

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 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

Pumpkin Day

The University of Illinois will host a "Pumpkin Day" program on September 5, 2003, at the Vegetable Crops Research Farm at Champaign (on First Street, just south of Windsor Road). Mohammad Babadoost, University of Illinois Extension Plant Pathologist, has organized the program, and it will include plot tours and presentations by Mohammad Babadoost, John Masiunas, John Swiader, Chuck Voigt, and Rick Weinzierl on topics including disease, insect, and weed management, soil fertility, and variety evaluations. The program begins at 10:00 a.m., includes lunch, and ends at 2:00 p.m. There is no charge for attendance, but please register in advance by phone or email. Contact Mohammad Babadoost to register or for more information (including directions) at 217-333-1523 or babadoos@uiuc.edu.

Crop Reports

In the south and southwest, very little rainfall and soaring temperatures are the rule. Night temperatures have begun to drop, allowing the soil to recharge somewhat overnight. One good outcome is that flavor has been superior in many of our fruits and vegetables, particularly melons, tomatoes, and peaches. Heavy rainfall during harvest of these crops can significantly reduce flavor, and in the case of tomatoes, splitting can occur. Yellow shoulder of tomato has been reported, and is thought to be related to high light and temperatures, although the exact cause is unknown. For areas without irrigation,

plants and trees are beginning to show signs of heat and water stress.

Japanese beetle pressure has dropped significantly. My yellow rose bush has gone unmolested for an entire week, serving as a good indicator that the adult phase has almost passed. Nut tree growers should be seeing early pecan nut drop at this time resulting from any curculio damage. Trunk spraying can provide some control of adults as they crawl up the trunk to the upper canopy to lay their eggs.

Peach growers are through or finishing up Cresthaven. Quality and yield have been outstanding throughout the season, making this one of the best peach crops growers have experienced in many years. Apple harvest is picking up, and as a reminder to cider makers, the Illinois Cider and Hard Cider Contest will again be held at the Illinois Specialty Crops Conference in Springfield, January 22 -24, 2004. Those making hard cider will want to get started now in order to have the maximum amount of fermentation time. Traditional brews are welcome; that is, without any added sugar or other ingredients, relying on wild rather than cultured yeast strains, and without the use of sulfur dioxide, yeast nutrients, or other additives. Hard cider makers can definitely use these ingredients to make a more predictable product, just make sure your product is hard cider, not hard cider wine. Although there is no definite break or definition where hard cider stops and where wine starts, we are looking for a hard cider product with an alcohol content below 8%. We will be asking for a minimum of one gallon of product for the judging contest.

Several other winter meetings have been scheduled for the southern region as follows:

- February 3, 2004. South Central and Southern Illinois Tree Fruit School, Mt. Vernon Holiday Inn.
- February 4, 2004. Southwest Illinois Tree Fruit School, Hardin, location to be announced.
- February 11, 2004. Southern Illinois Vegetable School, Mt. Vernon Holiday Inn.
- March 2-3, 2004. Small Fruit and Strawberry School, Mt. Vernon Holiday Inn.

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In northern Illinois, recent weather has been characterized by sunny days with day temperatures in the upper 80s to 90s, with the highest temperatures of 96-98 °F recorded on August 21, 25 and 26. Night-time lows have been mostly in the mid to upper 60s with a few days in the low to mid 70s. Since the beginning of August up to August 27, it has been hot and sunny, with rainfall of 0.3 - 1.4 inches. The result of this weather is drought conditions in many counties in northern Illinois. Low soil moisture content has caused a lot of damage to vegetables and field crops in the region, and crops in fields that are not irrigated are wilting.

Orchardists continue with summer spray programs to control apple scab, fruit rots, sooty blotch and flyspeck, aphids, codling moths, Japanese beetles, apple maggot, mites, leafhoppers, and leafrollers. There is a need now to increase calcium chloride sprays to 12 lb/acre to control cork spot, bitter pit and Jonathan spot. Picking of early apple varieties such as Red Free, Pristine, William's Pride, Ginger Gold, Mollies Delicious, Lodi, Dayton, Duchess, and Prima is going on in many pick-your-own apple orchards. Peach (a few up here) and fall-bearing raspberry picking is going on as well.

It is also very important at this time to observe pre-harvest intervals for insecticides and fungicides used in orchards. There is an article on *Pre-harvest Interval (PHI) for Common Insecticides* in the Ohio Fruit ICM news Vol. 7 Number 31 of August 14, 2003 (<http://www.ag.ohio-state.edu/~ipm/fruit/03icm31.htm#linkd>), which is a good reference for fruit and vegetable growers in addition to label instructions on pre-harvest intervals for chemicals not listed in this article.

