



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, weinzier@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.

In this issue ...

Upcoming Programs

Transactions of the Hort Society and 13th Annual Illinois Fruit and Vegetable Crop Research Report

Regional Updates (from Elizabeth Wahle, Jeff Kindhart, and Maurice Ogutu)

Notes from Chris Doll (fruit set and thinning)

Fruit Production and Pest Management (frost injury to grapes, grape phylloxera, Rimon label expanded to include peaches, other fruit crops)

Vegetable Production and Pest Management (downy mildew of basil, herbicides that contain 2,4-D or dicamba)

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

Upcoming Programs

- **Grape grower workshop. May 15, 2010.** Lazy L Grape Ranch, near Mechanicsburg, IL. Brad Taylor, Southern Illinois University, and Elizabeth Wahle, UI Extension, will demonstrate and discuss major practices, including shoot thinning, positioning, cluster thinning, and leaf removal. The program will begin at 10:00 a.m., with registration at 9:30 a.m. The vineyard, owned by Brad Lindquist, is located east of Springfield, just south of Mechanicsburg. From I-72, take the Mechanicsburg 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 will be on the right (south) and visible from the road. Please contact Elizabeth Wahle if you plan to attend (for an accurate lunch count). Registration fees will be taken at the door starting at 9:30am and will be \$30.00 per person for IGGVA members and \$50.00 for non-members and will include lunch from 12:00-1:00. For those wishing to join IGGVA, applications will be available. The program will conclude at 3:00 pm. In case of inclement weather, the program will continue inside facilities at the vineyard. For further details, contact Elizabeth Wahle at wahle@illinois.edu or 618-692-9434.
- **Illinois State Horticulture Society Summer Field Day. June 10, 2010.** Broom Orchard, which is located just south of Carlinville on Shipman Road ... mark your calendars now, and as details become available, they will be posted in future newsletters.
- **Mississippi Valley Peach Orchard Tour. June 25, 2010.** This year's tour will be a joint effort between Cates Orchard in Dudley, Missouri and Bader Farms in Campbell, Missouri. Check-in is at 9:00 a.m., and the tour begins with coffee and donuts at Cates Orchard at 9:30am. This is a smaller orchard with a U-pick atmosphere and a wide range of cultivars. The group will then move to Bader's, a larger operation that also produces vegetables and works with alternative marketing enterprises. We will have lunch and then tour the farm operation. **Please preregister** for lunch by e-mailing denklers@missouri.edu or calling Chris Waite at 573-686-8064 between 8 a.m. and 4 p.m. by Wednesday, June 23. If you have questions, contact Sarah Denkler at 573-686-8064 or denklers@missouri.edu. For the complete program, check:

<http://web.extension.illinois.edu/edwardsvillecenter/downloads/23093.pdf>. Cates Orchard is at 13423 State Highway WW, Dudley, Missouri (573-421-6102 or 573-421-6103). Bader Farms is located at 38601 State Highway WW, Campbell, MO (573-246-2528).

- **International Herb Association Annual Meeting. July 11-15, 2010.** Collinsville, IL. (More details in future issues of this newsletter.)
- **North American Fruit Explorers. August 19-21, 2010.** Best Western Motel/Conference Center, Lafayette, IN. To view the program and registration form, check: <http://web.extension.illinois.edu/edwardsvillecenter/foodcrophort3031.html>. For additional details or questions: contact Ed Fackler at cefackler@gmail.com or 812-366-3181.
- **2010 Sustainable Agriculture Tours**
 - **May 27, The Business of Vermiculture**, Wilken Farms, Iroquois County
 - **June 18, Feeding Universities Sustainably**, Farmer Brown's Production Company and Mulberry Hill Farm, Jackson County
 - **July 26, Illinois Berries**, J & J Berry Farm, Jersey County
 - **August 13, Romance Tour – Flowers and Wine**, Bright Flower Nursery and Famous Fossil Vineyard & Winery, Jo Daviess County and Stephenson County
 - **September 15, Agritourism – Farm Fresh Fun**, Country Corner, Henry County

A fee of \$20 per person will be charged for each tour, which includes lunch. This year two adults pay \$30 when registered together and children under the age of 10 attend free. Registration at least one week in advance is required. Visit http://web.extension.illinois.edu/smallfarm/ag_tours.cfm to register and for more details about each of the tours including a map and agenda. To register by phone, contact Donna Cray at 217-241-4644. For more information, contact Deborah Cavanaugh-Grant (217-968-5512; cynghgrn@illinois.edu).

