



UNIVERSITY OF ILLINOIS EXTENSION

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, weinzierl@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.

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Upcoming Programs

- **Consider Organic Farming Workshop, November 13, 2008** ... 12:30 p.m. to 5:00 p.m., at the University of Illinois McDonough County Extension Office, 3022 West Jackson, Macomb, IL. Registration is \$10.00 and includes resources and refreshments. Pre-registration is required by Monday, November 10. Contact the University of Illinois Extension Office in McDonough County at 309- 837-3939 or use <http://web.extension.uiuc.edu/mcdonough/>.
- **Tri-State Organic Video Conference, November 13, 2008** ... 6:00 to 8:30 p.m., also at the University of Illinois McDonough County Extension Office, 3022 West Jackson, Macomb, IL. This interactive video conference will discuss "Advanced Issues in Hoop House / High Tunnel Production." Registration for this evening program is \$15.00 and includes a light meal. If attending both the workshop and video conference, the reduced cost is \$20.00. Pre-registration is required by Monday, November 10. Contact the University of Illinois Extension Office in McDonough County at 309- 837-3939 or use <http://web.extension.uiuc.edu/mcdonough/>.
- **IL/IA Fruit and Vegetable Conference, November 21, 2008** ... at the Scott County Extension Office, Bettendorf, IA. Contact Maurice Ogutu at ogutu@illinois.edu or 708- 352-0109 for more information.
- **Illinois Specialty Crops and Agritourism Conference, January 7-9, 2009** ... Crowne Plaza, Springfield, IL. In addition to concurrent program tracks on fruits, vegetables, herbs, and agritourism and marketing January 8 and 9, three full-day workshops will be held on January 7; topics for these workshops are pumpkin production and marketing, biological control in greenhouses and high tunnels, and federal grant-writing basics. For more details, stay tuned to future issues of his newsletter, or contact Diane Handley of the Illinois Specialty Growers Association at 309-557-2107 or handley@ilfb.org.

Scenes from “Pumpkin Day,” September 12, 2008, at the Southern Illinois University Belleville Agricultural Research Station:



The 2008 Illinois Pumpkin Field Day included presentations on variety evaluations, disease, insect, and weed management, and postharvest handling, as well as an opportunity to see everything first-hand. And, speaking of pumpkins, mark your calendar for January 7, 2009 ... **The Illinois Specialty Crops and Agritourism Conference program includes a full-day workshop on pumpkins on Wednesday, January 7.** More information will follow in upcoming issues of this newsletter. (Or you can contact Diane Handley of the Illinois Specialty Growers Association at 309-557-2107 or handley@ilfb.org.)

Regional Updates

In northern Illinois ... relatively warm weather has prevailed through early October, with highs from the upper 50s to lower 80s and lows from the upper 30s to mid 50s. The region received 1-2 inches of rainfall over the last 2 weeks.

Many pick-your-own operations remain open, with Empire, Jonagold, Rome, and Red Delicious among the late September and early October varieties available to pick. Picking of fall varieties such as Braeburn, Gold Rush, and Granny Smith will start very soon. Harvest of fall bearing raspberries and Asian pears continues in some orchards. San Jose scale has been a problem on apple fruits in a few locations, and multicolored Asian lady beetle is also feeding in cracked fruit.

Some corn mazes are open to the public, and others will open this week. Harvesting of sweet corn and other warm season vegetables such as tomatoes, peppers, and eggplants continues, along with cabbage, collards, mustard greens, beets, carrots, spinach, and other cool season vegetables. There is a good pumpkin crop in the region compared to last year, although there has been some fruit loss due to rots, particularly in low-lying areas that were flooded in early September. Bacterial spot has shown up on pumpkin fruits in many fields.

