

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, weinzierl@uiuc.edu. The *Illinois Fruit and Vegetable News* is available on the web at: <http://www.ipm.uiuc.edu/ifvn/index.html>. To receive email notification of new postings of this newsletter, call or write Rick Weinzierl at the number or address above.

This issue's words of wisdom ... which usually means the jokes ... are at the end of newsletter. Check the last page.

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

Crop and Regional Reports

In northern Illinois, from March 15-29, day temperatures have been in the upper 30s to low 50s except on March 28 & 29 when temps reached the upper 60s. Night-time lows have been in the teens to low 30s. The area received snowfall of 0.3 - 3 inches and rainfall of about ½ -inch during the same period. The ground is still wet in many areas, so there are very limited outdoor farm operations going on. Tree fruits and small fruits are still in the dormant state. Pruning of apples, peaches, brambles and grapes is still going on, and most vegetable growers are starting vegetable seedlings in greenhouses.

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

Upcoming Meetings and Programs

Here are a few dates to add to your calendar. Additional details for programs in the southern region will be posted as they become available at <http://web.extension.uiuc.edu/regions/hort/>. Contact: Elizabeth Wahle at wahle@uiuc.edu or 618-692-9434

April 9, 2005. Viticulture Workshop

9:00-11:30 a.m. Hill Prairie Vineyard and Winery, Oakford, Illinois. RSVP to Elizabeth Wahle.

April 14, 2005. Twilight Meeting for Tree Fruit Growers

5:30-7:30 p.m. Meet where Hagan, Toppmeyer, Fortschneider, and Weigel Orchards intersect, just southeast of Brussels on the Illinois River Road.

May 13, 2005. Mississippi Valley Peach Orchard Tour (Kentucky's year to host, Illinois was last year)

Jackson's Orchard and Nursery, Bowling Green, Kentucky.

May 21, 2005. Viticulture Workshop

9:00-11:30 a.m. Central Illinois -Location to be announced. RSVP to Elizabeth Wahle.

May 26, 2005. Twilight Meeting for Tree Fruit Growers

5:30-7:30 p.m. Kamp's Orchard, southeast of Brussels just off the Illinois River Road.

June 16, 2005. ISHS Summer Orchard Day

Edwards Apple Orchard, Poplar Grove, IL.

June 25, Viticulture Workshop

9:00-11:30 a.m. Hill Prairie Vineyard and Winery, Oakford Illinois. RSVP to Elizabeth Wahle

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

Notes from Chris Doll

Phenology report: We are now behind 2004, but a few days of warm temperatures will allow plants to catch up. On the 28th, it was 68 degrees, and the bees were buzzing and carrying pollen, and one could almost see the buds grow. As a result, many apples are through silver tip and into green tip, and some peach varieties show first signs of pink. Some Japanese plums are in full balloon stage, as are the few live apricot buds. So, the spray season is here and I hope the weather permits timely applications for everyone.

Cold injury to *Prunus* buds: My single tree of apricot is Earli Orange and has been topworked with Perfection, Wilson Delicious, and Goldbar. Only the Perfection limbs have live buds. The Back-40 hobby orchard has several multi-variety trees and some of these trees have varietal limbs with nearly full crops and other varietal limbs are totally frozen out. The varieties with little or no bud kill are Encore, Belle of Georgia, and Saturn. Red Haven, Cresthaven, Bounty and Loring have almost enough swollen buds for a crop if they set. It should be a good spring to do a surviving bud evaluation when blossoms open up.

Strawberries: Its time for straw removal of matted row fields if this has not already been done. Growth has started under the mulch in this latitude and will follow the season northward. Since a good straw cover over the soil is primary to leather rot control, leave plenty in the field to help. Growth and flowering has started in a couple of plasticulture field in the area. This is behind 2004 but means that frost protection may be needed for several nights in the upcoming weeks. Flower thrips were discussed at the recent Strawberry School, and so far, this pest has not been a problem with the earlier maturing plasticulture crops. However, monitoring flowers for pest presence is a must for both types of culture.

Miscellaneous:

- Calcium and boron applications to apples have been a hot topic on the Apple-Crop discussion group. Dr. Kushad's winter meeting topic was on this very important subject and the timing and rates are in the Spray Guide. The use of boron is more difficult to assess in terms of benefits, as it is applied more as a necessary element for improving pollination than to correct a deficiency. For that reason, I like to see it used from pink through petal fall. If deficiency is seen in the fruit or if leaf analysis shows low boron, then other applications are needed. The need for calcium sprays to reduce cork pit is more of a variety problem, as with Honeycrisp and Delicious. The seasonal growing conditions also can have a major impact on calcium uptake and translocation, so the addition of calcium to the cover sprays can help.
- Apple bloom time will be here before long, and the timing of Apogee for reduction of fireblight infection follows right behind, like at early petal fall. My observations of its use in the last couple of years has been positive on blight-susceptible varieties. We learned on tour in Washington state last month, that it is used for growth inhibition, both

for fire blight and for tree shaping. For the latter, sprays were directed to the tree are where inhibition is desired. For Illinois growers, this concept might be used to direct second and third applications to the upper part of the tree where terminal growth is most vigorous.

