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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, 217-333-6651, 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 ... Strawberry Plasticulture Planting Workshop on September 26 at Bill Bass' farm south of Carbondale. **2006 Midwest Apple Improvement Association Annual Meeting** at the St. Claire County Farm Bureau Building, October 4. See Elizabeth Wahle's notes below for details on these three programs. **NAFEX**, the North America Fruit Explorers Association, in Lexington, KY, August 30 through September 1 ... see Chris Doll's notes from the [August 4th issue of this newsletter](#) for details. **Illinois Specialty Crops and Agritourism Conference**, January 11-13, 2007, at the Crowne Plaza Hotel, Springfield ... details to follow in later issues of this newsletter

In this issue ...

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

Regional Updates

In southern and southwestern Illinois ... a busy week limits my comments to reminders on upcoming programs ...

For growers interested in strawberry plasticulture production, a planting workshop is being held Tuesday, September 26th, at 5:00pm. The workshop is sponsored by University of Illinois Extension and will be hosted by Bill Bass at his farm located six miles south of the Southern Illinois University-Carbondale campus on the northeast corner of Bass Lane and US Route 51. Bernie Colvis, a leader in Midwest plasticulture strawberry production, will be the featured speaker. Bernie will have on hand his planting equipment and will discuss the finer details associated with successful establishment of a strawberry plasticulture system. For more information, contact Elizabeth Wahle at wahle@uiuc.edu or 618-692-9434, or Jeff Kindhart, Dixon Springs Ag Center, at jkindhar@uiuc.edu or 618-695-2444.

The 2006 Midwest Apple Improvement Association Annual Meeting will be held Wednesday, October 4th. Registration at the door is \$10.00 (includes lunch) and begins at 7:30 am at the St. Clair Farm Bureau. The afternoon program will move to Eckert's Country Store & Farms in Belleville for a tour of seedling blocks. Invited speakers for the morning program include Jim Eckert (MAIA President), Peter Hirst (Purdue University), Diane Miller (The Ohio State University), Wally and Wanda Heuser (Summit Sales), Mitch Lynd (Lynd Fruit Farm), and Chris Doll (University of Illinois Extension, retired). A complete program is posted at <http://web.extension.uiuc.edu/regions/hort/>. For further details, contact Elizabeth Wahle.

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

In northern Illinois ... day temperatures have been in the upper 70s to upper 80s, and night temperatures have ranged from the 50s to low 70s over the last two weeks. During the same period, 1 to 4 inches of rainfall was recorded in the region, with higher amounts of more than 2 inches recorded in the Rockford area on September 4.

Many pick-your-own orchards are now open to the public. Picking of early-maturing apple varieties (Red Free, and Paula Red) is going on in some orchards, and picking of summer varieties (Gala, Jonamac, Ozark Gold, McIntosh, and Golden Supreme) started this week in many orchards. Mid-September varieties will be ready for picking toward the end of next week. Picking of peaches, fall bearing raspberries, and table grapes also is ongoing.

Vegetable harvests continue throughout the region. Heavy rains in some areas towards the end of August and the first week of September created a conducive environment for fungal and bacterial diseases, particularly in pumpkins. Growers need to follow spray schedules in order to control fruit rots and other foliar diseases in pumpkins and other vine crops. Powdery mildew has been observed on pumpkins and other vine crops, and early blight, bacterial canker, bacterial spot, and septoria leaf spot have been observed on tomatoes. Mosaic virus symptoms are developing on new growth in pumpkins and squash. Pumpkin fruits are sizing well, and in some farms about 40% of the fruits are orange in color; a flush of new fruit set is underway as well.

