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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, weinzier@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.

In this issue ...

Upcoming Programs

- **Southwestern IL Sweet Corn and Tomato Twilight Meeting, August 13, 2008 …** Fournie Farms, Collinsville, IL. See the note below from Elizabeth Wahle.
- **Pumpkin Field Day, September 11, 2008** … at the SIU Belleville Research Center. See the note below from Elizabeth Wahle.

Regional Updates

From southwestern Illinois … A **twilight Meeting for tomato and sweet corn growers** has been scheduled for **August 13th** 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 I255 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 on to 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@uiuc.edu.

Commercial pumpkin growers and others interested in pumpkin production are encouraged to come to **Belleville, IL on September 11th** to participate in the **2008 Illinois Pumpkin Field Day**. This event provides attendees with an opportunity to hear from researchers and extension specialists discussing issues in pumpkin production as well as to showcase on-going pumpkin field research. The 2008 event is being hosted by the Southern Illinois University Belleville Research Center. Speakers from the University of Illinois, UI Extension, and Southern Illinois University will be on hand. Attendees should arrive for on-site registration by 10:00 a.m. Research tours will begin by 10:30 and lunch will be at 12:30. Participants coming west on I-64 can find the Southern Illinois Belleville Research Center by taking Exit 23 and going south on IL Rt. 4 to the intersection with IL Rt. 161 (about 1.5 miles); then take a right, and it is about 2 miles west of IL Rt. 4 on IL Rt. 161 on the left (south) side of the road. Participants coming east from the St. Louis area can take Exit 19 off of I-64 and go south to the intersection with IL Rt. 161, then take a left and follow IL Rt. 161 east for approximately 3 miles and the Southern Illinois Belleville Research Center will be on the right (south). Questions may be directed to Alan Walters (618-453-3446, awalters@siu.edu) or Elizabeth Wahle (618-692-9434, wahle@illinois.edu).

Weekly rain has continued for much of the region, creating a sauna effect during near 100 degree weather. Night temperatures are above desirable levels as well. Studies indicate that a female pumpkin flower fails to open if the plant is grown under low light conditions, or is exposed to temperatures in the 90's F during the day, with night temperatures of 70 F or higher at night. Male pumpkin flowers are more numerous (10:1) than female flowers and appear to be less affected by higher temperatures in terms of development. Something else to keep in mind is pollen viability and the amount of insect pollination occurring during hot (and dry) weather. Because cucurbits are insect pollinated, insecticide applications should be made during low bee activity to avoid any unnecessary direct kill of pollinators.

Most wine grapes cultivars are at veraison. Peach harvest is at or just past 'Loring.' Reminder to blueberry growers: if you need to bring plant height down, it needs to be done fairly soon, usually by August 15th. Blueberries set fruit buds in the late summer to early fall on cane tips. If tips are removed after fruit set, next year's crop will be reduced.

Sweet corn and tomato harvest are in full swing. Definitely no shortage of corn ear worms (tomato fruit worm).

Official word from USDA has been received that the **Secretary of Agriculture has declared 74 Illinois counties as disaster areas**, with another 17 eligible for more limited aid as adjacent counties. USDA was unable to immediately determine production losses in Boone, Cook, Lake, McHenry, and Will counties. A decision on their eligibility for assistance will be made after the fall harvest.

Farmers who believe they may qualify for disaster assistance should contact their county Farm Service Agency office. Staff in county Farm Service Agency offices can verify whether producers have crops that are eligible for emergency funds. Applications are considered on a case-by-case basis, taking into account the extent of losses, security available, and applicant's repayment ability.

ILLINOIS PRIMARY COUNTIES (74):

Adams, Alexander, Bond, Brown, Calhoun, Carroll, Cass, Champaign, Christian, Clark, Clay, Clinton, Coles, Crawford, Cumberland, De Witt, Douglas, Edgar, Edwards, Effingham, Fayette, Ford, Franklin, Fulton, Gallatin, Greene, Hamilton, Hancock, Hardin, Henderson, Henry, Iroquois, Jasper, Jefferson, Jersey, Jo Daviess, Johnson, Lawrence, Lee, Logan, Macon, Madison, Marion, Mason, Morgan, Massac, McDonough, McLean, Menard, Monroe, Montgomery, Moultrie, Perry, Piatt, Pike, Pope, Pulaski, Randolph, Richland, Rock Island, Saline, Sangamon, Schuyler, Scott, St. Clair, Stephenson, Union, Vermilion, Wabash, Washington, Wayne, White, Whiteside, Williamson.