Transactions of the Illinois State Horticultural Society and 13th Annual (2009) Illinois Fruit and Vegetable Crop Research Report

The ***Transactions of the Illinois State Horticultural Society and 13th Annual (2009) Illinois Fruit and Vegetable Crop Research Report*** have been compiled and are available as a pdf document at http://ipm.illinois.edu/ifvn/combined_research_report. The Illinois State Horticultural Society also provided support for printing of a limited number of copies which will be available at the Society's summer field day.

The Transactions include articles on the twentieth annual cider contest, the 2009 Field Day at Royal Oak Orchard, and a recap of the Specialty Crops, Agritourism, and Organic Conference. The popular *Notes From Home* by Jerry Mills is also included. The Transactions include the Illinois State Horticulture Society message from President Steve Bock and the Business Report.

The Research Report portion of the document presents the latest applied research on fruit and vegetable crops in Illinois. Highlights include research on Phytophthora blight in pumpkins and peppers conducted by Mohammad Babadoost; cultivar trials for tomato, pepper, blackberry, and sweet corn conducted at Dixon Springs by Jeff Kindhart, Bronwyn Aly, and Elizabeth Wahle; along with research on good agricultural practices from Mosbah Kushad.

I thank all the contributors to the Transactions and Research Report for their support of the Illinois fruit and vegetable industry

John Masiunas (masiunas@illinois.edu)

Regional Updates

In the southern region (April 30, 2010), the tree fruit crop is looking very promising this year; set is excellent across the board, and thinning continues to be a priority. Small fruits also show excellent fruit set.

How well grape vines were tied to the trellis was put to the test as strong and continuous winds came through the region April 29-30. Vines completely pulled from the trellis will require careful handling to avoid further loss of tender new shoots. At this stage no serious damage has been reported. Another victim of the winds were newly planted trees. Growers are advised to inspect trees planted this year and last year for wallowing; those planted more deeply will be

more affected. In some cases the trees will need to be reset and in others the voided space will need to be filled. For refilling, avoid using a material like crushed limestone that has sharp edges that could cause injury (entry point for pests as well) to tender bark of young trees. Instead use soil or pea gravel.



Wind-caused “wallowing” at the base of a fruit tree.

This is a repeat, but grapes are still in the critical control period for fruit infections – pre-bloom to 2-4 weeks after bloom. A product containing mancozeb is recommended during this time period to control Phomopsis, black rot, downy mildew and anthracnose; tank mix with sulfur to pick up powdery mildew. For sulfur sensitive cultivars, switch to a powdery mildew product such as Rally (if you have not experienced resistance) or Abound. See the *Midwest Small Fruit and Grape Spray Guide* for a complete list of options <http://www.ag.purdue.edu/hla/Hort/Documents/ID-169-2010.pdf>

June-bearing strawberries are showing good growth, and it won't be long before we are in harvest – Earliglo is coloring. Keep in mind that thrips populations may move into the growing area on spring weather fronts; be prepared to check not only strawberry blooms, but also bramble blooms for thrips activity. It only takes two per bloom to be at threshold. This is a very small insect and rather difficult to detect without the aid of a hand lens. If you don't have a hand lens, remove a few flowers and drop them into a paper or Styrofoam cup; cover with your hand or Saran wrap and shake vigorously. If there are thrips on the flowers, they will be dislodged and with careful inspection, should show up against the white background of the cup. We have no reports of thrips so far, but now is the time to be scouting.



