



UNIVERSITY OF ILLINOIS EXTENSION

College of Agricultural, Consumer, and Environmental Sciences

Illinois Fruit and Vegetable News

Vol. 17, No. 3, April 25, 2011

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

Upcoming Programs

- **Grape Growers Workshop, May 14, 2011.** Lazy L Grape Ranch, near Mechanicsburg, IL. Brad Taylor, SIU, and Elizabeth Wahle, UI Extension, will demonstrate and discuss shoot thinning and positioning, cluster thinning and leaf removal, vineyard floor management, and petiole sampling. Registration begins at 9:30 a.m. On I-72 east of Springfield, take Exit 114 into Mechanicsburg. Turn left (east) onto W. Main Street, then right onto S. Church Street, which turns into Roby Road. Continue south past Darnell Road and turn left (east) onto Moomey Road. The vineyard is on the right (south) and visible from the road. Registration is \$20.00 for individual IGGVA members or \$30.00 per vineyard or non-IGGVA member. Registration is at the door and includes lunch. For further details, contact Elizabeth Wahle at wahle@illinois.edu or 618-692-9434, ext. 21.
- **SW Illinois Orchard Twilight Meeting, May 19, 2011.** Broom Orchard, located 2.3 miles south of Carlinville/IL-108 on the Alton Road/Shipman Road. Program begins at 6:00 p.m. For more information contact Elizabeth Wahle at 618-692-9434, ext. 21 or wahle@uiuc.edu.
- **Central Illinois Sustainable Farming Network** field days and workshops include **Equipment for Small Farmers, May 21, 2011**, 1:00-3:30 pm (registration starting at 12:30 pm), [Spence Farm](#), 2959 N 2100 E, Fairbury, Illinois. For more information, see the University of Illinois Extension Small Farms website at <http://web.extension.illinois.edu/smallfarm/events.cfm>.
- **Illinois Summer Horticulture Day, June 9, 2011.** Braeutigam Orchard, 2795 Turkey Hill Lane, Belleville, IL. Registration begins at 8:00 a.m. Program includes tours, displays, updates, and equipment demonstrations. More details will follow in upcoming issues of this newsletter.

Regional Updates

In southern and southwestern Illinois, fruit crops have come through early spring well in terms of fruit set; even the few apricots in the region have set a crop this year. Based on my fruit plantings (St. Louis Metro East), apricots are at 10+ mm, peaches are at fruit set-shucks off, cherries are at petal fall, and apples are at 5+ mm depending on cultivar. Grapes are between bud break and bloom. Matted row strawberries are showing good leaf and flower development, and plasticulture berries are moving towards fruit ripening. Blueberries are in full bloom; brambles are leafing out, and primocanes are showing good growth.

Bloom or just prior to bloom is a critical control point for several pests in small fruit: thrips and gray mold in strawberries; Phomopsis in blueberries; Anthracnose, Phomopsis, and black rot in grapes. Be sure to target these critical sprays; registered pesticides are listed in the ***Midwest Small Fruit and Grape Spray Guide*** (<http://www.ag.purdue.edu/hla/Hort/Documents/ID-169-2011.pdf>).

For fire blight management, Apogee is an option for managing twig blight infection, and the initial application to susceptible and vigorous cultivars should be timed for petal fall of king bloom. Remember tree foliage is necessary for good uptake and it takes about 10 days for shoot extension growth to slow. The effect will last 2 to 4 weeks and subsequent applications should be made when first few shoots show sign of regrowth. A potential negative side effect is a significant increase in fruit set and a corresponding decrease in fruit size, requiring a more aggressive thinning program by increasing thinner rates by 5 to 10%. There should also be at least 2-4 days between application of Apogee and chemical thinners.

