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College of Agricultural, Consumer, and Environmental Sciences

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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, 217-333-6651, weinzier@uiuc.edu. The *Illinois Fruit and Vegetable News* is available on the web at: <http://www.ipm.uiuc.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.

For your calendar ... Southwestern IL orchard twilight meeting on July 20; Southern IL Summer Viticulture Day on August 5 at SIU in Carbondale (see Elizabeth Wahle's note below for details on these two programs); Illinois Pumpkin Field Day on September 8 at the University of Illinois Vegetable Research Farm near Champaign, IL.

In this issue ...

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Vegetable Production and Pest Management (Reflex registered for use in dry and snap beans, updates on corn borer, corn earworm, and western bean cutworm)

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

Regional Updates

In southern and southwestern Illinois ... When the weather forecasters said scattered shower over the past weekend and holiday, they really meant it. The entire southern region was covered with scattered showers, some getting much needed rain, and some getting just enough to wet the grass. Some areas have well over a 7 inch rain deficit. To further distress growing conditions, temperatures have stayed in the upper 90's. The thermometer read a high of 99.7 degrees on the July 3 in the St. Louis area. Several reports of hot, drying winds have been noted.

With conditions what they are with intermittent showers and high temps, weed control will be a problem. Weeds have to be actively growing for herbicides to be effective, so time any herbicide applications to follow a rain event. Avoid applying herbicides during dry, hot conditions when the weeds are not actively growing.

Peach harvest continues with the last of the Garnet Beauty and Sweethaven, and the beginning of Summer Beauty. Redhaven are coloring. Because of drought in some areas, some growers are further thinning their peach crop in order to maintain size. Lodi apples are also finishing up. Blueberries were plentiful this year, and harvest is just now winding down.

Sweet corn harvest got started around Father's Day. Quality has been good, but pollination may be an issue during this last week of hot and dry weather. Main-season field tomatoes aren't quite ready yet, but the small-fruited varieties are in harvest. High tunnel tomatoes have been in harvest for a number of weeks. Size and quality across the board is good this year, compared to the past two years.

I've mentioned drought several times, but at this time I have to say that most of the fruit and vegetable crops have been superior in quality and quantity so far this year. Now, if we just didn't have to deal with Japanese beetles. Japanese beetles are heavy in the Clinton County area, where you can see masses of them flying together, looking like a small, dark cloud. The up side is the popcorn popping sound they make hitting the windshield. The downside is cleaning them off your

windshield. Seriously, when spraying insecticides for control, make sure you are aware of the pre-harvest intervals associated with each crop.

Tree fruit growers are invited to attend a twilight meeting on Thursday, July 20, at 6:00 pm. The meeting will be held at Eckert's Country Store & Farms in Grafton. Take the Great River Road (State Highway 100) into Grafton. Turn north on Route 3 in Grafton, then left on Otterville Road for approximately 1.3 miles. Watch for signs on the east side of the road. Contact: Elizabeth Wahle, wahle@uiuc.edu, 618-692-9434.

A Summer Viticulture Field Day will be hosted at the Demonstration Research Vineyard at the Southern Illinois University Horticulture Center located in Carbondale, IL, on August 5. Registration begins at 12:30 pm, followed by presentations throughout the day both in the classroom and vineyard. The day will end with a picnic-style dinner beginning at 7:00pm. Registration, at the cost of \$10.00 per person, will be available online at www.dce.siu.edu in the near future. Contact: Elizabeth Wahle, wahle@uiuc.edu, 618-692-9434.

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

From the Dixon Springs Agricultural Center ... We have reported on several occasions our excitement about our high tunnel tomatoes. The following table shows the performance of our 8-plant observation plots to this date. The plots have been harvested twice weekly from June 9 to July 3 for a total of 7 picks.

Cultivar	U.S. No. 1 Yield (pounds per plant)	Avr. No. 1 Fruit Size (ounces)
Sunbrite	12.3	11.8
Fabulous	10.2	10.6
Sunsation	9.0	11.6
Mt. Spring	8.3	11.0
Sunbeam	7.3	10.1
FLA 47	7.0	10.2
FLA 91	5.8	11.1
Jet Star	5.2	9.4
Sunshine	3.2	9.8
Sunstart	0	---

Harvest of field grown tomatoes is beginning, or about to begin, in southern Illinois. Tomato and pepper growers who have trickle irrigation should be monitoring their fields daily and supplying supplemental water when required. It makes no sense (and no cents) to purchase irrigation and then fail to properly utilize it. Growers are encouraged to use soil moisture monitoring devices such as tensiometers in addition to the more traditional feel method. Failure to irrigate tomatoes in a timely fashion may result in increased blossom end rot, fruit cracking, smaller fruit size, and increased flower abortion. Failure to irrigate peppers in a timely fashion may result in increased blossom end rot and also increased flower abortion. Trickle irrigation works better when used to maintain soil moisture. It is less effective in returning soil that has become much too dry to ideal soil moisture levels. In other words monitor soil moisture and keep up with your irrigation schedule to maximize the return on your investment in irrigation equipment.