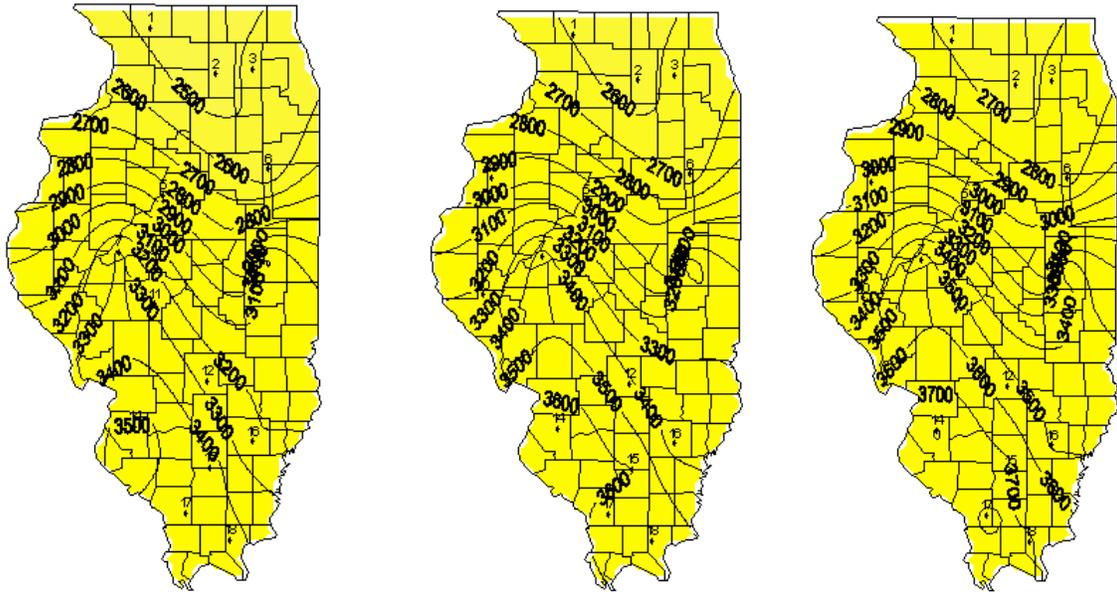
Maurice Ogutu (708-352-0109; ogutu@uiuc.edu)

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). (This is the final issue this year in which degree-day totals will be listed in this newsletter.)

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

Station	County	Base 50F DD Jan 1 – Sep 6 Historic Average	Base 50F DD Jan 1 – Sep 6 2006	Base 50F DD Jan 1 – Sep 13 (Projected)	Base 50F DD Jan 1 – Sep 20 (Projected)
1. Freeport	Stephenson	2535	2479	2593	2686
2. Dekalb	Dekalb	2556	2407	2516	2607
3. St. Charles	Kane	2458	2551	2660	2749
4. Monmouth	Warren	2738	2799	2920	3020
5. Peoria	Peoria	2865	2854	2983	3091
6. Stelle	Ford	2694	2513	2639	2746
7. Kilbourne	Mason	2975	3313	3439	3545
8. Bondville	Champaign	2857	2826	2950	3056
9. Champaign	Champaign	2960	3232	3369	3486
10. Perry	Pike	2916	3086	3215	3322
11. Springfield	Sangamon	3124	3285	3429	3550
12. Brownstown	Fayette	3234	3266	3411	3535
13. Olney	Richland	3197	Missing	Missing	Missing
14. Belleville	St. Claire	3286	3549	3688	3807
15. Rend Lake	Jefferson	4321	3454	3605	3733
16. Fairfield	Wayne	3362	3210	3359	3487
17. Carbondale	Jackson	3303	3428	3568	3686
18. Dixon Springs	Pope	3377	3432	3580	3707



Degree days, base 50 degrees F, since January 1, 2006.

Left: January 1 – September 6; center: January 1 – September 13 (projected); and right: January 1 – September 20 (projected).

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Notes from Chris Doll

My phenology records finally show that we are a day or two behind 2005. That is not much difference, and it means that peach harvest is nearly complete, and harvest of apple varieties like Jonathan has started. Rainfall has been spotty, so soil moisture levels vary from orchard to orchard, and that can affect both color and quality somewhat. The best thing going is that sugar content is good, and size is good for what has been a dry summer. The cool temperatures should help color development, but I don't see any of the real low temperatures that really make it seem like apple weather.

Some cork pitting of apples was seen last week, in spite of heavy (>40 pounds per acre) applications of calcium chloride. Leaf analysis in an orchard sprayed with a liquid calcium showed low calcium in the leaves and some cork spots on the fruits. Potassium levels in nearly all leaves sampled were low, but a recent review indicated that this can be a dry soil effect. But in blocks where potassium and other elements continually run in the low or deficient range, soil sampling should follow, and post-harvest is a good time to do that.