For varieties that are traditionally difficult to thin, including Fuji, Golden Delicious, Lodi, Rome, and Wealthy, plan to thin early (petal fall to 7mm) to allow time for follow-up sprays if necessary. For moderate to heavy thinning of difficult varieties, the first thinning spray could be applied at petal fall using Sevin (1 lb) + spray oil (1 qt) per 100 gallon dilute. Follow that with a combination spray at 7mm-12mm if needed. For moderate thinning, consider Sevin plus NAA or Sevin plus 6BA. For heavy thinning, consider combining Sevin with 6BA and spray oil. A few reminders about NAA ... high rates and later timing increase the risk of pigmy fruit for Delicious, Fuji, or Gala. Do not use NAA and BA on the same trees of Delicious or Fuji, or excessive formation of pygmy fruit may result. See the ***Midwest Tree Fruit Spray Guide*** (<http://www.extension.iastate.edu/Publications/PM1282.pdf>) for additional recommendations or a more detailed discussion in the ***Pennsylvania Tree Fruit Production Guide*** (<http://www.extension.iastate.edu/Publications/PM1282.pdf>).

The region has come through several storm fronts, so most fields are at field capacity. With more rain in the forecast, residents living in areas near rivers are preparing sandbags. The Mississippi River is the most affected and is expected to run approximately 4-6 feet above flood stage throughout much of Illinois. The Illinois River is running just above flood stage, with Hardin expecting the highest levels at 4 feet above flood stage.

Note the upcoming Grape Grower Workshop scheduled for **May 14** at the Lazy L Grape Ranch near Mechanicsburg, IL, and the Orchard Twilight Meeting scheduled for southwestern Illinois commercial tree fruit growers on **May 19**. Details for both are summarized in the *Upcoming Meetings* section at the beginning of this newsletter.

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

In northern Illinois, a period of warmer weather with highs from the upper 40s to low 70s between April 11 and 17 was followed by much cooler conditions from April 18 to 22, and snow showers were reported along the Wisconsin border on April 18. Colder temperatures and 2 to 4 inches of rain since April 11 have prevented field work throughout nearly all the region. Growers are finishing pruning in tree fruits, and grape pruning is continuing in vineyards. Apples, pears, sour cherries, and other tree fruits are in the green tip to half-inch green stages, and sprays are being applied accordingly. Adult spotted tentiform leafminer pheromone traps are in place in many orchards. Transplant production for warm-season crops such as tomato, peppers, and others is underway in the greenhouses.



Sour cherry at half-inch green stage, St. Charles Horticulture Research Center, April 21, 2011.

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

Notes from Chris Doll

WET describes the primary condition in southwestern and southern Illinois. The rainfall total for April in the Back-40 is 7.0 inches, and more was the way for Easter Sunday. Ren Sirles of Alto Pass says that the total in that area is 8-12 inches. So ... fantastic weather for apple and peach scab development in this area, and all we can hope for is that the anti-fireblight sprays will be effective against that disease. Mr. Sirles also reported numerous hail storms in that area, and there have been more publicized reports of hail storms for this latitude than ever before. He also said he had the second heaviest hail storm during his life. To go along with his weather, no codling moths were trapped in the past seven days, so no biofix has been set there. My codling moth traps have remained empty, but enough oriental fruit moths were caught by April 14 to set a biofix for that pest.

Locally, peaches are in the shuck split to early shuck-off stage, and the king fruit of Gala apples ranges between 8 and 10 centimeters. Thinning time is here for the apples, but both ground conditions and the need for warmer temperatures could present problems. Early in the week I saw an orchard with deep ruts and mud holes and that can only be worse now. On a rainy day after that observation (and many others in my career) I browsed my copy of Practical Orchardng by Shepard W. Moore in 1911 in which he wrote "there is no one thing that should receive more careful attention when selecting an orchard site than the subject of drainage." The orchard noted above had a good sod cover that did not hold up, but the wider row spacing for trees on MM111 allowed for some maneuvering room. A small test block of high density trees with a 12-foot aisle did not allow for anything but driving in two rows of deep ruts and nowhere else to go but straight ahead.

The rest of the phenology report is that we are a little behind from 2010, Matted-row strawberries are blooming nicely, red and black raspberries are showing flower buds, and grape shoots are 6-10 inches long. As with the tree fruits, maintaining spray coverage is a problem because of the continuing rain. Maybe some of the down time from the weather will allow for more time to study old records and current suggestions for the best of chemical thinning. This is covered on pages 53 and 54 in the *Midwest Tree Fruit Spray Guide*. More help or confusion can be gained by looking at similar publications from Michigan, New York, New Jersey, Pennsylvania, North Carolina and Virginia to name a few.

