

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.

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

Crop and Regional Reports

In southern and southwestern Illinois, although the region is still running in the rain deficit range, most areas have received enough rain to overcome any immediate drought stress. Crabgrass and pigweed have really taken off following late August rains.

Grape harvest continues as varieties come on. I have seen some fruit cracking in grapes, which is attracting yellowjackets and bees, making hand harvesting somewhat of a challenge. The peach season is coming to an end, and apples are starting up. I am seeing good size on Gala and Jonathan, but color development is not as intense this year. For anyone looking for K-Salt Fruit Fix 200, Tom Schwartz from Southern FS reports they have it on hand. Pressing of apples for cider has started as well in the region.

Pumpkins are in all stages of development, depending on market window. Virus seems to be quite prevalent this year. Sweet corn, watermelon, and tomatoes are still in harvest. This might be a good time to mention that the crop production workshop normally tied to the Specialty Growers Crop Conference will focus on sweet corn and tomato this year. The workshop is scheduled for Thursday, January 19th, following directly after the Specialty Growers Crop Conference. Details as they become available will be posted at <http://www.specialtygrowers.org>.

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

In northern Illinois, the weather has been mostly sunny with day temperatures in the upper 70s to mid 80s and night temperatures in the upper 40s to low 60s. Between August 18 and 30, the region received 0.2 to 3 inches of rainfall. Many pick-your-own orchards with apples opened to the public at the beginning of September. Harvest of early maturing varieties (Red Free and Paula Red) is done in most orchards, and harvest of late summer varieties (Gala, Jonamac, Ozark Gold, McIntosh, and Cortland) is underway or will be soon. Growers also are picking fall bearing raspberries now.

Harvesting of sweet corn, tomatoes, peppers, muskmelons, watermelons, squash and other vegetables continues. There is some smut in sweet corn, and corn earworm moth counts were high late August in some areas. Powdery and downy mildew have been observed on pumpkins and other vine crops, and early blight and septoria leaf spot are present in tomatoes. Mosaic virus symptoms have been observed on new growth in pumpkins and squash. Pumpkin fruit is sizing well and in some fields more than 80% of the fruits are orange in color while there is also a flush of new fruit set.

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Upcoming Meetings and Programs

December 1, 2005, Illinois-Iowa Fruit and Vegetable Conference

Iowa State University Scott County Extension Office, 875 Tanglefoot Lane, Bettendorf, IA. Details will be announced as the date approaches. Until then, contact Martha Smith at 309-836-3366 or smitha@uiuc.edu.

January 17-19, 2006, Illinois Specialty Crops Conference

Crowne Plaza, Springfield, Illinois. Details will follow in upcoming weeks. Until then, contact Diane Handley at the Illinois Specialty Growers Association, 309-557-2107 or handley@ifba.org.

Vegetable Production and Pest Management

Aphids and Whiteflies in Fall Vegetables

(In case it looks familiar ... This brief article is revised from issue 12 of the 2003 Illinois Fruit and Vegetable News.)

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 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 (draining sap, not transmitting viruses) 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 is somewhat effective. Newer insecticides labeled for aphid control in cucurbits include Fulfill (pymetrozine) and Actara (thiamethoxam). In peppers, 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, is still labeled and effective for aphid control on peppers and cucurbits. For organic growers, insecticidal soaps such as M-Pede are the best bet, though coverage of leaves is especially important for soaps.



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

In the late summer and early fall, Illinois vegetable growers get to share in the joy of knowing certain insects that for most of the season are restricted to more southern climes – 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 (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 is an effective alternative 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 [2005 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.

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

Fruit Production and Pest Management

Preharvest Intervals for Insecticides and Fungicides

I've listed preharvest intervals (PHIs) for specific insecticides for peaches in an earlier issue of this newsletter, but it's time to call attention to them – and to similar listings for fungicides – again for apples, grapes, and fall raspberries as well. For apples and any peaches still to be treated and picked, PHIs for insecticides are listed on pages 36-37 and PHIs for fungicides are listed on page 34 of the [2005 Midwest Commercial Tree Fruit Spray Guide](#). For fall raspberries, blackberries, and grapes, PHIs for fungicides are listed on page 50 and PHIs for insecticides are listed on page 52 of the [2005 Midwest Commercial Small Fruit and Grape Spray Guide](#).