Codling moth catches have resumed (12 moths in the past 10 days) in the Back-40 and some other areas. Late maturing varieties might need some more protection. So far, the summer diseases of apples have been noteworthy by their absence, but several days of drizzle and heavy dews have been quite favorable for botrytis in red raspberries.

Matted row strawberries really show benefits from ample water in September, so irrigation should be profitable if available and needed. Most likely some nitrogen would also be beneficial at this time. And the irrigation and/or fall rains usually trigger a massive weed seed germination, so a pre-emergent material might be watered in at the same time.

Growers interested in propagation might be reminded that some apple and peach budding can be done into early September. For increasing black raspberry and thornless blackberry numbers, the natural process of rooting of shoot terminals can be facilitated by making a slit in the soil and placing the shoot tip in it to speed up the process.

Chris Doll

Fruit Production and Pest Management

Updates on Codling Moth Phenology ... don't stop control practices too soon

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.)

Based on the numbers in the table below, in southern Illinois, degree-day totals are approaching the levels at which FOURTH generation eggs will begin to hatch in the next couple of weeks. In the far northern portion of the state, THIRD generation egg hatch is only now well underway. Are new eggs really hatching this late in the season or not? One would expect that MOST codling moth larvae that reached their final growth stage in late August (or later) would spin a silken hibernaculum on an apple tree and go into diapause (dormancy) for overwintering. However, observations from pheromone traps in September and October over several years suggest that while MOST late summer larvae may enter diapause, MANY do not, and instead they pupate, develop into adults, mate, and lay eggs, resulting in new stings and tunnels in fruit in September and even early October. Many of these larvae do not have enough time to develop to the last larval stage that can survive the winter, but they still damage and contaminate fruit. So ... keep watching pheromone traps through September, use degree-day accumulations and weather forecasts to estimate when egg hatch will occur or continue (beginning ~ 240 degree-days, base 50F, after moths flights exceed 3 to 5 moths per week), and keep on protecting late apples with insecticide applications for another few weeks if needed. Preharvest intervals for a few insecticides that provide at least some degree of codling moth control are 3 days for Sevin and 7 days for Assail, Clutch, Entrust/Spintor, and Imidan.

Orchard Location	Weather Station	Codling Moth Biofix Date	DD ₅₀ through Sep 6, 2006	DD ₅₀ projected through Sep 13	DD ₅₀ projected through Sep 20
Dixon Springs / Murphysboro	Dixon Springs	April 17	3009	3154	3278
Belleville	Belleville	April 20	3137	3274	3389
Edwardsville	Springfield	April 23	2945	3086	3203
Urbana	Champaign	May 1	2883	3017	3130
Elmwood	Peoria	May 6	2505	2631	2735
Poplar Grove	Freeport	May 10	2215	2326	2415

Codling moth development:

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

Aphids and Whiteflies in Fall Vegetables

It's time for my usual fall reminder about insects that are season-long pests in southern states but usually troublesome only in late season here ...

Beginning in mid August and continuing through final harvests in late September and October is the time of year that aphids show up as late season "colonizers" or "passers through" in several vegetable crops, including tomatoes, peppers, cucurbits, and snap beans. In peppers and tomatoes, the culprits usually are green peach aphid and potato aphid. In pumpkins, cucumbers, melons, and squash, the pest species that colonizes plants is generally the cotton-melon aphid. Late season snap beans are vulnerable to soybean aphid infestation, though at this time soybean aphid moves primarily to its winter host, buckthorn.

Understanding the seasonal biology of aphids helps in understanding the nature of species that simply “pass through” vegetable crops. Most aphids that winter successfully in Illinois have separate winter and summer hosts. Eggs overwinter on a woody plant, and the aphids that hatch from those eggs usually cycle through a few generations on that woody host in the spring and early summer. When “the time is right,” a generation of winged adults is formed, and these “alates” (aphids with wings) migrate to a summer host, usually an annual plant. Rosy apple aphid winters as eggs on apple trees and related species, then moves to narrow-leaf plantain in the summer; soybean aphid winters on buckthorn, then moves to soybeans in the summer. As the summer ends and annual plants begin to dry down, winged adults fly back to their winter host to lay eggs. This life cycle pattern results in lots of aphids moving from place to place in the spring and early summer and again (in even greater numbers) in the late summer and fall. (Not all aphids that are pests of Illinois crops winter here; some are carried here on high-level winds from the south ... the corn leaf aphid is one common example of a pest species that reaches us in this way.)