The trend by some individuals for by-passing modern pesticides brought a request to make liquid lime sulfur. My last request for this was about 45 years ago, so it took a little research to find the recipe. It was in the "American Peach Grower" book by F. A. Waugh in 1913. It consisted of boiling 16 pounds of unslaked lime and 16 pounds of flowers of sulfur in 50 gallons of water in metal tank. Not quite as easy as making Bordeaux Mixture or buying products through commercial channels. And I don't miss the smell or use of the liquid lime sulfur from my hand-gun spray days.

Chris Doll

Specialty Crops and Local Foods Issues

Brown Marmorated Stink Bug Found in Illinois



Damage caused by BMSB to apple (photo by the Maryland Department of Agriculture).



From left: brown marmorated stink bug on outside ear, kernel damage and tomato damage (David Wright: corn photos, Eric Day: tomato) (Virginia Cooperative Extension).

The brown marmorated stink bug (BMSB) has been making headlines in Illinois the past couple of weeks. After the first confirmation of this invasive insect was reported in the fall of 2010 (Cook County), additional reports have continued in 2011. In January, a homeowner reported an infestation in a home in Kane County, and just a couple of weeks ago, a homeowner in each of Normal (McLean County) and Urbana (Champaign) each submitted a single specimen for identification. Reports continue to circulate in northeastern Illinois.

Why is BMSB important?

Like many invasive species, BMSB has a long list of host plants, including many woody ornamental trees as well as several agricultural crops including fruit trees, grapes, tomatoes, corn, soybeans and others. Also, like many other invasive insects, it is easily moved from location to location by humans (hitchhiking on vehicles, movement of shipping materials, and movement of plants). In addition to feeding on plants, BMSB is also considered a nuisance pest to homeowners. Much like boxelder bugs or multi-colored Asian lady beetles, these stink bugs congregate on houses in late fall and move indoors. Homeowners are likely to first spot new infestations as these insects will initially feed on common landscape ornamentals.

How can I tell the difference between BMSB and other stink bugs found in Illinois?

[Adult BMSB](#) have the typical “shield” shaped body of all stink bugs. As their name implies, they have a marmorated or mottled brown color. Their antennae have distinct white bands; on the edge of their abdomen they have alternating black and white bands. The underside of the abdomen is white and the legs may also have faint white banding.

When should I expect to see the BMSB?

Typically, the adults will begin to move to overwintering locations in September, with peak movement in late September and early October. Homeowners may start to see BMSB begin gathering on homes, barns, garages during

this time. In the spring, adults will begin to emerge from their overwinter locations as temperatures begin to warm. After mating, eggs are laid on the undersides of leaves from June to August, with hatch occurring 3-7 days later. Nymphs will pass through 5 instars (each instar stage lasting about a week). New adults begin to appear in late July or August.

What kind of injury does BMSB cause?

Unlike many insect pests that attack plants only during certain times of the growing season, the BMSB will feed on host plants all season long. This causes great concern in fruit crops where they begin feeding early in the season and continue through harvest. Growers should monitor fruit for sunken areas where the insect has fed. These areas will be discolored and corky areas will be present under the skin of the fruit. In corn and soybean, BMSB feed on the developing pod or corn ear. They are able to feed through the husks and pods with their sucking mouthparts, causing shriveled kernels and beans, respectively. In tomatoes and peppers, feeding will also result in corky areas and discoloration, much like injury in fruit.

What do I do if I think I have the BMSB in my home/on my property?

We are very interested in where these insects may be and continue to try to determine their distribution in Illinois. If you believe you have a suspect specimen, we would be very interested in looking at it. To positively confirm any insect as BMSB, we need to look at an actual specimen. Freeze or otherwise kill the insect before sending it. Suspect stink bugs may be sent to Kelly Estes, 1816 S. Oak St., Champaign, IL 61820. Please put stink bugs in a crush-proof container (pill bottle, check box, etc). You can also send a photo to kcook8@illinois.edu for preliminary screening if you wish.