Japanese beetles would definitely be in contention for the most annoying pest problem in many crops. Although I took numerous photos of this pest for inclusion in the newsletter, upon review, they were all "too adult" in nature. Perhaps it is possible to find Japanese beetles that are not mating, but I have yet to witness it.

Plasticulture strawberry growers should be thinking about placing their orders for the 2006 planting season.

Jeff Kindhart (618-695-2444; jkindhar@uiuc.edu)

In northern Illinois, clear sunny days with average day temperatures in the 70s to low 90s and night temperatures in the 50s to low 70s prevailed between June 19 and July 5. Soil moisture is still good, as many areas received over 1 inch of rainfall between June 19 and 30, and more than inch on July 3. Apple thinning is done in many orchards, as most of the fruits that were not healthy enough dropped off the trees during the last week of June ('June drop'). Cover spray programs are ongoing in many orchards, and codling moth and apple maggot monitoring continues. Grape berries are sizing well, sour cherry picking continues, and strawberry picking was still going on in some farms last week; birds were a problem in one of the strawberry patches.

Cucumber beetles are a problem in most cucurbit fields and Colorado potato beetle in fields where potatoes and eggplants are growing. Potato leafhopper has been observed on green beans and potatoes. Diamondback moth, cabbage looper, and imported cabbageworm adults are flying in fields of cabbage, broccoli, and other cole crops. Early plantings of cabbages, cauliflower, beets and other greens are now being harvested on many farms. Pumpkin vines are extending fast, and adult squash vine borer was observed in one squash patch last week. Western bean cutworm moth adults have been trapped. Watermelons and muskmelons on black plastic mulch are vining well. First plantings of sweet corn are in the silking stage, and in some farms in northern counties, the ears have been pollinated. Harvesting of sweet corn will commence very soon in counties near the central part of the state, and in a few farms in the northern counties.

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

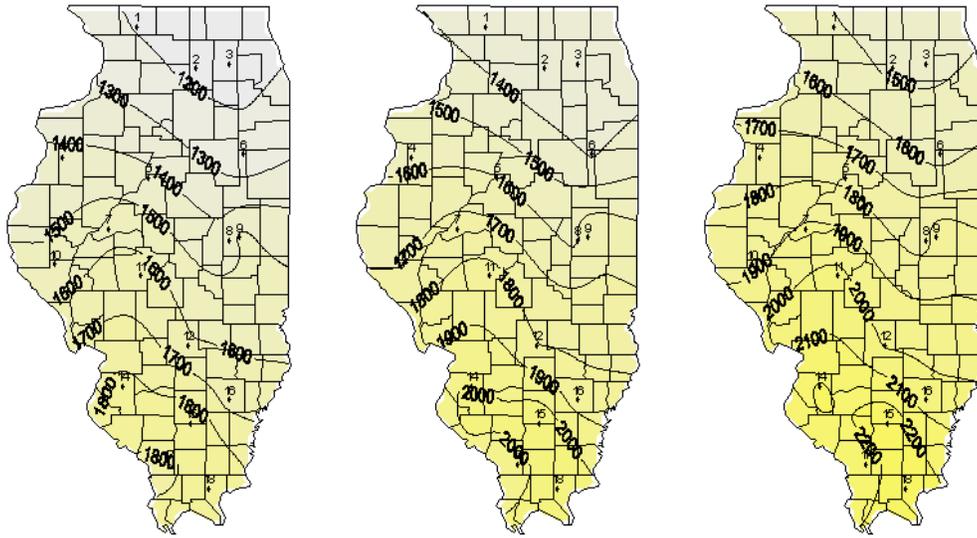
Degree-Days

Degree-day accumulations listed below for weather stations in the Illinois State Water Survey WARM data base have been summarized by using the Degree-Day Calculator site on the University of Illinois IPM site (<http://www.ipm.uiuc.edu/degreedays/index.html>). The list below 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 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@uiuc.edu). **Note: A new problem this week ... the data for the Brownstown station have been corrected, but data for all sites are missing or not updated since June 29, so the July 6 numbers are projections, as are the cumulative totals for the July 13 column.**

Rick Weinzierl (217-333-6651; weinzierl@uiuc.edu)

Degree-day accumulations, base 50 degrees F, starting January 1. (Note the dates in the column headings ... not the same pattern as usual.)