ILLINOIS CONTIGUOUS COUNTIES (17):
Bureau, De Kalb, Jackson, Kankakee, Knox, La Salle, Livingston, Macoupin, Mercer, Ogle, Peoria, Shelby, Stark, Tazewell, Warren, Winnebago, Woodford.

Elizabeth Wahle (618-692-9434; wahle@illinois.edu)

In northern Illinois, we've seen mostly clear days with temperatures in the upper 80s to low 90s and night temperatures in the mid 60s to low 70s over the last 2 weeks. The region received 1-3 inches of rainfall during the same period, with most of the rainfall recorded on August 4 in areas north of I-80 and very close to Wisconsin border. Soil moisture has been very low during the last two weeks, and irrigation equipment is in use.

Apples and pears are sizing well, and orchardists are going on with summer spray programs. Codling moth traps began picking up second generation flight about 2 weeks ago in northern counties, and that flight is still in progress. Japanese beetle population is very high in the region, and their feeding on various species and cultivars of fruit tree leaves has been extensive. I have received reports of woolly apple aphids on branches and leafrollers on leaves in apples. Apple growers need to apply calcium to trees, and the rates need to be increased as recommended in the 2008 Midwest Tree Fruit Spray Guide.

Harvesting of peppers, tomatoes, cucumbers, muskmelons, sweet corn, and other vegetables is at full speed in the region. Pumpkins are vining out very well and flowering. In some farms, earlier planted pumpkins have much larger fruits particularly in areas south of I-80. There are reports of powdery mildew, angular leafspot, squash vine borer damage, cucumber beetles, and squash bugs in pumpkins, and there are reports of alternaria leaf spot and anthracnose on cucurbits in general. Bacterial wilt is a problem in some cucurbit fields, with cucumbers, pumpkins, and muskmelons infected. Corn earworm moth counts are up a bit, so growers need to check their traps daily and spray when needed. In addition, the western corn rootworm beetle population is very high in cucurbit and sweet corn fields. Bird damage in sweet corn and rust on leaves of sweet corn have been reported, as well as blossom end rot in tomatoes. I have also received a report of tomato fruits without seeds inside and tasting sour, particularly in Roma types.

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

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).

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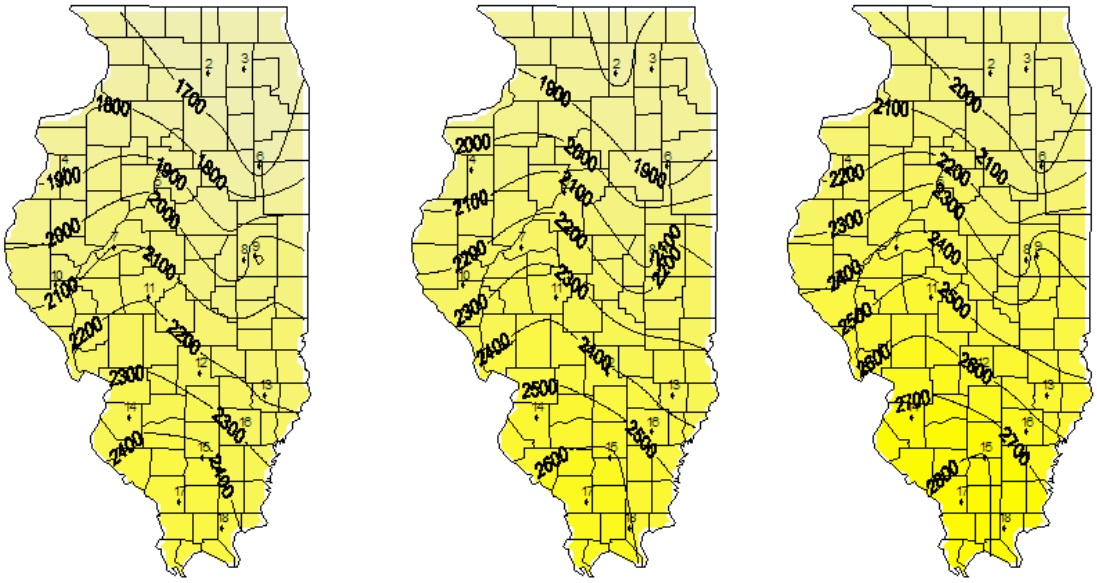
Degree-day accumulations, base 50 degrees F, starting January 1.