Kelly Estes (217-333-1005; kcook8@illinois.edu)

MarketMaker

The April 2011 edition of the Food [MarketMaker Newsletter](#) is available on the web at <http://national.marketmaker.uiuc.edu/uploads/ea1e985f258f497c48c9fc5b5d31d486.pdf>. To view the document, you will need Adobe Reader. If you currently don't have this program on your computer, you can get the latest version by going to <http://get.adobe.com/reader>.

This month's issue includes information on ...

- National Farm to School Network
- New Agritourism Website in South Carolina
- MarketMaker Great Idea! Food Banks in Michigan
- MarketMaker Buy & Sell Forum ads

A brief note on the National Farm to School Network and the opportunity to improve our children's school menus ...

Every child deserves access to nutritious food. With more than 30 million children eating school cafeteria meals daily, it's imperative that we promote healthy, balanced eating habits to help prevent obesity and other health-related disorders in our youth. The National Farm to School Network is trying to do just that by connecting local producers with local schools in an effort to put healthier, fresher, and more flavorful foods on the school menu. The goal of Farm to School is to improve children's diets while promoting healthy eating, teaching nutrition and garden-based lessons in fun, new, and creative ways, and supporting the community and farmers by encouraging schools to 'buy local'. You can learn more at: <http://www.farmtoschool.org/>.

MarketMaker is doing its part to assist Farm to School efforts by linking local producers with educational institutions. If you are currently a registered MarketMaker user, simply log into your MarketMaker profile and find the 'Methods of Sale' area under the type of products you offer. By checking the 'Farm to School' box, buyers are able to search for your business as they seek out healthy food purchases for local educational institutions.

Not a registered user yet? Go to: <http://www.marketmaker.uiuc.edu/> and click on 'Register Your Business'. This will link you to the registration page where you can begin to enter your business information in detail. Remember, entering

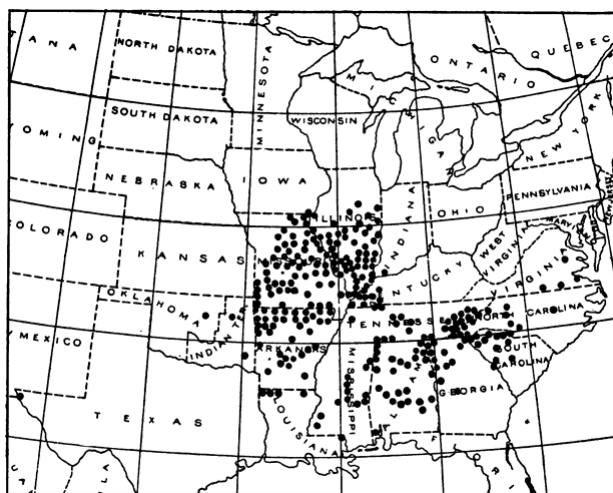
more details makes your business easier to find. For more information, email marketmaker@extension.uiuc.edu or call 309-792-2577.

Lori Dalfonso (309-792-2500; dalfonso@illinois.edu)

Fruit Production and Pest Management

Brood XIX of the 13-year Periodical Cicada Due to Arrive Soon

Tom Ringhausen reminded us last week that we've been remiss in alerting everyone that periodical cicadas will be emerging this spring / early summer in southern and central Illinois. Brood XIX, the Great Southern Brood, will be emerging this year, and it is the largest (by geographical extent) brood of 13-year cicadas. This brood is also notable for including two species that overlap – [*Magicicada neotredecim*](#) and [*Magicicada tredecim*](#). The map below shows the distribution of Brood XIX.



Distribution of Brood XIX of the 13-year periodical cicada.