Root Infestations of Grape Phylloxera in Illinois Vineyards

Significant injury to grapevines by root phase infestations of grape phylloxera was observed in hybrid grapes in a northern Illinois vineyard during the summer of 2005, and subsequent sampling in a limited number of vineyards confirmed root infestations in other Illinois production areas as well. Grape phylloxera is a worldwide pest of grapes. Separate forms feed and cause galls on leaves and roots, with leaf forms most common on *Vitis* species native to North America and root forms

most prevalent and damaging on *Vitis vinifera* cultivars. Most Illinois growers are familiar with the leaf galling form of phylloxera, but they are less knowledgeable about root infestations which can be far more damaging. In root infestations, damage to grapevines is caused by secondary soil-borne pathogens that enter at the feeding sites and by physiological interactions between the plant and insect. Resistant rootstocks derived from native American species provide the primary means of phylloxera management; hybrids containing *V. vinifera* parentage show varying degrees of susceptibility correlated to the extent of *V. vinifera* heritage. Granett et al. (2001) have written an extensive review of grape phylloxera life history, population dynamics, viticultural damage, and management; that review (on which this newsletter article is based) is accessible at:

<http://arjournals.annualreviews.org/doi/abs/10.1146/annurev.ento.46.1.387?cookieSet=1>.

Granett et al. (2001) distinguish between the significance of root galling on new roots near the tips (called nodosities) and galls that form on mature, suberized roots (called tuberosities). Galls on mature roots are associated with decline in vigor and death of vines; galls on new rootlets generally are not. Initial above-ground symptoms of root damage include a fading of leaf color similar to that observed in potassium deficiency; this occurs in midsummer when vines are heat-stressed. Vine decline is most rapid in heavy clay soils. Where galls occur on mature roots, fungal pathogens such as *Fusarium oxysporum* infect and girdle roots and may cause the death of plants. Measuring root necrosis is suggested for assessing severity of infestations and effectiveness of resistant rootstocks or hybrids.

Resistant rootstocks prevent the formation of galls on mature roots, however, phylloxera and galls (nodosities) may be common on new rootlets. A biotype of phylloxera (biotype B) that produced tuberosities and damaged the weekly resistant AXR#1 rootstock was discovered in California in 1983; it does not damage other resistant rootstocks. Other biotypes have been described based on their infestation of and population growth on specific rootstocks in France, Germany, and New Zealand.

In the last 5 years, phylloxera and subsequent fungal infections have been observed in California causing decline of vines on rootstocks previously thought to be strongly resistant. Personal communication with Dr. Granett indicates that the current hypothesis to explain this damage is related more to the development of virulent strains of *F. oxysporum* than to a new biotype of phylloxera. Preliminary data has led Granett and coworkers to suspect that infections by virulent strains of *F. oxysporum* that developed at sites where AXR#1 was used are now occurring where phylloxera has made feeding probes on mature roots even though galls (tuberosities) were not induced on these resistant rootstocks.

Applying the information in Granett's review and other relevant publications and communications to recent observations of phylloxera in Illinois suggests that surveying phylloxera populations (root phase and leaf phase) and root injury in Illinois vineyards is warranted. Understanding the extent of infestations -- geographically in the state and across rootstocks and hybrids -- and the damage they are causing is essential to the success of the Illinois grape and wine industry. Successful management of current plantings and selection of rootstocks and hybrids for future plantings require knowledge of the status of phylloxera infestations and damage. Plans to conduct such a survey in 2006 and 2007 are under development.

One of many informative fact sheets on grape phylloxera is available on line from Ohio State University at :
<http://ohioline.osu.edu/hyg-fact/2000/2600.html> .

Literature Cited:

Granett, J., M.A. Walker, L. Kocsis, and A.D. Omer. 2001. Biology and Management of Grape Phylloxera. Annual Review of Entomology 46: 387-412.

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This issue's words of wisdom (well, not always wisdom, and usually not true) ...

A new wine for senior citizens ...

California vintners in the Napa Valley, proud producers of Pinot Blanc, Pinot Noir, and Pino Grigio wines, have developed a new grape that acts as a diuretic. It is expected to reduce the number of trips that older people have to make to the bathroom during the night. The new wine will be marketed as Pino More.

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