Left: Eastern flower thrips on a strawberry blossom (Elizabeth Wahle). Right: A close-up of the closely related western flower thrips (www.bugwood.org; photo by J.T. Reed).

The area received at least 1.5 inches of much needed rainfall during the week of April 22. Early-planted sweet corn is at least at the 6-leaf stage, with succession plantings ongoing. Field plantings (no protection) of tomatoes have started. Overall, compared to last year, Mother Nature has provided a fairly good spring for vegetable and fruit producers.

The next **orchard twilight meeting** in southwestern Illinois is in the planning stage. For now, hold May 20 and 27 as possible dates, with details to come in the next newsletter. The meeting will begin at 6:00 and will include discussions led by Elizabeth Wahle, Rick Weinzierl and Mosbah Kushad. We hope the buffalo gnats will be out of the area by then.

Note the list of upcoming programs at the beginning of this issue. They include a grape grower workshop, the Illinois Horticultural Society Summer Field Day, the Mid Mississippi Valley Orchard Tour, and the annual North American Fruit Explorers Meeting.

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

At the Dixon Springs Ag Center, strawberry, peach, apple and blueberry bloom were all very heavy this spring. Growers began picking a few Sweet Charlie strawberries grown in plasticulture around April 20, but cooler weather at the end of the month slowed things down again. The first of several sweet corn plantings has been made at DSAC, and sweet corn varieties also will be evaluated at Ewing Field this year. Additionally we have planted an onion variety trial that is part of a wide scale onion evaluation being led by SIU's Alan Walters. With labor assistance from an area grower, we have constructed raised beds in our high tunnel and we have planted 40 tomato varieties and 23 pepper cultivars.



High-tunnel tomatoes at the University of Illinois Dixon Springs Ag Center.

Jeff Kindhart (618-695-2770; jkindhar@illinois.edu)

In the northern region, April ended with mostly sunny days and lots of wind on April 29 and 30. Highs reached the low 80s but below-freezing temps occurred at night during two different periods. The freezing temperatures on April 27 and 28 damaged shoots of grapes that were about 4 inches long. There have been no reports of injury to tree fruits or other small fruits. The region received 1-2 inches of rain between April 14 and 30. Apples are at petal fall, with a few late bloomers still at full bloom. Pears and peaches are at petal fall. Sour cherries are at petal fall, and fruits have started to develop. Honey bee hives are still in some orchards to pollinate late blooming apples, but most hives are out and petal-fall sprays have started. Ground has been prepared and plastic mulch has been laid at some vegetable farms, and growers have begun planting cabbage, potatoes, beets, onions, greens, other cool-season vegetables, and sweet corn. Tomato, peppers, cucumbers, melons, and other warm-season vegetables have been started in greenhouses in many farms in the region.

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

Notes from Chris Doll

Spring is moving onward, and it's nice to see little fruits on the trees. Some peach growers would say that there are too many of those little fruits, and the job of removing them is tedious and expensive. They are sizing rapidly, and thinning should begin as soon as they loosen. I saw some good results from blossom thinning, by both ropes and brushes, last week. Luckily, there were no frosts or freezes in this area this year. Apples have grown to the 12- to 14-mm size in this area, so chemical thinning timing is growing short. Low temperatures and high winds have made applications less than optimal, but time will tell.

Fruit set on plums and sweet cherries is variable, depending on variety and pollination time. In the Back-40, an apricot tree with four varieties grafted on, had to be thinned – the first time I have ever had a fruit set that needed the thinning.

In the small fruit group, grapes are at the 10-inch shoot to pre-bloom stage, black raspberries are at full bloom, red raspberries are at early bloom, thornless blackberries are budded out, and matted row strawberries are past full bloom, with harvest 2-3 weeks away.

Orchard problems seen in the past 10 days include dying peach trees and San Jose Scale on apple trees that survived the dormant oil spray. The peach trees were four and 12 years old on a heavy clay soil. They had leafed out and bloomed this spring and then collapsed. No live roots could be found, and it was concluded that the 10 inches of rain last October was most likely the cause of death. A second orchard I visited had a similar problem, but on much smaller scale. Planting the trees on a ridge or terrace in that type of soil type might have provided enough drainage to save the trees.