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

Illinois Department of Agriculture Funds for Organic Certification Costs

The Illinois Department of Agriculture has funding available to offset costs of organic certification. To be eligible for reimbursement, an organic production or handling operation must be located within Illinois, comply with the USDA National Organic Program regulations for organic production or handling, and receive certification or continuation of certification by a USDA-accredited certifying agent between October 1, 2008 and September 30, 2009. Under Illinois' current agreement with the USDA, producers and handlers can make application for reimbursement to the Illinois Department of Agriculture by submitting the following documents:

1. Illinois Organic Certification Cost-Share Program application
2. W-9 form (Rev. 10/7)
3. Copy of the certificate or continuation of certification document from the USDA-accredited certifying agency
4. Copy of your paid, itemized invoice from your certifier

Based on the receipt of the completed application packet by the Illinois Department of Agriculture, reimbursements will be on a first-come, first-served basis until the limited program funds are exhausted. For more information, consult the program's web site at http://www.agr.state.il.us/marketing/Mkt_Organic_Cost_Share_Program.html or contact Delayne Reeves at 217/524-9129 or delayne.reeves@illinois.gov.

Deborah Cavanaugh-Grant (217-968-5512; cvnghgrn@illinois.edu)

Fruit Production and Pest Management

Insecticide Changes for the 2009 Fruit Spray Guides

The Midwest Fruit Workers – entomologists, plant pathologists, and horticulturists from around the Midwest – met in Indianapolis last week to discuss fruit production topics and to revise the small fruit and tree fruit spray guides for 2009. Among the changes in insecticide listings (including some labels that were in effect for the 2008 season but were not available when the 2008 guide was printed) are:

- **Altacor** (rynaxypyr / chlorantraniliprole) is listed for control of several lepidopterans (including codling moth, oriental fruit moth, leafrollers, and grape berry moth), as well as apple maggot in apples, pears, peaches, and grapes.
- **Belt** (flubendiamide) is listed for control of several lepidopterans (including codling moth, oriental fruit moth, leafrollers, and grape berry moth) in apples, pears, and grapes.
- **Delegate** (spinetoram) is listed for control of several lepidopterans (including codling moth, oriental fruit moth, leafrollers, and grape berry moth), as well as apple maggot, cherry fruit fly, pear psylla, cherry fruitworm, cranberry fruitworm, and raspberry sawfly in apples, pears, peaches, cherries, blueberries, brambles, and grapes.
- **Radiant** (also spinetoram) is listed for control of leafrollers in strawberries.
- **Movento** (spirotetramat) is listed for use on apples, pears, peaches, and grapes for control of aphids (including woolly apple aphid), San Jose scale, pear psylla, and grape phylloxera.

- **Assail** (acetamiprid) is labeled for additional pests of peaches, blueberries, brambles, and strawberries.
- **Venom** and **Clutch** are listed specifically for multicolored Asian lady beetle control in grapes. (Other insecticides labeled for use against other grape pests may also be effective.)
- Two pre-mixes have new registrations in tree fruits and small fruits. **Leverage** is a combination of cyfluthrin (Baythroid) and imidacloprid (Admire and Provado). **Voliam Flexi** is a combination of chlorantraniliprole (Altacor) and thiamethoxam (Actara). Each is registered on the same crops for which the individual components were registered.
- The active ingredient bifenthrin is no longer being packaged by FMC under the trade name **Capture 2EC**. Instead, the product name for the same formulation is now only **Brigade 2EC**.

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Cold Hardiness and Winter Stress

With the fall and winter cold weather on the horizon, fruit trees go through difficult processes in order to adjust to changes in temperature so they do not freeze. When the weather cools slowly, free water within cold hardy plants such as apples, pears, and other hardy species moves out of the cells into the open spaces between the cells (intercellular space) where most of it is lost to transpiration. However, if the temperature drops rapidly to below freezing, while the plants are still active, the water within the cells freezes there, causing ice crystals to form. The ice crystals puncture the cell membranes, causing leakage and disorganization of the cell component, which can be lethal. A slow drop in temperature also causes hardy plants to “tie up” water to other molecules inside their cells so it does not freeze. Slow movement or tie-up of water inside the cells causes other physiological and biochemical changes inside the cells, such as thickening of the cell membrane, conversion of sugars to starch, build up of growth inhibiting hormones such as abscisic acid and loss of growth stimulating hormones such as gibberellins and cytokinins, and other cytological and biochemical changes. Very hardy plants also produce polymer material that acts like anti freeze to inhibit water from freezing inside their cells. Cold-tender plants avoid extinction by forming seeds; then the plant may die (or the top of the plants die, but the underground organs survive).