These cicadas will emerge when soil temperatures 6-8 inches below the surface reach approximately 64 F, so for most of southern and central Illinois emergence will be greatest in mid-May through mid-June. Egg-laying begins a week or so after emergence. For fruit growers, the greatest concern is that adult females use their ovipositors (egg-laying organs) to saw slits into small branches and twigs where they lay their eggs. When the cicada nymphs hatch from these eggs, they drop to the ground, burrow down into the soil, and feed on the roots of trees and shrubs (for 13 years). Nymphs feeding below ground do not cause significant damage, but egg-laying slits can kill small branches and twigs. To protect fruit trees, growers can “enclose” individual trees with spun-bound materials (such as those used in row covers) that exclude cicadas, or they can use residual insecticides. Overall, the pyrethroids are most effective against cicadas. Pyrethroids also kill predaceous mites, and that can trigger outbreaks of European red mites in apples and peaches, so growers are advised to use pyrethroids only if cicada control is needed in addition to spray programs aimed at our “usual” pest species. For more information on cicadas in general, see the University of Michigan periodical cicada site at: http://insects.ummz.lsa.umich.edu/fauna/michigan_cicadas/periodical/index.html.

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

Notes on San Jose Scale Control

The April 18 issue of New York's *Scaffolds* (<http://www.scaffolds.entomology.cornell.edu/2011/110418.pdf>) contains an excellent review of San Jose scale control by Peter Jentsch. He points out that prebloom sprays of horticultural oils provide a great deal of control, and that thorough coverage is essential. Adding Lorsban in prebloom sprays added little to the control provided by oil alone in trials done in New York. Adding Esteem to prebloom sprays can increase effectiveness. A few weeks after bloom, sprays can be directed at controlling first generation crawlers. Peter notes that the timing of sprays for first generation crawlers should be made by 500 DD (base 50F) after March 1. Esteem can be

used effectively at this time; Movento should be used one to two weeks earlier because it works as a systemic that must be taken up by plant tissue and become available to scales as they feed. Using LI-700 or a similar non-ionic surfactant is essential with Movento. Peter points out that controlling second generation scales later in the summer also is important to prevent infestations on fruit. Timing for this application is 1450 DD (base 50F) after March 1. Again, the *Scaffolds* article includes more background information and details, so be sure to click the link above.

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

Managing Soil pH for Optimum Nutrient Availability

The reason for managing soil pH is to ensure adequate supplies of essential mineral nutrients to plants to achieve optimum growth, high yield, and reduce disorders associated with poor nutrition. Although many of the mineral nutrients plants need are available in most Illinois soils, their presence does not necessarily mean that they are available to the plants. Many of these elements are bound to soil particles very tightly in sites called cation exchange sites. In order for mineral nutrients to be available to plants, they have to be released from these sites where they become soluble. Solubility of mineral nutrients is highly dependent on soil pH. For example, at high soil pH, many nutrients such as boron, copper, and zinc become tied up on the soil cation exchange sites, while at very low soil pH potassium, calcium, magnesium, and molybdenum become tied up to soil particles. Phosphorus is another element that often gets tied up to soil particles unless soil pH is adjusted. Phosphorus tends to precipitate, making it unavailable to the plant, in soils with high iron or high aluminum. The following table from Westwood's *Temperate Zone Pomology* lists the availability of minerals in response to different pH levels. Most nutrients will be adequately available to most plants at a soil pH slightly in the acidic range between 6 and 6.8, with a few exceptions like blueberry, rhododendron, and a few others which tend to like acidic soils in the range of pH 4 to 5.

Mineral nutrient	pH range for optimum availability
Nitrogen*	5.8 – 8.0
Phosphorus	6.5 – 7.5
Potassium	6.0 – 7.5
Magnesium and sulfur	6.0 – 10.0
Molybdenum	7.0 – 10.0
Calcium	7.0 – 8.5
Boron, copper and zinc	5.0 – 7.0
Manganese	5.0 – 6.5
Iron	4.0 – 6.0

*Soil pH does not affect nitrogen availability directly, but high soil pH results in volatilization of urea, while low pH limits microbial activity and mineralization of nitrogen from organic matter.

In addition to soil pH, there are other factors that contribute to nutrient availability such as soil type, soil organic matter, and soil moisture. Nutrients are essential for plant growth, health, and yield, and for these reasons soil pH along with the nutrient composition of the soil should be tested regularly.