Station	County	Base 50F DD Jan 1 – July 6 Historic Average	Base 50F DD Jan 1 – June 29 2006	Base 50F DD Jan 1 – July 6 (Projected)	Base 50F DD Jan 1 – July 13 (Projected)
1. Freeport	Stephenson	1249	1193	1347	1508
2. Dekalb	Dekalb	1314	1168	1321	1477
3. St. Charles	Kane	1217	1180	1329	1481
4. Monmouth	Warren	1401	1419	1577	1740
5. Peoria	Peoria	1463	1433	1604	1779
6. Stelle	Ford	1382	1223	1390	1558
7. Kilbourne	Mason	1578	1571	1742	1916
8. Bondville	Champaign	1499	1409	1577	1745
9. Champaign	Champaign	1520	1529	1705	1883
10. Perry	Pike	1517	1519	1690	1865
11. Springfield	Sangamon	1614	1654	1841	2029
12. Brownstown	Fayette	1711	1612	1801	1990
13. Olney	Richland	1698	Missing	Missing	Missing
14. Belleville	St. Claire	1781	1831	2020	2209
15. Rend Lake	Jefferson	1860	1897	2091	2287
16. Fairfield	Wayne	1801	1660	1852	2046
17. Carbondale	Jackson	1795	1768	1943	2131
18. Dixon Springs	Pope	1853	1888	2076	2266



Degree days, base 50 degrees F, since January 1, 2006.
 Left: January 1 – June 29; center: January 1 – July 6 (projected); and right: January 1 – July 13 (projected).

Notes from Chris Doll

I could have used the column from a year ago in which I described the heat and the drought. In this area, conditions are about the same as 2005, only drier and with earlier maturity of most crops.

Hot and dry weather must mean that it is peach season or very close to it. The PF 5, Garnet Beauty, Earliglow, and Rising Star are nearly done, and some Red Haven are ready to go. Fruit size has been good considering the heavy set and limited soil moisture. In drier blocks, some shedding of leaves is happening, either from bacterial spot or water stress. Insect and disease problems have been minimal, but more Oriental fruit moths have been trapped this year than in the past.

There are hardly enough Lodi left in the area to determine the harvest season, but those I know about have been picked, and Pristine is in season. I am now at 1361 DD from codling moth biofix and should be well into the second generation. Control of the first generation appears to have been OK with Assail, but there were a few escapes in the orchards I've been in. For once, the CM trapline was close to a shutdown for two weeks, but the numbers ascended to the 20-40 number again the past weekend, so that we know the adults are around. Some treatments for red mites have been made, and monitoring is needed in most orchards. Powdery mildew infections are light, and not much else is showing during the dry weather.

Thornless blackberry harvest has begun, albeit with a fair amount of sunburned berries. Prime Jim, one of the fall-bearing blackberries, is blooming, so they will be ready in a month. Red raspberry harvest is over in the Back-40, and the old canes have been removed for better aeration and disease control. Heritage are in full bloom, and Autumn Bliss is beginning to ripen. Caroline is in between. The high temperatures of July tend to make for fast maturity and soft berries.

July 1 has been the traditional cut-off date for sprays of glyphosate in apple orchards because of the potential for downward translocation of the herbicide when shoots and basal suckers are hit. Peaches do less basal sprouting, but any contact with peach foliage is also detrimental. Grammoxone and Rely can help burn down many of the emerged weeds, and amine 2,4-D can be used on broadleaved weeds if applied during a cooler period. A couple of orchards have some vigorous pigweed or waterhemp in the herbicide strips, and it makes me suspect herbicide resistance.

July is also the month for collecting leaves for analysis, with the 15th listed as the beginning date for most tree fruits.

An unidentified chart in my files lists the expected harvest size of apples from any time during the growing season. For example, this area is now 80 days postbloom and an apple that is 1.88 inches in diameter now, should be a 2.48 inch diameter apple at harvest; a 2.04 inch diameter fruit should mature at 2.79 inches; and a 2.32 inch diameter fruit should grow to 3.22 inches. Thus, there is continued progression of sizing in the larger fruits.

HortTechnology, volume 16, number 3, July 2006, a publication of the American Society of Horticultural Science, had a research report on fruit labeling with a laser-etching beam. This procedure could replace the PLU adhesive tags which some

of the shippers are using, but which are not permanent, and sometimes have problems with detachment, tag buildup along packing lines, fouling of processing equipment and special storage conditions. The laser-etching penetrates the skin of the fruit or vegetable like a pin-like prick and the code is more or less permanent. What the machine will cost was not given.

