green fruit. The lesions begin as minute, slightly raised blisters. As a spot increases in size it becomes brown, scab-like, and slightly raised. These spots enlarge up to 1/8 to 1/4 inch in diameter. Although ripe fruits are not susceptible, lesions are very obvious if fruits were infected when green.

Bacterial Speck. Infected leaves develop small, black lesions, often with a discrete yellow halo. Infected fruits develop lesions, which are small, sunken, black spots surrounded by darker green haloes. On ripe fruit, spots are dark brown to black, superficial flecks. The symptoms of bacterial spot and bacterial speck are similar. These two diseases are more readily distinguished on the basis of fruit symptoms.

Management of Bacterial Diseases. For managing bacterial diseases of tomatoes, the following recommendations should be practiced: (1) use only certified, pathogen-free seed; (2) plant only certified, disease-free transplants; (3) in the greenhouse, seedbeds and soil must be sterilized; (4) practice 2- to 3-year crop rotation with non-solanaceous crops; (5) follow good sanitation programs; (6) in the field, control irrigation to minimize plant wetness; (7) control the weeds; and (8) chemical application, including sprays of fixed copper (e.g., Kocide-3000, Cuprofix Disperss) can help in protecting healthy plants against these bacterial diseases. Application of Tanos (famoxadone + cymoxanil) suppress development of all three bacterial diseases of tomato. Also, application of Actigard (acibenzolar-s-methyl) can result in effective control of the bacterial spot and bacterial speck.

For more information on chemical control of tomato diseases in commercial fields, consult the *Midwest Vegetable Production Guide for Commercial Growers* (<http://www.btny.purdue.edu/Pubs/ID/ID-56/>).

Mohammad Babadoost (217-333-1523; babadoos@illinois.edu)

Less seriously ...

Is it possible to characterize nonliving things as male or female? Let's give it a try ...

- Freezer bags: Male, because they hold everything in, but you can see right through them.
- Tires: Male, because they go bald easily and often are over-inflated.
- Hot air balloons: Also male, because to get them to go anywhere, you have to light a fire under them.
- Trains: Again, definitely male, because they use the same old lines trying to pick up someone.

- Web pages: Finally, female, because they're always getting looked at and hit on.
- The remote control: Female. You probably thought it would be male, but consider this: the remote helps a man enjoy life, he'd be lost without it, and while he doesn't always know which buttons to push, he just keeps trying.

(And yes, in the copy I received for this entry there were a lot more objects that were characterized as female, but I'm not about stir up even more trouble.)

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