Soil pH can be measured easily and relatively cheaply with a portable pH meter (under \$50) or by sending samples to a soil analysis laboratory (a better option). A soil pH assessment of your farm is only as good as the sample that you collect. For a soil sample to be meaningful, the sample must be representative of the soils in the field. Due to inherent high soil variability, each sample should represent blocks of similar elevation, soil type, variety, rootstock, and tree age. Samples should be collected from two depths: 0 to 8 inches and 8 to 12 inches, depending on the depth of the roots of the crop or trees. Samples can be done using a soil sampling core or a spade. A minimum of 15 to 20 cores should be collected in “W” pattern in a uniform block or from areas of different soils if the block is not uniform. Soil water content and salt concentration at the time of sampling can affect pH. Avoid collecting soil samples when the soil is very dry or very wet. Also, for accurate samplings, collect before starting the pesticide spray program and before application of fertilizers.

To measure soil pH, dry the soil, break any clumps and remove rocks and plant debris. Take a known ration of soil to distilled water (1:1 up to 1:5 soil to water) and place them in a cup, mix the soil and water thoroughly a few times, then let the slurry sit until the soil settles at the bottom of the cup. Make sure you use the same ratio in all of your testing. Collect the liquid in another cup and put the pH electrode into the liquid and measure the pH. Read the

instructions that came with the pH meter and make sure it is calibrated with standard solutions, usually shipped with the meter.

Because of differences in the concentration of ions in the soil, it is suggested that pH measurement is done using a dilute solution of calcium chloride rather than distilled water. The pH value using this method will be about 1 unit lower than using distilled water. This method is more accurate and gives more reliable results. In summary, testing soil pH and the nutrient composition of the soil every two to three years is a good management practice that should provide a clear idea of the nutrient status of the soil. (Mosbah Kushad)

Mosbah Kushad (217-244-5691; kushad@illinois.edu)

Apple Scab

In 2010, there were serious apple scab infections in some orchards in northern and central Illinois. Scab, caused by the fungus *Venturia inaequalis*, is a very serious disease of apples, pears, and crabapples in Illinois. Loss from scab is greater than that from any other disease of apples. The losses result from yield reduction, premature defoliation, fruit quality reduction, weakened trees, and increased production costs. Spray programs provide almost complete control of the disease if initiated early in the growing season, but once started, this disease is nearly impossible to control.



The apple scab fungus infects leaves and fruits. Initially, velvety olive-green spots appear on the leaves. Eventually the lesions enlarge and turn brown. Fruit infections appear a few weeks after bloom as nearly circular, velvety, dark olive green lesions with the cuticle ruptured at the margins. Older lesions become black, scabby, and fruit often cracks. This cracking of the fruit provides avenues of infection for various rot-producing fungi. Later infections, as the fruit approaches maturity, result in small lesions that may not be visible at harvest but develop into small, dark scab spots during storage. Petioles (leaf stems) and pedicels (fruit stems) are also infected by the scab fungus. Petiole or pedicel infections result in leaf drop and premature fruit drop. Early defoliation results in reduced fruit bud development for the next year's crop.

The scab fungus overwinters in dead, fallen, previously-diseased apple and crabapple leaves. The fungus releases spores (ascospores) in the air in spring. Air currents then carry the spores onto the new developing green leaves and flower buds. The fungus infects developing tissues. Wet periods are absolutely necessary for infection to take place. A wet period is defined as a time during which the apple foliage and fruit remain continuously wet with either rain or dew. The period of time necessary for spore germination and infection depends on the temperature during the wet period. The fungus produces abundant spores (conidia) on infected leaves, which are known as “summer spores”. Conidia are dispersed and cause secondary infections on the succulent plant parts throughout the period of apple growth.