So aphids can be a problem in vegetables when they actually colonize plants (settling on the plants, reproducing, and building up numbers) or when they simply pass through weedy areas and then fields, making feeding probes along the way, picking up and transmitting viruses as they do so. In peppers and cucurbits, virus transmission by several aphid species may threaten yields and crop quality when the aphid vectors pass through and feed in the crop earlier in the season, but virus transmission in these situations is NOT really preventable by insecticide applications. However, when colonies of aphids build on plants in late summer, controlling them to prevent yield losses that result directly from feeding can be worth doing.

In cucurbits, Thiodan (endosulfan) and Capture give some control, but thorough coverage of upper and lower leaf surfaces is essential (as it is for all insecticides used for aphid control except for systemic products). Dimethoate is labeled for use on melons for aphid (and mite) control, but its use on other cucurbits is not legal. Malathion, Diazinon, and Lannate are somewhat effective. Newer insecticides labeled for aphid control in cucurbits include Fulfill (pymetrozine) and Actara (thiamethoxam). In peppers, Assail, Orthene, Dimethoate, Thiodan, and Provado are labeled for aphid control; all are fairly to very effective. Platinum and Fulfill are newer products registered for aphid control in peppers. In addition, an older organophosphate, Metasystox-R (now sold as MSR Spray Concentrate by Gowan), is still labeled and effective for aphid (and mite) control on peppers and cucurbits. For organic growers, insecticidal soaps such as M-Pede are the best bet, though thorough coverage of leaves is especially important for soaps.



Left: green peach aphid colony (photo from Colorado State University). Right: greenhouse whiteflies.

Whiteflies don't winter well in the Midwest, but by late season the combined processes of migration, movement on transplants, and local population increases produce populations great enough to warrant control in several vegetable crops, especially in the southern part of the state. In recent years, the "players" have included a banded-winged species, the greenhouse whitefly, and the sweet potato or silverleaf whitefly. The crops most often infested are green beans, cucurbits, eggplant, peppers, and tomatoes. The effectiveness of insecticides labeled for whitefly control varies considerably among locations, depending on the insecticide resistance characteristics of local populations. In some instances, a pyrethroid (Warrior, Baythroid, Mustang-Max, Capture, Asana, or others, depending on the specific crop) may be effective; in other instances the local population may be resistant and go uncontrolled. Provado and Assail are effective alternatives in some of these crops, as are Lannate, Dimethoate, and Thiodan. Actara, Knack, and Fulfill are labeled for whitefly control in peppers; Fulfill is labeled for use on cucurbits as well. Insecticidal soaps (M-Pede) and neem products provide some control for organic growers. The key is to scout at least weekly to detect building infestations and to evaluate any insecticide treatments a couple of days after application. If a particular product fails to provide control, shift to an unrelated insecticide if another treatment is

necessary. Check the [2006 Midwest Vegetable Production Guide](#) for listings of registered products for specific crops and for preharvest intervals (PHIs) that must elapse between application and legal harvest for each crop and insecticide combination.

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Words of Wisdom

The Beloit College Mindset List for the Class of 2010 ... a few entries from the list

Most of the members of the class of 2010 – freshmen entering colleges around the nation – were born in 1988. In their world,

- The Soviet Union has never existed and therefore is about as scary as the student union.
- They have known only 2 presidents.
- For most of their lives, major U.S. airlines have been bankrupt.
- There has always been only one Germany.
- They have never heard anyone “ring it up” on a cash register.
- A stained blue dress is as famous to their generation as a third-rate burglary was to their parents’.
- The Moral Majority has never needed an organization.
- They have never had to distinguish between the St. Louis Cardinals baseball and football teams.
- “Google” has always been a verb.
- Mr. Rogers, not Walter Cronkite, was the most trusted man in America.
- Carbon copies are oddities found in their grandparents’ attics.
- They grew up in mini-vans.
- Brides have always worn white for a first, second, or third wedding.
- Television stations have never concluded the broadcast day with the national anthem.
- The U.S. has always been studying global warming to confirm its existence.
- Richard M. Daley has always been the mayor of Chicago.

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