Harvesting of sweet corn, muskmelons, tomatoes and other vegetables continues on most farms. Corn earworm moth counts have been increasing from Friday last week (August 22) to more than 80 per night. Tomatoes and peppers are looking good at the moment but growers need to water them well during this period, as hot and dry conditions may lead to blossom end rot on developing fruits. Serious phytophthora problems on peppers and vine crops have developed on some farms. The pepper problem is mainly in fields that were flooded last month. The vine crops, which are seriously affected, are pumpkins and melons. There is also a serious outbreak of mosaic virus disease in zucchini and pumpkin patches, affecting mainly the new growth. I also observed and received reports of western corn rootworm beetle feeding on pumpkin leaves and sweet corn leaves, tomato hornworms and other fruit worms feeding on tomatoes, aphids feeding on squash seedlings even at the first leaf stage, powdery mildew on pumpkin and squash leaves, gummy stem blight on muskmelons & cucumbers, and fruit rots in some pumpkin patches.

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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 Aug 19	DD, Base 50 F, through Aug 26	DD, Base 50 F, 40-yr average through Aug 26	DD, Base 50 F, projected through Sep 9
1. Carbondale	2995	3200	3210	3522
2. Belleville	3162	3376	3153	3694
3. Mt. Vernon	2756	2950	3079	3270
4. Springfield	2636	2835	2836	3137
5. Urbana	2585	2778	2653	3068
6. Peoria	2550	2753	2673	3046
7. Kankakee	2362	2540	2536	2832
8. Moline	2540	2750	2598	3035
9. St. Charles	2128	2315	2242	2568



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

We should not have bragged about the cool summer! The past week has been a scorcher, with two 100 degree days and the others into the high 90s.

Without water (there has been 0.2 inches of rain on the Back 40 during the last 43 days) plant stress is showing as leaf drop, wilting, and sunburn, the latter primarily on apples like Honeycrisp and Red Delicious to name a couple. Being in a thunderstorm in Washington, Missouri, today was pure enjoyment.

According to my records, we continue to follow the phenology dates of 2002. Gala is past prime maturity, Honeycrisp is ready to pick, some early Jonathans are being picked, and Fayette, Rio Oso Gem, and Encore peach harvest has started. Kendaia and Alden grapes are ripe, and Concorde are well colored. Red raspberries have collapsed from the heat, but growth of black raspberries and blackberries looks good. The Japanese beetles continue to feed on my wife's roses, and inspection reveals that mating continues also. August 30 was the last day for them here in 2002.

Some recent orchard observations:

- Sandy soil at the 33 inch depth around some excavated peach roots on 8/19 had no available soil moisture.
- Colored spots of Gala appear to withstand heat stress and sunburn on the tree better than the original clone. As of 8/27, stem-end cracking is just beginning on fruit remaining on the trees.
- Codling moth trap counts are down, but moths are still present, and there are larvae in the 3rd, 4th and 5th instar in fruits in both southern Illinois and eastern Missouri.
- White rot infections, both small red spots and completely rotted fruits, were seen in a couple of blocks last week. Bitter rot infections are at a much lower level than in the past two years.
- San Jose crawlers were readily visible on apples today at this latitude, but in contrast to last year, the number of problem sites is lower in both peach and apple orchards.

- Necrotic leaf blotch on Golden and its seedling is a common sight. Trees that did not receive EBDC fungicides seem to have a greater leaf drop problem.
- Beauteous sites are common in apple and peach orchards when the fruit is large and colorful. Two additions to the colorful picture were seen this past week when apple trees were covered with white blossoms of wild sweet potato and blue blossoms from wild morning glory. These cover crops do not enhance the quality of the apples however.
- 2003 appears to be a pear year. The entry numbers for pears at the Adams County Fair and the Illinois State Fair were way up, and most trees in this area of the state have a full crop.
- Fruit drop and timing of NAA sprays: Dr. Jim Schupp of Cornell in the Cornell University "Scaffolds, Vol. 12, No. 23, on August 18, 2003, suggests that "limb tapping should be used to determine the onset of drop as fruit nears maturity. Bump several scaffold limbs of 3 to 4 inches in diameter throughout a block on a daily basis. Use the palm of your hand with a short firm stroke, striking the limb at its midpoint. If zero to one apples per limb drop on average, its too soon to apply NAA. If the average is about two, check again later the same day or next morning. When several apples drop in response to limb bumping, its time to harvest within two days or apply NAA."
- A direct marketing approach to selling peaches with a few scab spots, especially with food safety conscious customers: explain that it is only skin deep and that you are on a minimal pesticide or IPM program that reduces pesticide usage, and that they are as close to organic as you can get. Peaches move right on out to a Clayton, Missouri clientele (from a Missouri peach grower and marketer).
- 2003 hearsay: The virtual "Apple Crop" group has been talking about turkeys eating apples and other crops. A Missouri grower says that deer are so thirsty that they are pawing out the drip lines and cutting them to get water.