The San Jose scale problem is one that is similar to what Ron Meyer, our deceased critter man (entomologist), said about European Red mites, which was that if the oil spray killed 99.9 percent of the eggs, there were still enough survivors to cause problems. The percent of surviving scales is very small, but they can increase rapidly in a year's time.

I use the *Pennsylvania Tree Fruit Production Guide* as a handy reference for pest control. In the tables for apple, it lists 10 diseases and 24 insects to consider. For peaches, there are 6 major disease problems and 15 potential insect problems. No wonder that lots of sprays are applied.

Chris Doll

Fruit Production and Pest Management

Frost Injury in Northern Illinois Grapes

Grape growers in northern Illinois saw their crops get off to an early start this year. March was warmer than normal, as was April. Vines responded to this heat by breaking bud early and making good progress producing their shoots. The earliest variety in our trials at the Research Center is Oberlin Noir, an older French hybrid related to Marechal Foch. Both have *Vitis riparia* in their pedigrees. Most of our hardy hybrids in the upper Midwest are based on the genetics of *Vitis riparia*, the most common wild grape in the region. They all tend to break bud early, just like their wild ancestors.

So early budbreak is a trait that our industry in the north will constantly need to manage in the spring season. Unfortunately, this season budbreak started way too early. As a result, we had several close calls through April where temperatures dropped toward freezing but didn't quite make it. But on the morning of April 27, our low at St Charles was 28°F. We had frost damage to the new growing shoots on our grapes. So, what happens next?

When early spring frost damage occurs in grapes, the results can seem a little strange. As you look at a plant, you'll find shoots on the cordon are turning brown and wilting. These will dry up and fall off. But you'll also find shoots that are adjacent to damaged shoots that look just fine. You can actually estimate the percent of your shoots that were damaged by counting the damaged shoots per vine and sampling a number of vines that are representative of

areas of the vineyard. Because you pruned your vines to a specific bud-count (you did that, didn't you?), you can divide the average number of damaged shoots by the finished bud-count and that will give you the percent of damaged shoots.

Because these were the first buds to break on the spurs or canes, these are primary buds. Grapes have compound buds, meaning that if the primary bud is damaged in any way, a back-up bud called the secondary bud can then begin to grow. So, although you lost a percent of the primary buds (shoots), they will be replaced by secondary shoots. This means that the potential crop lost by the loss of primaries will be supplemented by their replacements, the secondary buds (shoots). However, secondary buds are not as strong as primaries, and the crop will still be reduced. Depending on the variety, the crop provided by secondary buds will only be about 60% of the crop provided by primary buds. So, although there are backup buds, they do not fully replace primary buds.



Frost damage to grapes at the St. Charles Center.

There's another problem that results from these events. This may be a more vexing problem than the simple loss of part of your crop. The remaining primary shoots will be on a cropping schedule that initiated when they experienced budbreak. When a certain number of heat units are experienced by those shoots, the fruit should be approaching maturity. But the secondary shoots which replace the primary shoots after the frost will have a much later starting date. They will be behind on heat units. But they need the same number of heat units to reach maturity. So the crop on the primary shoots will have a different harvest schedule than the crop on the secondary shoots. The fruit will not all mature at the same time. How do you address this dilemma?

If you lost all your primaries at the time of frost, there is no problem. All of your crop will be borne on the secondary shoots. You may want to go through and remove the few primary shoots (or better, their clusters) remaining so that your crop at harvest is uniformly mature. The primary shoots you remove will probably be replaced by secondary shoots anyway. On the other hand, if you only lost a small percentage of your primaries (<15%), you still have no problem. Just remove any fruit growing on secondary shoots. The remaining crop will all be on primaries. They will mature uniformly and will compensate for the loss by creating larger clusters. You may end up with a crop yield similar to the original crop potential because of the ability of grapes to compensate.