In the last issue, Dr. Kushad referred to an old ISHS Transaction for an interesting article, and I found the following in Volume 15, 1881 by J. Sanborn of Anna: "Our peaches are presumably honestly packed in 1/3 bushel boxes, and shipped to presumably honest commission men in the northern cities, who remit to us small compensations for the labor bestowed, and often no compensation at all. To remedy the latter, we must limit our plantings to the best named varieties and grub out the non-paying sorts."

Chris Doll

Fruit Production and Pest Management

Updates on Codling Moth Phenology

Based on data provided by Bronwyn Aly at Dixon Springs, Gary Grammer near Murphysboro, Sissy Erbacher of Eckert's Orchard at Belleville, Chris Doll at Edwardsville, Kenny Horn from the University of Illinois orchard at Urbana, Curt Christ near Elmwood, and Ken Hall near Poplar Grove, biofix dates for codling moth are listed for six locations in the table below, along with degree-day accumulations and projections for the weather station sites nearest each orchard. (Note that there is no reporting weather station near Edwardsville, so I've used the Springfield station as the best option.)

Orchard Location	Weather Station	Codling Moth Biofix Date	DD ₅₀ through June 29, 2006	DD ₅₀ projected through July 6	DD ₅₀ projected through July 13
Dixon Springs / Murphysboro	Dixon Springs	April 17	1300	1485	1672
Belleville	Belleville	April 20	1257	1444	1632
Edwardsville	Springfield	April 23	1151	1336	1522
Urbana	Champaign	May 1	1024	1199	1375
Elmwood	Peoria	May 6	926	1097	1268
Poplar Grove	Freeport	May 10	792	946	1102

Developmental events for the codling moth based on degree-day accumulations are presented below. Emergence of second generation moths should be just underway in the southern portion of the state, and the earliest of second generation eggs should begin to hatch in the next few days from the St. Louis area southward. In the far northern portion of the state, second generation moth flight is likely to begin around July 1.

Codling moth development:

First egg hatch (for first generation larvae)	~220 DD ₅₀ after biofix
50 percent of first generation moths emerged	~240 DD ₅₀ after biofix
50 percent of first generation eggs hatched	~500 DD ₅₀ after biofix
99 percent of first generation eggs hatched	~920 DD ₅₀ after biofix
First moths of second generation emerge	~900 DD ₅₀ after biofix
Beginning of second generation egg hatch	~1120 DD ₅₀ after biofix
50 percent of second generation moths emerged	~1349 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

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

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Oriental Fruit Moth Phenology

We do not have a broadly representative monitoring program for oriental fruit moth (less so than for codling moth), but biofix dates for first generation flight were approximately April 7 in the Belleville area and April 10 for lower Calhoun County. I don't have trap data for other locations. Based on a 45-degree F developmental threshold and an upper cut-off of 90 degrees F, degree-day accumulations for the Belleville area and Springfield (best available data site for Calhoun Co.) are listed in the table below. Each generation takes approximately 950 DD base 45 F to develop.

Orchard Location	Weather Station	OFM Biofix Date	DD ₄₅ through June 29, 2006	DD ₄₅ projected through July 6	DD ₄₅ projected through July 13
Belleville	Belleville	April 7	1838	2060	2282
Southern Calhoun County	Springfield	April 10	1738	1958	2179

Oriental fruit moth development (beginning with occurrences that are pertinent at this time):

First moths of third generation emerge	~1900 DD ₄₅ after biofix
50 percent of third-generation moths emerged	~2200-2450 DD ₄₅ after biofix
Peak egg-laying for third generation	~2500 DD ₄₅ after biofix

(Table based on *Common Tree Fruit Pests* by Howitt., published as NCR 63 by Michigan State University, East Lansing, MI, 1993.)

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Vegetable Production and Pest Management

Reflex Receives Registration for Use on Dry and Snap Beans

Reflex (fomesafen) from Syngenta has finally received a registration for use on dry beans and snap beans. The environmental conditions for Reflex degradation influence the application rate. In Illinois, Reflex can be applied postemergence to weeds and the crop at a maximum rate of 1.25 or 1.5 pints/acre, north or south of I-70, respectively. Reflex can carry over and only small grains (4 months) or beans, corn, or peas (next year) may be planted as follow crops. Also the Reflex label specifically states that the herbicide may be applied only in alternate years to a particular field. Make sure to fully read the label and to follow all label precautions.

