

## ***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, 217-333-6651, [weinzierl@uiuc.edu](mailto:weinzierl@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 address above.

*This issue's words of wisdom ... which usually means the jokes ... are at the end of newsletter ... check the last page.*

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

### ***Crop Reports***

**In the southern region** ... rain continues, but most operations have been worked in around the rainfall. Symptoms of nitrogen deficiency in peaches and calcium deficiency in strawberries have been detected in wetter areas. In light of this, growers are advised to maintain calcium levels on both apples and tomatoes throughout the season to ensure crop quality. Nitrogen deficiency in peaches is often confused with bacterial spot or captan injury. All tend to shot-hole peach leaves, but with low nitrogen conditions, anthocyanin production is encouraged, and the leaves and fruit are more highly colored than normal. Usually, a reddish tinge develops on the petioles and stems as well as the blades of leaves, and reddish spots can appear in these areas. Bacterial spot on peach starts out as small, angular, gray, water-soaked lesions that appear on the undersides of leaves, especially on the mid vein, tip, or margins. As the lesions expand they take on a brown to black color, and eventually the center will fall out, giving the leaf a tattered appearance. If not controlled, heavily infected leaves turn yellow and drop. Infected fruit is marred by brown to black pits and cracks. Captan can cause shot-hole or yellowing of young peach leaves under cool, slow-drying conditions. To further confuse the issue, leaves can have more than one of these afflictions, which makes identifications even more critical for proper control measures. Penn State has photos on the web that will help differentiate between captan injury and bacterial spot.

**Captan Injury** - <http://ppvbooklet.cas.psu.edu/diseases/slides77-78.htm>

**Bacterial Spot** - [http://ppvbooklet.cas.psu.edu/diseases/bs\\_pch\\_leaves3.htm](http://ppvbooklet.cas.psu.edu/diseases/bs_pch_leaves3.htm)

Strawberry harvest is winding down in the area, and raspberries are picking up. The upcoming blackberry crop looks very promising as well. Apricots are close to harvest, and peach and apple crops still look quite good in the region. So far, one monitored orchard in the northwest portion of the region has reached enough cumulative leaf wetness hours to warrant control for sooty blotch/fly speck, which should be a heads up to other apple growers. Japanese beetles have not made themselves known yet, and curculio and stinkbug reports have been very low to date.

For apple cider and hard apple cider makers, the 2004 Illinois Specialty Growers Conference will again be the host site for the Illinois State Cider and Hard Cider Contest. Future information on the contest will be posted in this newsletter. Dates for the 2004 conference are January 22-24 – note the new meeting days of Thursday through Saturday. Don't miss the upcoming Summer Horticulture Day(s), June 27 and 28, 2003, where presentations of the 2003 Illinois Cider and Hard Cider winners will be made. To view the entire program and register online, visit

<http://www.dce.siu.edu/conferences/030521horticulture.htm>

Vegetable production is moving forward around the rain, with a few reports of delayed plantings. Early varieties of sweet corn have begun to tassel, and additional plantings continue. This seems to be the year for potato production, with the cool weather the region experienced up until this week. There have been a few reported cases of micronutrient deficiencies in various crops that seem to be related to wet soil conditions. Harvest of early vegetables continues, and several farmers' markets are in full swing.

*Elizabeth Wahle (618-692-9434; [wahle@uiuc.edu](mailto:wahle@uiuc.edu))*

**In northern Illinois**, we've seen mostly cloudy days during the last two weeks with day temperatures in upper 60s to upper 70s except on June 17 when the high was in the lower 80s. Night temperatures have been in the upper 50s. Soil moisture is low in some counties, as most areas in the region have received only 0.8 inches of rainfall since the beginning of June. In response to this, some growers are currently irrigating their vegetables.

Apples are sizing well and orchardists are applying cover sprays and continuing with fruit thinning. Grape flower buds are opening up in most vineyards. I have received reports of peach leaf curl and strawberry leaf spot.