Chris Doll

Vegetable Production and Pest Management

Management of Powdery Mildew of Cucurbits

Powdery mildew of cucurbits, caused by the fungus *Sphaerotheca fuliginea*, is an important disease of cucurbit crops in Illinois and worldwide. This disease can result in serious losses on muskmelon, pumpkin, and squash. Most of the cucumber varieties are resistant, and watermelons are rarely affected. The fungus is an obligate parasite. Spores dispersed over long distance from alternate hosts are the primary source of inoculum.

Powdery mildew is diagnosed by white, powdery mold on plant tissues. The disease first appears on lower stems and petioles (Figure 1). As the disease continues to develop, the white, moldy spots occur on the underside of leaves (Figure 2). Symptoms on the upper leaf surfaces (Figure 3) usually signal an outbreak.

Powdery mildew can be managed effectively by planting resistant cultivars, crop rotation, and application of fungicides. Resistance in the plants is usually partial and may require additional complementary control practices. Rotations with non-cucurbit crops will help prevent serious early season epidemics. Fungicide application is a common control practice for powdery mildew of cucurbit crops.





Several fungicides are effective against powdery mildew. Timing of application of fungicides is very important; they should be applied before symptoms develop. Fungicides most commonly recommended for control of powdery mildew are strobilurins (for example, Quadris, Flint, and Cabrio) and DMI (sterol-inhibiting) fungicides (such as Nova and Procure).

Development of resistance in powdery mildew fungi to fungicides is a common phenomenon, and resistance to both strobilurin and DMI fungicides in *S. fuliginea* has already been reported. Resistance management to strobilurins and DMI fungicides could be improved by applying them in mixtures with contact fungicides such as Bravo, maneb, and fixed coppers. Also, to prevent rapid development of resistance in powdery mildew fungi to DMI fungicides, these fungicides should be applied at the manufacturer's higher label rates and shorter application intervals.

The most effective approach for managing powdery mildew of cucurbits is to combine IPM strategies using plant resistance, cultural practices, and fungicide treatments.

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Downy Mildew of Cucurbits

Downy mildew, caused by the fungus *Pseudoperonospora cubensis*, was observed in pumpkin and melon fields throughout Illinois in the past two weeks. This disease affected pumpkins severely in 2001, but no detection of the disease was made in 2002. Downy mildew affects cantaloupes, cucumbers, gourds, muskmelons, pumpkins, squash, and watermelon. Downy mildew can reduce yield, fruit quality, and crop life.



Symptoms of downy mildew vary with the host and the environmental conditions. The first symptom is usually the appearance of indistinct, pale green areas on the upper leaf surface. In this stage the disease resembles the mottling of mosaics. The pale green areas soon become yellow in color and angular to irregular in shape, bounded by the leaf veins. As the disease progresses, the lesions may remain yellow or become brown and necrotic. During moist weather the corresponding lower leaf surface is covered with a downy, pale gray to purple mildew. Leaf symptoms can be used to diagnose downy mildew in the field in most cases. On watermelons, yellow leaf spots may be angular or non-angular, and they will later turn brown to black in color. Often on watermelons, an exaggerated upward leaf curling will occur.

Control of downy mildew on cucurbits is achieved primarily by the use of resistant varieties and/or fungicide spray programs. Fungicide sprays are recommended for all cucurbits. However, resistant varieties of cucumbers allow for fewer spray applications. Squash, pumpkin, cantaloupe, and non-resistant cucumber varieties are very susceptible and should be sprayed every five to seven days. When night-time temperatures are between 55° and 75°F and relative humidity is above 90%, conditions are ideal for infection. Ridomil Gold, Bravo, Bravo Ultrex, Bravo Weather Stick, Manex, Maneb, fixed copper, Aliette, Cabrio EG, Quadris, and Flint are effective against downy mildew. However, since powdery mildew is also present in cucurbit fields, sprays of Cabrio EG, Quadris, or Flint plus a fixed copper should control downy mildew and powdery mildew and reduce the occurrence of the bacterial spot. Follow label directions carefully.

This issue's words of wisdom ...

A helicopter was flying around above Seattle when an electrical malfunction disabled all of the aircraft's electronic navigation and communications equipment.

Due to the clouds and increasingly dense fog, the pilot could not determine the helicopter's position. The pilot saw a tall building, flew toward it, circled, and held up a handwritten sign that said "WHERE AM I?" in large letters.

People in the tall building quickly responded to the aircraft, drew a large sign, and held it in a window. Their sign said "YOU ARE IN A HELICOPTER."

The pilot smiled, waved, looked at his map, determined the course to steer to SEATAC airport, and landed safely. After they were on the ground, the copilot asked the pilot how he had done it.

"I knew it had to be the Microsoft Building, because they gave me a technically correct but completely useless answer."

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