Station	County	Base 50F DD Jan 1 – Aug 4, Historic Average	Base 50F DD Jan 1–Aug 4, 2008	Base 50F DD Jan 1–Aug 11, 2008 (Projected)	Base 50F DD Jan 1–Aug 18, 2008 (Projected)
1. Freeport	Stephenson	1880	Missing	Missing	Missing
2. Dekalb	Dekalb	1930	1634	1777	1918
3. St. Charles	Kane	1825	1695	1835	1976
4. Monmouth	Warren	2051	1868	2018	2169
5. Peoria	Peoria	2154	2005	2167	2329
6. Stelle	Ford	2026	1657	1812	1967
7. Kilbourne	Mason	2258	2103	2264	2428
8. Bondville	Champaign	2162	1908	2061	2215
9. Champaign	Champaign	2221	2122	2288	2455
10. Perry	Pike	2194	2067	2231	2400
11. Springfield	Sangamon	2347	2196	2371	2549
12. Brownstown	Fayette	2451	2236	2414	2595
13. Olney	Richland	2430	2188	2360	2533
14. Belleville	St. Claire	2518	2383	2560	2739
15. Rend Lake	Jefferson	2619	2437	2621	2808
16. Fairfield	Wayne	2565	2283	2465	2649
17. Carbondale	Jackson	2532	2460	2637	2816
18. Dixon Springs	Pope	2590	2424	2604	2768



Degree-day accumulations, base 50 F, January 1 – August 4, 2008 (left), and projected through August 11 (center) and August 18 (right).

Fruit Production and Pest Management

Oriental fruit moth and codling moth phenology updates

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. Moth flight, egg-laying, and larval hatch are all pretty much ongoing by now, as the "slowest" individuals of one generation blur into the "fastest" developers of the next. By mid August the earliest moths of the fourth flight will be on the wing in the far south, and egg-laying on fruit will be continuous until declining day lengths and dropping temperatures trigger immature stages to enter diapauses (dormancy) instead of continuing development to the adult stage. To my knowledge, OFM flights remain fairly light throughout the southern half of the state, but the often-repeated recommendation that growers should operate their own traps and makes decisions accordingly still applies.

Oriental fruit moth	OFM Biofix Date	DD Base 45 F, through August 4	DD Base 45 F, projected through August 11	DD Base 45 F, projected through August 18
Murphysboro (Dixon Springs weather data)	April 20	2664	2879	3096
Brussels (Brownstown weather data)	April 21	2552	2766	2980
Urbana (Champaign weather data)	April 25	2397	2598	2800

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.

Codling moth	CM Biofix Date	DD Base 50 F, through August 4	DD Base 50 F, projected through August 11	DD Base 50 F, projected through August 18
Murphysboro (Dixon Springs weather data)	May 3	2006	2186	268
Belleville (Belleville weather data)	May 7	1983	2161	2339
Brussels (Brownstown weather data)	May 9	1868	2047	2226
Urbana (Champaign weather data)	May 16	1781	1947	2114
Speer (Peoria weather data)	May 18	1644	1806	1968
Malta (Dekalb) (Dekalb weather data)	May 27	1309	1451	1591

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. Because the first observable stage of codling moth and oriental fruit moth each year is the adult moth, I refer to first generation adults giving rise to first-generation eggs, and at this time of year the wording in the table below refers to third generation moths laying third generation eggs (the third round of egg-laying for the season). If the wording seems to suggest a sequence that is out of order – moths before eggs – at least you know the reason. As for the chicken and the egg, who came first is not my specialty.