The real dilemma occurs when you lose about half your primaries, resulting in a crop that is half on primary shoots and half on secondary shoots. Removing all of the fruit on primaries is an option, but not a happy one when you know you're removing serious crop potential. But if you don't, you end up with two different crops; one that comes in early on the primaries and one that comes in later on the secondaries. This becomes a judgment of whether you want to harvest twice or lose crop potential by removing your primaries. It becomes a business decision because the plant will be fine either way. It is early enough in the season that the health of the vines will be impacted more by effectiveness of your management through the season. Bud quality for 2011 should also be a function of how well the vines are managed this season. The issue is whether the value of the crop is improved by hanging on to the

primaries sufficiently to pay for the extra harvest effort. That certainly needs to be weighed against the option of finding the optimum time to harvest both at the same time, probably letting the primary fruit get super mature to allow the secondary fruit to get as mature as necessary for a quality harvest. Tough call! Be prepared to discuss this with the winery that buys your grapes.

This issue brings up a final point I'd like to make. Some growers may have suffered more than others. That could just be luck. Temperatures vary regionally in an event like this. More likely though, your risk was determined by site selection when you chose where to grow your grapes. Relative elevation (sites higher than surrounding area) will often (not always) lead to less damage in these kinds of events, or even escape from these events. We never really get away from the consequences of our choices, do we? Choose well.

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

Notes on fruit insects

- Grape phylloxera seems to have shown up earlier than expected in many vineyards. The **Midwest Small and Grape Spray Guide** (<http://www.ag.purdue.edu/hla/Hort/Documents/ID-169-2010.pdf>) lists effective insecticides for control of phylloxera; they include Assail and Danitol. Endosulfan is also moderately effective but causes injury to several varieties. Movento, although listed in the spray guide, is no longer labeled for use on fruit crops. The standard recommendation for spray timing for phylloxera control is to make a first application at bloom and a second 10 to 14 days later. For more information on this insect's life history and details about controlling it, see Donn Johnson's University of Arkansas fact sheet at: <http://comp.uark.edu/~dtjohnso/GP%20Fact%20Sheet%2009.pdf>.
- The US EPA has approved expansion of the label for Rimon (novaluron) to include additional crops. For Illinois growers, the most significant change may be that the new label allows use on peaches for Oriental fruit moth control at 20-40 fluid ounces per acre. In general, this insecticide is most effective if applied early in each generation's egg-laying cycle so that eggs are laid onto spray residues. Where Oriental fruit moth populations are resistant to pyrethroids, choices for effective control now include mating disruption, Assail, Delegate, Altacor, and Rimon. For peach growers who also are apple growers, Assail, Delegate, Altacor, and Rimon also are effective against codling moth. The new Rimon label is available online at: <http://www.cdms.net/LDat/ld6LD035.pdf>.

Rick Weinzierl (217-244-2126; weinzier@uiuc.edu)

Vegetable Production and Pest Management

Downy Mildew Poses Threat to Illinois Basil Crop

Downy mildew of basil is a new disease in North America. It was first reported in south Florida in October, 2007. In 2008, the disease was confirmed in both field- and greenhouse-grown basil in many states, including NC, PA, NJ, NY, MA, NC, KS, and MO. The disease was detected and identified in Illinois in 2009 for the first time. Thus, this is a new disease in Illinois, as well as in the US.

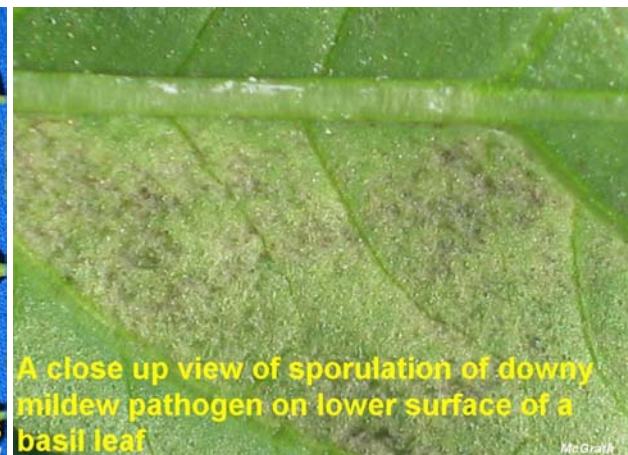
In Europe, basil downy mildew was reported in Switzerland in 2001, in Italy in 2003, and in Belgium and France in 2004. Previously, the disease had been reported from Africa.