Apple scab is controlled primarily by thorough applications of fungicides sprayed at 7- to 10-day intervals. The first application should be made when the buds begin to open (green tip). Spray applications should continue through the first-cover spray (10- to 14-day after petal fall). It is important to thoroughly spray the developing buds, expanding young leaves, and fruit with each spray. Commercial fruit growers should follow the spray schedule for apples outlined in the “2011 Midwest Tree Fruit Spray Guide” (<http://www.extension.iastate.edu/Publications/PM1282.pdf>). Home fruit growers should follow the recommendations in the “Home, Yard & Garden Pest Guide” (<https://pubsplus.illinois.edu/C1391-08.html>). For additional information, refer to Apple and Crabapple Scab (http://web.aces.uiuc.edu/vista/pdf_pubs/803.pdf) and Apple Scab (http://www.caf.wvu.edu/kearneysville/disease_descriptions/omapscab.html). There is no indication of existence of fungicide-resistant strains of the scab fungus in Illinois. The failure in effective control of apple scab appears to be related to improper pruning and missing timely applications of fungicides.

Mohammad Babadoost (217-333-1523; babadoos@illinois.edu)

Vegetable Production and Pest Management

Stand Establishment and Soil Conditions

Northern Illinois has not been treated very kindly by La Niña this spring. Nor has the rest of the state. Frequent rain, cloudy days, and cooler than normal temperatures in the northern tier of counties have made it difficult for vegetable growers to find opportunities to prepare soil, apply amendments, and prepare seedbeds, much less actually plant something. Perhaps this makes it hard to appreciate patience, but then, maybe that’s exactly what is needed right now.

Certainly there have been many seasons in the past where the plantings of certain crops made it into the ground by now. And those crops usually performed well. But crops don’t respond to calendars. They respond to “conditions on the ground”. Right now, those conditions aren’t good. Most seasons when we get past mid-April our 4” soil temps are in the low 50’s, or even warmer. On Thursday morning, April 21, the 4” soil temperature was only 35°F in St Charles, IL. And the 4” soil temperature for the whole month of April has reached 50°F only one day. For planted seed to germinate and grow, it has to have proper conditions. Primarily, this means good moisture availability and threshold temperatures must be met. For most vegetable crops these conditions have not yet been met in 2011 in northern Illinois.

An exception among the vegetable crops families are the alliums, including onions, leeks, garlic and shallots. These crops can germinate and/or grow at temperatures as low as the thirties. But most other vegetables need soil temperatures into the fifties, or warmer, to successfully germinate and grow. Even members of the cole crop family, including broccoli, cabbage, cauliflower, and Brussels sprouts, have their limits. Cauliflower in particular can be impacted by extreme lows which lead to vernalizing and button heads, miniature size heads which have no market value.

Many growers have planted sweet corn by the middle of April in most seasons ... but most seasons we have better conditions. Even though sweet corn breeders have done a great job of building stronger genetics for cold tolerance into our high sugar varieties, there are still limits on what sweet corn seed can endure in the field. We’ve had excessively low temperatures and super-saturated fields. Even though the calendar says plant, it may not be the right time yet. If sweet corn seed was planted by the calendar on April 10 this season, it would have been severely

challenged to germinate and grow. It would have endured excessive moisture and extremely cold temperatures. It would certainly be at risk for soil borne pathogen activity and rotting seed.

These conditions can turn around quickly though. The intensity of solar energy reaching our patch of the planet is similar to that of August. Given some clear days our soils will warm up quickly. A stretch of days with no rain and sunshine will create opportunities to plant. At some point soil temps will warm and we'll see sustained readings at 4" of 50°F and greater. In show business, timing is everything. It may be in farming as well.

Bill Shoemaker (630-584-7254; wshoemak@illinois.edu)

Row Covers and Cucumber Beetle / Bacterial Wilt Control in Melons and Cucumbers

The April 22 issue of Purdue University's *Vegetable Crops Hotline* includes two timely articles on bacterial wilt and striped cucumbers in cucumbers; see: <http://www.btny.purdue.edu/pubs/vegcrop/VCH2011/VCH535.pdf>. One article is a summary of evaluations by Mark Gleason and co-workers of floating row covers to exclude cucumber beetles and prevent bacterial wilt in melons in Iowa. The summary of that work states ...