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.

Preharvest intervals for selected fruit insecticides

With harvests ongoing in some of fruit crops listed below and soon to begin in others, it's a good time (or maybe a little late) for reminders on the legally required "waiting period" or preharvest interval (PHIs) for insecticides used on fruit crops. I'll not list everything, but PHIs for all but the most recently registered products are listed on pages 46-47 in the ***2008 Midwest Commercial Small Fruit and Grape Spray Guide*** and pages 37-38 of the ***2008 Midwest Tree Fruit Spray Guide***. Blank spaces mean that there is no registration on the crop listed.

Insecticide or Miticide	**Label-Specified Preharvest Interval, by Crop**				
	Apples	**Peaches**	**Blueberries**	**Brambles**	**Grapes**
Acramite	7	3			14
Altacor	21	10			14
Asana	21	14	14	7	
Assail	7	7			7
Avaunt	14	14			7
Baythroid	7	7			3
Calypso	30				
Capture/Brigade				3	30
Clutch	7				0
Danitol	14		3		21
Delegate	7	7	3	1	7
Diazinon	21	21	7		28
Endosulfan	21-30	21-30			7
Entrust	7	14	3	1	7
Envidor	7	7			14
Esteem	45	14	7		
Fujimite	14				14
Guthion	14-21		7		
Imidan	7	14	3		7-14
Intrepid	14	7			30
Kanemite	14				
Lannate	14	4	3		1-14
Lorsban		See label			35
Malathion		7	3	1	1
Mustang Max	14	14	1	1	1
Neemix	0	0	0	0	0
Nexter	25	7			7
Permethrin/Pounce		14			
Provado	7	0	3		0
Rimon	14				
Savey	28	28		3	
Sevin	3	3	7	7	7
Spintor	7	14	3	1	7
Warrior	21	14			
Zeal	14				14

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Vegetable Production and Pest Management

Striped cucumber beetles and western corn rootworm beetles are active in high numbers in cucurbits in many areas. Remember to identify these insects correctly … striped cucumber beetles are vectors of bacterial wilt, while western corn rootworm beetles are not. **Western corn rootworm** beetles resemble striped cucumber beetles because of the stripes on their elytra (hardened forewings). The edges of these stripes tend blur or fade on the western corn rootworm, and they do not extend all the way to ends of the elytra. The underside of the abdomen of the western corn rootworm is yellowish. **Striped cucumber beetles** have distinct black stripes along the inner and outer edges of the elytra, and the stripes run all the way to the ends of the elytra. The underside of the abdomen is black. Check the ***2008 Midwest Vegetable Production Guide for Commercial Growers*** for control recommendations.

Western corn rootworm beetle (L) and striped cucumber beetle (R) (Univ. of Kentucky)

Colorado potato beetle larvae are active on tomatoes, potatoes, and other nightshade family crops … be sure to scout for them and control them as needed. Threshold guidelines and registered insecticides are listed in the ***2008 Midwest Vegetable Production Guide for Commercial Growers***.

Colorado potato beetle adult and larva (North Carolina State Univ.)

Corn earworm moth counts are up in general in most parts of the state. Larvae of this insect are especially important in sweet corn and tomatoes, but they also damage peppers, snap beans, and other fruiting vegetables. Review earlier issues of this year's newsletter for recommendations on pheromone trapping, available insecticides, pyrethroid resistance, and the Section 18 registration for Coragen's use on sweet corn. Results of a regional monitoring program corn earworm moths is available at http://www.pestwatch.psu.edu/sweetcorn/tool/tool.html.

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Less seriously …

It's that time of year when everyone is so busy that keeping up and keeping track are sometimes too great a challenge, giving reason to appreciate Jimmy Buffet's refrain about jellyfish from the track "Mental Floss" …

> I'd like to be a jellyfish, cause jellyfish don't pay rent,
> They don't walk, and they don't talk, with some Euro-trash accent,
> They're just simple protoplasm, clear as cellophane,
> They ride the winds of fortune, life without a brain.
>
> In one ear and out the other, don't you get criss-crossed,
> I recommend you try a little ... mental floss.

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