Reflex at 1.25 pt/A or above, postemergence, will control carpetweed, ladysthumb, Pennsylvania smartweed, morningglory, yellow nutsedge, *Amaranthus* sp. (pigweeds, amaranth, water hemp), puncturevine, common purslane, giant and common ragweed, prickly sida, and spurge. The size of the weeds that Reflex will control ranges from 2 to 6 true leaves depending on the weed species.

Dry beans must have at least four fully expanded trifoliate leaves before applying Reflex. Snap beans must have at least one fully expanded trifoliate leaf before applying Reflex. Some bronzing or yellowing of crop leaves might occur after a Reflex application. Apply Reflex with a nonionic surfactant, crop oil concentrate, or other appropriate adjuvant. Do not use a liquid nitrogen product with Reflex on dry or snap beans or unacceptable crop injury might occur.

Reflex can be sequentially applied to a preemergence application of Dual Magnum, Eptam, Prowl, or Treflan. Reflex can be tank mixed with Basagran, Pursuit, or Raptor. Allow a 2- to 3-day separation when applying a grass herbicide (Assure II or Poast) before applying Reflex. When Reflex is applied first, allow 7 days before applying the grass herbicide.

John Masiunas (masiunas@uiuc.edu)

Notes on Vegetable Insects

Updates on European corn borer and corn earworm: First generation European corn borer has been pretty much a no-show for most of Illinois, although a few growers observed infestations on whorl-stage sweet corn that justified treatment (15 percent of plants showing larval feeding in whorl-stage corn before tassel emergence ... and before larvae tunnel into the stalk from the whorl). Corn earworm captures increased dramatically at Collinsville during the last week of June, then declined a bit after that. In other locations from far southern IL to northeastern IL, counts ranged from the near zero through the teens or 20s (moths per trap per night) during the first few days of July. Because moths are present in most areas and

field corn is not yet silking, sweet corn growers who are not using their own pheromone trap should be on at least a moderate spray program against corn earworm ... if you use one of the most effective pyrethroids (Baythroid, Capture/Discipline, Mustang Max, or Warrior/Proaxis), for fresh-market production that means starting sprays within 2 days after first silk and continuing at no greater than 3- to 4-day intervals until at least 90 percent of the ears have reached brown-silk stage (no more fresh silks). We will carry out bioassays to assess pyrethroid resistance at one or more locations as soon as moth flights are consistently heavy enough to provide enough insects for a meaningful test.

Western bean cutworm: Traps are out for western bean cutworm across much of the northern half of Illinois and adjacent areas in Iowa, Wisconsin, and Indiana. Information from Nebraska and Iowa provides a general idea of what we should expect ... Based on a May 1 date to start counting degree-days on a 50-degree F threshold, moth emergence begins some time after 1,000 degree-days have accumulated, generally in early July. There is one generation per year, and moth emergence roughly conforms to the following schedule ...

- 25 percent moth emergence by about 1320 DD
- 50 percent moth emergence by about 1420 DD
- 75 percent moth emergence by about 1535 DD

Degree-day accumulations, base 50 F, since May 1, look like so for the northern half of Illinois (where this insect may pose problems for corn growers ...

Weather Station	DD ₅₀ May 1 through June 29, 2006	DD ₅₀ May 1 projected through July 6	DD ₅₀ May 1 projected through July 13
Freeport	861	1015	1171
Dekalb	846	1002	1155
Monmouth	987	1146	1305
Peoria	971	1141	1312
Champaign	1024	1199	1375

Newly hatched larvae feed on leaves, tassels, and silks before moving into ear tips where they cause damage similar to that caused by corn earworm larvae. Pyrethroid insecticides labeled for corn earworm control (Baythroid, Capture, Mustang Max, and Warrior, as well as generic formulations of the same active ingredients), as well as SpinTor/Entrust should provide control of western bean cutworm, but thresholds (based on trap counts or observations of early feeding) and spray intervals for sweet corn have yet to be established. For more information on western bean cutworm, see the [January 3, 2006, issue of this newsletter](#).

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Words of Wisdom ...

On t-shirts in Taos, New Mexico ...

- Life really isn't like a bowl of cherries. It's more like a bowl of jalapeños ... what you do today can get you in the butt tomorrow.
- Carpe mañana.
- If a man speaks in the forest and there's no woman there to hear him, is he still wrong?
- Men are from Mars; women are from VISA.

On health care in America ...

- Did you hear about the new specialist? A doctor of eye, ear, nose, and wallet.
- You know your health care plan may be less than great when ... your primary care physician's office is in a trailer park, and the receptionist answers the door by saying, "You're not from *60 Minutes*, are you?"
- Will health care be better in the next decade? I don't know, but if you start calling now, you can get an appointment by then.

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