Asparagus harvesting is over and strawberry picking is ongoing. Early plantings of sweet corn, cucumbers, squash, pumpkins, peppers, eggplant, muskmelon, watermelon, and tomatoes are doing well. Growers and fields are about ready for the second planting of warm season vegetables. In the Kankakee area, some sweet corn is already tasseling, some tomatoes and potatoes are flowering, and early cabbage will be ready for harvesting in about 1 to 2 weeks. In the same area, some isolated armyworm damage the beginnings of first generation flight of European corn borer moths were observed in sweet corn. In cabbage, pupae and adults of diamondback moth, adult imported cabbageworms (white cabbage butterflies), and aphids are now present. I also have received reports of cucumber beetles in pumpkins and other cucurbits, flea beetles in peppers, potato leafhoppers in potatoes, and aphids in tomatoes and peppers.

*Maurice Ogutu (708-352-0109; [ogutu@uiuc.edu](mailto:ogutu@uiuc.edu))*

## ***Upcoming Meetings and Programs***

Repeating notes on a couple of programs mentioned previously ...

**Illinois Summer Horticulture Day, June 27-28, Barry, Illinois.** As Elizabeth Wahle noted in her report above, registration and programming details are available on-line at:

<http://www.dce.siu.edu/conferences/030521horticulture.htm>

**University of Illinois Dixon Springs Ag Center Field Day, August 7.** The 2003 DSAC Field Day and Open House will be held on Thursday, August 7, 2003 from 7:30 a.m to 1:00 p.m. The Dixon Springs Ag Center is located on Illinois Route 145, approximately 30 miles south of Harrisburg, IL, and 30 miles north of Paducah, KY. Represented at the DSAC are the Departments of Natural Resources and Environmental Sciences, Crop Sciences, and Animal Sciences, and the College of Veterinary Medicine. Tours in each of the areas will be offered throughout the morning. For further information, contact Bronwyn Aly at 618-695-2444 or [baly@uiuc.edu](mailto:baly@uiuc.edu).

## Degree-Day Accumulations Since January 1, 2003

Data for the table below are taken from the Midwestern Climate Center web site ( <http://mcc.sws.uiuc.edu/> ). Degree days are calculated using a rectangular averaging method on a 50 degree Fahrenheit threshold, with the minimum temperature for calculations reset to 50 on days with highs above 50 and lows below 50.

Location	DD, Base 50 F, through June 10	DD, Base 50 F, through June 17	DD, Base 50 F, 40-yr average through June 17	DD, Base 50 F, projected through July 2
1. Carbondale	1137	1302	1441	1673
2. Belleville	1259	1430	1392	1801
3. Mt. Vernon	1007	1159	1332	1525
4. Springfield	944	1098	1142	1458
5. Urbana	933	1084	1037	1422
6. Peoria	868	1022	1025	1361
7. Kankakee	772	899	963	1230
8. Moline	844	990	985	1327
9. St. Charles	681	793	812	1098



Projections for degree day accumulations two weeks into the future are derived by adding historic averages for degree days for the next two weeks to the actual current total listed for each location.

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### Notes from Chris Doll

Finally, a growing season, with some warmer temps and ample rain ... Vegetative growth on most crops has taken off and fruit is sizing enough to start bending limbs of apples and peaches. According to my calendar, we are close to the phenology of a year ago, with a few crops like sour cherry and black raspberry being 1 to 4 days later. Some early peaches and nectarines are nearing harvest, and the early apples will not be far behind. Red and black raspberries are ripe, and some blackberries are showing red color.

Last week's rain totaled about 3 inches for the area. Associated with the rainy days were extended wetting times that totaled 45 hours out of 62 hours from 5:00 p.m. on the 10th to 7:00 a.m. on the 13th. This raised the leaf wetting hour total to 182 hours, which means that sooty blotch and flyspeck controls should be applied. The humid and warm conditions were enough to trigger brown rot on sweet cherry and gray mold on the raspberries. And one of the reasons that sweet cherries are not grown commercially in the area is the threat of rain crack, and this was verified by my harvest of Van, where 50 percent were cracked.