“Our Iowa field trials showed that delaying row-cover removal by 10 days [into early bloom] can provide season-long protection of muskmelon against bacterial wilt. This strategy proved to be an effective alternative for controlling bacterial wilt and cucumber beetles without insecticide applications. It could replace or reduce the need for insecticide sprays and could be especially valuable for organic growers who lack effective insecticides against cucumber beetles. Results of the partial budget analysis suggest that when bacterial wilt epidemics occurred, the delayed-removal row cover strategy would deliver more consistent returns than either removing them when flowering starts or not using covers at all. Sensitivity analysis suggested that cost effectiveness of the delayed-removal strategy is affected by how often bacterial wilt outbreaks occur. The strategy was economically advantageous when bacterial wilt occurred in half or more of the growing seasons, but was a drag on returns when wilt was absent or less frequent. For growers the advantage of using row covers will depend not only on the likelihood of disease occurrence but also on planting date, melon prices, availability of labor, and viability of effective alternatives to suppress the disease.”

For more information, click on the link to this article. It includes background information and details.

A second article in the same issue of Purdue's *Vegetable Crops Hotline* is written by Rick Foster and provides reminders on the use of insecticides for cucumber beetle control in cucurbit crops. Rick notes that at-planting applications of Admire Pro® or Platinum® will generally provide 2-3 weeks of control of striped cucumber beetles and that there are several foliar-applied insecticides that also provide excellent control. He includes a note of caution ... “our (Purdue) research over the last 20 years has shown that weekly applications of insecticides have a negative effect on yields compared to treating only when thresholds have been reached. We don't know for sure whether this yield loss is due to some unapparent phytotoxicity or either mortality or repellency of honeybees that are there to pollinate the crop. Whatever the cause of the yield loss, growers are advised to treat only when needed rather than weekly.”

Black Cutworm Moths Have Arrived

Moth capture data from Robert Bellm, U of I Crop Systems Extension Educator, suggests the potential exists for heavy egg-laying in fields with high densities of annual weeds. This could translate into thinning of corn stands, especially those fields that are tilled and planted late. Robert reported significant captures of black cutworm moths in pheromone traps in Montgomery County April 11 to 12, Madison County April 14 to 16 and Pike County on April 18. Enough moths were captured in these locations to provide a “biofix” for a phenology model that can be used to determine when to scout for cutting of plants in individual corn fields (field corn and sweet corn). The first three stages of black cutworm larvae typically feed on leaves, and the fourth and later stages feed through the bases of plants, cutting them near ground level. Fourth stage larvae begin to appear 312 to 364 degree days (base 50 F) after egg-laying (which is estimated to begin when moths are captured in traps). Mike Gray of the University of Illinois has noted in other news sources that, “Fields most susceptible to black cutworm damage are those with flourishing winter annual weed populations. Black cutworm moths are attracted to these weeds upon which they lay their eggs. Curled dock and yellow rocket are very attractive egg-laying targets.” For a complete description of the black cutworm's life cycle and management information, check http://ipm.illinois.edu/fieldcrops/insects/black_cutworm/index.html.

High-Tunnel Production Systems

Daily flooding has brought field activity to a halt for southern Illinois growers. However, high tunnel work continues and is almost therapeutic with the current weather outside. A couple of new activities at DSAC for 2011 are growing tomatoes in hydroponic bag culture and producing strawberries in our high tunnels. Our strawberry research focuses on growing strawberries in a vertical stack system.



Tomato and strawberry production in high tunnels at the Dixon Springs Ag Center.

Jeff Kindhart (618-695-9434; kindhar@illinois.edu)

Less seriously ...

The secret of a good sermon is to have a good beginning and a good ending; and to have the two as close together as possible. George Burns

I have never hated a man enough to give his diamonds back. Zsa Zsa Gabor

My luck is so bad that if I bought a cemetery, people would stop dying. Rodney Dangerfield

Until I was thirteen, I thought my name was "**SHUT UP.**" Joe Namath

I never drink water because of the disgusting things that fish do in it. W.C. Fields

We could certainly slow the aging process down if it had to work its way through Congress. Will Rogers

Don't worry about avoiding temptation. As you grow older, it will avoid you. Winston Churchill

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