Frozen crab apples -Winter of 2005

Resistance to cold stress is a complex process, but simply put, most experts agree that the reason for cold stress is not low temperature, per se, but the formation of ice crystals inside cells. For this reason, knowing how cold hardy plants escape injury is important in identifying cultural practices that help the trees survive freezing. Cold hardy plants avoid winter stress by going through a development phase called dormancy. Dormancy implies inactivity, however most physiological processes for tree survival continue during this stage, but at a reduced rate (the most important of these is respiration). Dormancy can be divided into two phases, quiescence and rest. Quiescence is the failure of the plants to grow because of cold weather. It is a reversible phase. In other words, if the weather warms up, trees in the quiescence stage will start to grow. Also at this stage trees will break buds when they are injured by pruning or fertilized with nitrogen, especially if the weather warms up for a few days. The second phase is rest. Rest is not reversible by warming up of the weather. In late fall and early winter, depending on cultivar and temperature, trees transition from the quiescence phase into the rest phase after 30 to 40 days of temperature below or slightly above freezing. The same happens in late winter and early spring, trees transition from rest into quiescence after 20 to 40 days of temperature above freezing (see model below).

Quiescence (early fall to early winter) → Rest (winter) → Quiescence (late winter to early spring)

For these reasons, trees exposed to a few days of warm temperature during early fall and late winter may break bud, while trees exposed to the same temperature in midwinter will not. Trees exposed to warm temperature followed by very cold temperature during the quiescence stage will likely be severely injured more than trees exposed to the same regime in the rest phase during the middle of winter. Again, the reasons are many and are driven by water movement, hormonal and solute build up, and morphological changes at the cellular level. Growers who are interested in pruning in the early fall or late winter must know about these processes. Know that trees are likely to be injured if they are pruned during the quiescence stage but not at the rest stage. Avoid pruning young trees less than 10 years old, trees on sub dwarfing rootstocks (M.27 EMLA, P.22) and trees on M.9 size trees during the quiescence phases. Also, avoid pruning trees at the quiescence phases if they were pruned heavily the year before or if you applied a heavy nitrogen dose in the summer. Avoid pruning trees that lost a major scaffold to wind or other mechanical damage during quiescence. Avoid pruning tender varieties at quiescence, like apricots, plums, and Asian pears, and some peach varieties. Peaches should be pruned in early spring after bloom or the last frost.

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Vegetable Production and Pest Management



Broad mite injury to peppers (Photo by Nancy Pataky.)

Broad Mite Injury to Peppers

In mid-September, Nancy Pataky of the University of Illinois Plant Clinic received samples of pepper fruits that showed irregular patterns of russetting. Leaves were distorted and curled as well. Close examination just beneath the stem end / collar of the fruits revealed tiny tarsonemid mites that appear to be broad mites. These mites are related to cyclamen mite, another species known to cause similar damage in peppers. This problem occurred in a high tunnel system, though outdoor infestations can occur as well.

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Less seriously ... did you know that October is ...

Auto Battery Safety Month, Dryer Vent Safety Month, Go Hog Wild - Eat Country Ham Month, Go Nuts Over Texas Peanuts Month, Listen To Your Inner Critic Month, National Chili Month, National Liver Awareness Month, National Sarcastics Awareness Month, National Toilet Tank Repair Month, and Self-Promotion Month (I know some folks who use far more than a month each year for that).

And October weekly observances include ... No Salt Week: 1-5, Get Organized Week: 5-11 (oops, we missed that), Squirrel Appreciation Week: 5-11, Freedom From Bullies At Work Week: 13-19, National Pet Peeve Week: 13-17, International Infection Control Week: 20-26. Wow.

(Hey, these are all “officially” decreed. And you thought October was just a great time for harvesting crops, making cider, and watching leaves turn.)

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