Insect-wise, it has been fairly quiet, with very low trap counts of codling moth, Oriental fruit moth, tufted apple bud moth and peach borers. A few potato leafhoppers were seen in a Missouri orchard and a few red mites are in the Back 40. The first Japanese beetle was found right after Rick Weinzierl paid me a visit on the 12th, but trapping counts begun on the 16th are very light and behind 2002. Diseases too have been fairly quiet except for those mentioned above. Some peach scab is visible (heavy on the neighbors unsprayed apricot) and fire blight has been sporadic and light.

The small fruit crop in the area has been pretty good, and the blackberry crop potential is very good. A few weeks ago I mentioned a strawberry field that had an extremely heavy set of fruit. Two weeks later, I revisited the field and asked to pick some Earliglow which had been picked twice before. In eight feet of row, I picked 8 quarts of berries, which would calculate out at 10,000 quarts per acre.

Strawberry harvest is about done for the year and the task of renovating the matted row systems should begin as soon as the weather and soil permits. 2,4-D sprays are suggested only on fields that have a broadleaf weed problem. Mowing is suggested to facilitate other renovation practices, but is especially important so that the fertilizer and Sinbar herbicide applications have little or no leaf surface to contact. Herbicide results usually are best if the field is irrigated immediately after application for light incorporation.

The National Peach Council's crop estimate for 2003 is as follows: (millions of pounds)

US	1,483
IL	17
GA	130
SC	130
MO	13
MI	48

The light set of apples being reported by some growers in southern Illinois and other areas means that bitter pit and cork from calcium deficiency may be a problem on trees with big apples and lots of vegetative growth. I believe that most areas can move into the 3-pound rate of calcium chloride per acre about now.

Fall bearing red raspberry varieties Caroline, Autumn Bliss and Heritage are beginning to bloom in the Back-40. This means that in 28-30 days, the second crop will begin to ripen and that the harvest-time temps will be in the upper 90"s. For this area of Illinois, we need later ripening varieties. The ones above are good varieties, but they need lots of water – 2 inches or more a week at that time of the year and plenty of nitrogen fertilizer before that time.

Some of the early ripening peaches are showing indications of split pits. This is one of the pitfalls of some of the early varieties, and there is not much known about the cause or control. California studies indicate that it usually happens around 60 days after bloom when conditions favor rapid vegetative growth.

Summer Orchard Day for the Illinois State Horticulture Society will have a new format this year, with an evening tour on June 27 and an all-day session on the 28th. It will be at Barry, which is the home base of Frankden Orchards (Jack and Karen Cruttendon). Part of the new format will be the joint effort of the fruit growers and the grape and wine group and a good time is predicted for all. See you there.

*Chris Doll*

## ***Fruit Production and Pest Management***

### **Codling moth phenology**

One good overall source of pest management information for tree fruit crops is ***Orchard Pest Management, A Resource Book for the Pacific Northwest***, written by Elizabeth Beers, Jay Brunner, Michael Willett, and Geraldine Warner and published by the Good Fruit Grower (Yakima, Washington, 1993). On page 260 of this publication, the authors present a table that summarizes codling moth flight and egg hatch according to degree days after biofix (the first sustained significant catches of moths in pheromone traps). Although our Illinois and lower Midwest populations of codling moths probably differ a little from Pacific Northwest populations in their development according to degree days, the differences are likely to be very small, and the information presented in this table should still be very useful for understanding codling moth development here.

We often see diagrammatic representations of codling moth flight periods that show a rather concise period of first generation flight. Textbooks show a steady increase in the number of moths flying each day for 1 to 3 weeks, then a steady decline, with the flight spanning a period as short as 4 weeks. However, what we see in trap counts in Illinois orchards is a flight that lasts much longer. The table from the book by Beers et al. helps to explain the realities. Although flights usually begin with a steady increase in counts for a period of 2 to 3 weeks (50 percent of the first generation flight is underway by the time 240 degree days have accumulated since biofix), moth emergence then continues over a period of 500 degree days before it is 99 percent complete at 740 degree days after biofix. The tables below use the information from Beers and her co-authors along

with degree-day and biofix data from 2003 in Illinois. Following an April 26 biofix in far southern Illinois, first generation codling moth flight would have been predicted to be 50 percent complete by May 9 and then drag on to end nearly 5 weeks later by around June 12. At Urbana, following a May 6 biofix, the Pacific Northwest model suggests that the flight was 50 percent complete by May 25 but will not end until about June 24 (based on temperature projections).