Annual production of basil in Illinois is approximately 550 acres. The gross value of the Illinois basil industry is estimated to be \$9 million per year. Downy mildew can cause 100% crop losses. Illinois environmental conditions are conducive for development and spread of downy mildew of basil.

Basil downy mildew is caused by *Peronospora belbahrii*. Symptoms and signs of downy mildew include yellow spots on the upper leaf surface, gray mold on the lower leaf surface, and foliar blight (see images). The pathogen is

spread by wind, seed, and plant material. Cool, wet growing conditions favor development of the disease. Downy mildew also has been reported on ornamental plants related to basil, in particular *Coleus* and *Salvia*. These plants all belong to the Lamiaceae family, which includes basil (*Ocimum* spp.), mints (*Menta* spp.), sages (*Salvia* spp.) and other aromatics. Fortunately, the coleus and basil downy mildew pathogens have now been demonstrated to be genetically different; therefore, these ornamental plants are no longer considered potential alternative hosts. However, there are many ornamental basil plants that are also hosts to the pathogen affecting basil grown for use as an herb. Contaminated seed is most likely the way that the basil downy mildew pathogen has been able to move between geographically-separated areas, such as Europe and the US. The pathogen found in Florida has been shown to be genetically the same as that in Switzerland. Spores of the basil downy mildew pathogen are capable of being dispersed over long distances. Infected basil leaves produce an abundance of spores. Thus the pathogen can spread widely once introduced to an area.

Currently, the best measure of protection is through chemical control. Azoxystrobin (Quadris) and two phosphorous acid fungicides (ProPhyt and K-Phite) have downy mildew under herbs listed on their current labels. Also, Actinovate AG is an OMRI-listed fungicide that is labeled for use on herbs for suppressing foliar diseases including downy mildew. A Section 18 emergency exemption application has been submitted for use of mandipropamid (Revus) for control of downy mildew of basil in Illinois. Weekly applications of Quadris + ProPhyt alternated with Revus + ProPhyt are effective for control of downy mildew of basil.



Downy mildew of basil (photos by Meg McGrath, Cornell University).

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

Herbicides that contain 2,4-D or Dicamba

Each spring I am asked about herbicides that may drift onto and injure susceptible fruit and vegetable crops. Many herbicides are growth regulators and contain 2,4-D or dicamba. These herbicides have a wide range of uses, including at burn-down before planting soybeans, weed control in lawns and commercial turf, and postemergence weed control in corn and small grains. Dicamba-containing herbicides are not as widely used as 2,4-D-containing herbicides. The primary uses of dicamba are in postemergence corn, turf, and total vegetation control products. The potential of dicamba to evaporate (volatilize) from leaf surfaces can be a problem for some formulations - generally salts or dimethylene formulations. Amine formulations are generally less volatile than ester formulations but some ester formulations are considered to be low volatility (L.V.).

I have prepared two tables that list the many products that contain 2,4-D and dicamba and are labeled for use in Illinois. For those who receive this newsletter by US Mail, these tables are attached. For those who read this newsletter online, the tables are available at http://ipm.illinois.edu/ifvn/volume16/herbicides_containing_24d.pdf and http://ipm.illinois.edu/ifvn/volume16/herbicides_containing_dicamba.pdf.

John Masiunas (masiunas@illinois.edu)

Less seriously ... truisms ...

Birds of a feather flock together ... and crap on your car.

When I'm feeling down, I like to whistle. It makes the neighbor's dog run to the end of his chain and gag himself.

He who hesitates is probably right.

Aging: Eventually you will reach a point when you stop lying about your age and start bragging about it.

The older we get, the fewer things seem worth waiting in line for.

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