<b>Percent of First Generation Moth Flight</b>	<b>Degree Days (base 50 F) Since Biofix</b>	<b>Carbondale, 2003</b>	<b>Urbana, 2003</b>
1	0	April 22	May 6
25	145	May 4	May 17
50	240	May 9	May 25
75	390	May 18	June 7
95	580	June 2	June 16
99	680	June 9	[June 22]
100	740	June 12	[June 24]
Beginning of 2 <sup>nd</sup> generation flight	860	June 17	[June 29]

In the table below ... Based on the model presented by Beers and her co-authors, 50 percent of first generation eggs had hatched in far southern Illinois at 480 degree days after biofix ... by May 25. The model predicts that first generation egg hatch in the far south should be over around June 22. In Urbana, egg hatch is predicted to have begun around May 2; first generation egg hatch should end around July 2-5.

<b>Percent of First Generation Egg Hatch</b>	<b>Degree Days (base 50 F) Since Biofix</b>	<b>Carbondale, 2003</b>	<b>Urbana, 2003</b>
1	220	May 8	May 23
25	380	May 18	June 6
50	480	May 25	June 12
75	610	June 5	June 17
95	800	June 14	[June 27]
99	920	June 18	[July 2]
100	1000	[June 22]	[July 5]
Beginning of 2 <sup>nd</sup> generation egg hatch	1100	[June 25]	[July 9]

The point of all this discussion is reinforce the idea that the need for codling moth control, even for first generation, spans a long period in orchards where population densities are moderate to high.

And then second generation egg hatch begins at about 1100 degree days after first generation biofix.

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## ***Fruit and Vegetable Pest Management***

### **Japanese beetle and potato leafhoppers**

As Chris Doll noted, Japanese beetles will begin showing up in much of the state in the next several days if they are not already present. Larvae overwinter in the soil where they feed on the roots of grasses. They pupate in the spring, and adults emerge from the soil from mid June through late July. Adults are very mobile, so even where insecticide kill the ones present at the time of application, reinfestation can occur a few days later. Among the many fruit and vegetable crops that serve as food plants for adult Japanese beetles are raspberries and blackberries, blueberries, grapes, apples, peaches and other stone fruits, sweet corn, and green beans. The only practical recommendation for controlling them successfully is to scout often to determine their presence, use a registered insecticide (Sevin, malathion, Imidan, and selected pyrethroids are good choices, depending on their registration in specific crops; rotenone is somewhat effective for organic growers), and scout again in a few days to see if new immigrants have replaced the ones you sprayed days earlier.

Also in followup to Chris Doll's remarks, potato leafhopper is indeed present in much of the state. This small, yellow-green insect inserts its beak into plants to suck out plant juices, and when it does so, it injects saliva that is toxic to a number of plants. The result is leaf injury known as "hopper burn" and the stunting of new growth of fruit and vegetable crops. Among the crops damaged by potato leafhoppers are snap beans, potatoes, alfalfa, and apples, as well as shade trees such as redbuds and maples. (They were "happy as clams" in a redbud tree in my back yard a few days ago, and the numbers had built up enough to cause some very noticeable leaf injury.) For illustrations of this insect and the injury it causes, see pages 53 and 74 in *Vegetable Insect Management, with Emphasis on the Midwest*, edited by Brian Flood and published by Meister Publishing Company, Willoughby, OH (1995) or check the following web sites.

<http://tfpg.cas.psu.edu/part2/part22bbd.htm> (Penn State)

<http://www.gov.on.ca/OMAFRA/english/crops/facts/92-051.htm> (Ontario / OMAFRA; symptoms on apple)

Many insecticides are labeled for potato leafhopper control in fruits and vegetables. Be aware, however, that where some of the new reduced-risk insecticides are applied specifically for the control of Lepidoptera (such as Intrepid or Avaunt for codling moth control in apples or Intrepid, Confirm, or Avaunt for "worms" in certain vegetable crops), potato leafhopper populations may build up. In apples, they often infest young trees that are not yet bearing fruit and are not being sprayed very often if at all. Infestations on such trees can severely reduce new shoot growth and delay orchard establishment.

## ***Vegetable Production and Pest Management***

### **Reflex receives emergency exemption for snap beans**

Reflex (fomesafen) herbicide has received a Section 18 Emergency Exemption for use on snap beans in Crawford, Gallatin, Henderson, Lawrence, Lee, Mason, Mercer, Tazewell, Warren, White, and Whiteside Counties in Illinois between May 14 and August 31, 2003. The specific target weeds for which the label was issued are puncturevine, pigweeds, and morningglories. Reflex should be applied early postemergence on snap beans with one to three trifoliates and when the weeds have less than two to four leaves. It should be applied at 0.5 to 1.0 pint/acre with the higher rates necessary for morningglory control. Two applications of Reflex can be made to snap beans during a single growing season, but the total rate is not to exceed 1.25 pints/acre/year.

Reflex should be applied with a nonionic surfactant at 0.25 to 0.5% or a nonphytotoxic petroleum-based crop oil concentrate at 0.5 to 1.0% of the finished spray. In Illinois, Reflex may not be applied to the same field more than once every two years. Reflex must be applied prior to bloom and not within 30 days of harvest.

John Masiunas, ([masiunas@uiuc.edu](mailto:masiunas@uiuc.edu))

### **Gramoxone Max herbicide registered as a harvest aid for dry beans and dry peas**

Gramoxone Max (paraquat) has received a label for use as a harvest aid for dry beans such as kidney beans, navy beans, pinto beans, lima beans (for dry seed), and dry peas in Illinois. Gramoxone Max is a restricted use pesticide that can be applied at 0.8 to 1.3 pints/acre at least 7 days before harvest. For vining type beans and peas or bush beans and peas with lush growth, apply the higher rate. Apply when the crop is mature with at least 70% of the pods yellowing and no more than 40% (bush

types) or 30% (vining types) still green. A nonionic spreader should be included at 1 quart/acre of spray mix. Always avoid spray drift with Gramoxone Max and read the label fully before using this herbicide.

John Masiunas, ([masiunas@uiuc.edu](mailto:masiunas@uiuc.edu))

### **Corn earworm and European corn borer (and southwestern corn borer in the far south)**

European corn borer flight is underway throughout the state now and possibly declining already in the far south. Population densities vary considerably from area to area. Within the next couple of weeks, Kelly Cook will begin posting earworm and corn borer moth counts on the web at

<http://www.ipm.uiuc.edu/fieldcrops/imm/index.html>

If you are operating earworm or corn borer traps and are willing to provide data to Kelly for this site, please contact her at [kcook8@uiuc.edu](mailto:kcook8@uiuc.edu). As noted in issue number 7 of this newsletter, Ron Hines at the University of Illinois Dixon Springs Agricultural Center in far southern Illinois also operates pheromone traps for several Lepidopteran pests. His reports are on the web at

[http://www.ipm.uiuc.edu/pubs/hines\\_report/](http://www.ipm.uiuc.edu/pubs/hines_report/)

European corn borer activity has subsided in most of Ron's traps, and corn earworm numbers there are not alarming, but southwestern corn borer counts are quite high at a couple of his locations. Elsewhere, Dan Fournie of Collinsville reports earworm counts in the teens and 20s per night – enough to warrant sprays to any sweet corn that has begun silking, but not very high in comparison to densities there in many seasons.

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***This issue's words of wisdom ...*** be careful the questions you ask ...

In a murder trial, the defense attorney was cross-examining the coroner:

Attorney: Before you signed the death certificate, had you taken the pulse?

Coroner: No.

Attorney: Did you listen to the heart?

Coroner: No.

Attorney: Did you check for breathing?

Coroner: No.

Attorney: So, when you signed the death certificate, you weren't sure the man was dead, were you?

Coroner: Well, let me put it this way. The man's brain was sitting in a jar on my desk. But I guess it's possible he could be out there practicing law somewhere.

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