- A question on spraying costs was raised at one of the winter fruit meetings. Growers with good records should know their costs. Here are the costs for spraying apples and peaches as summarized in the **2004-05 Pennsylvania Tree Fruit Production Guide**:
Peaches @ 141 trees per acre \$263 for pesticides and \$47 for application.
Apples at 272 trees per acre: \$534 for pesticides and \$51 for application.
- Powdery mildew was more prevalent in apple orchards in 2004 than I have seen for many years. Infected grayish-white terminal shoots are easy to see and can be pruned out as a sanitary measure if trees are small and limited in number.
- Blooming dandelions can compete with apple flowers for the attention of honeybees. Eliminating this weed can be accomplished by a judicious spray of amine 2,4-D, preferably in the late fall, but 2 to 4 weeks before apple bloom will help too. Elimination of the dandelion flowers in the orchard, also reduces the potential for bee kill from pesticide sprays. With the price of hive rental going up, there is no need to antagonize the bee keeper.

Chris Doll

Plan Ahead to Avoid Pesticide Drift

In agriculture, pesticides serve as important tools to protect crops from pests. However, every crop has a neighboring crop that may be sensitive to those pesticide--yield loss, long term damage to perennial crops, illegal residues, carry-over damage to the next season's crop, loss of organic certification, bee kill, and exposure of field workers are just a few of the potential outcomes resulting from drift. When pesticides are applied, the person applying them is responsible for using techniques that reduce drift. For more detailed information on how to reduce the effects of drift, go to: <http://www.specialtygrowers.org/releases/ReducingPesticideDrift.pdf>.

When pesticide drift is suspected, the applicator and neighbor should talk and try to eliminate other possible causes for the suspected damage. If the cause of the damage is unclear or the parties won't work together, a formal complaint may be necessary. The Illinois Department of Agriculture (IDOA) is responsible for investigating pesticide drift and enforcing pesticide laws. University of Illinois Extension Educators and Specialists may be able to provide valuable help with diagnosing injury symptoms, but they are not an official part of the complaint process. A drift complaint begins with calling IDOA Bureau of Environmental Programs at 1-800-641-3934 (voice and TDD) or 217-785-2427 for a complaint form. Complaints must be received by the IDOA within 30 days of the incident or within 30 days of when the damage was first noticed. Complaints filed after that will be kept on record, but no administrative action can be taken.

Once a complaint is filed with the department, a field investigator is assigned the case. In most cases, the inspector will interview the complainant and inspect the site. Various types of samples, such as plants, water, or soil, may be collected for analysis. The investigator may also interview applicators in the area, examine pesticide records, and collect weather data in an attempt to determine the nature and cause of the damage. The field investigator then submits a report to the department for review.

Both parties will receive written notification if the department finds a violation and takes enforcement action. Penalties range from advisory or warning letters to monetary penalties of \$750 to \$10,000, depending on the type and severity of the violation. Penalties are determined through a point system defined in the Illinois Pesticide Act. Even if a violation of the Illinois Pesticide Act cannot be substantiated, both the complainant and the alleged violator will be notified in writing of the complaint's status.

The department's role in pesticide misuse incidents is limited to determining whether a violation has occurred. The IDOA cannot help complainants recover damages. Civil litigation or settlements will be the responsibility of the complainant.

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Degree-Day Accumulations

Degree-day accumulations, January 1 through March 28 (2004 and 2005).

Site No.	Station	County	DD, Base 50 Jan 1 - Mar 28 2004	DD, Base 50 Jan 1 - Mar 28 2005	Projected DD, Base 50 Jan 1 - Apr 4 2005	Projected DD, Base 50 Jan 1 - Apr 11 2005
1	Freeport	Stephenson	44	10	27	44
2	Dekalb	Dekalb	55	10	29	50
3	St. Charles	Kane	59	13	30	48
4	Monmouth	Warren	76	23	47	74
5	Peoria	Tazewell	91	29	55	85
6	Stelle	Ford	74	19	42	68
7	Kilbourne	Mason	134	49	79	114
8	Bondville	Champaign	100	27	52	83
9	Champaign	Champaign	106	33	57	88
10	Perry	Pike	135	48	77	113
11	Springfield	Sangamon	118	42	69	105
12	Brownstown	Fayette	158	49	81	124
13	Olney	Richland	152	65	95	137
14	Belleville	St. Clair	194	79	113	159
15	Rend Lake	Jefferson	193	78	125	176
16	Fairfield	Wayne	181	81	117	164
17	Carbondale	Jackson	215	106	142	191
18	Dixon Springs	Pope	230	104	144	198

Degree-day data are summarized from records provided by the Midwestern Climate Network, Illinois State Water Survey, Champaign, IL. In general, degree-day accumulations through the end of March throughout the state are running about 2 weeks behind 2004.

Kelly Cook (217-333-4424; kcook8@uiuc.edu)

Vegetable Production and Pest Management

Host Range of *Phytophthora capsici*, causal agent of *Phytophthora* blight of vegetables.

Phytophthora blight, caused by *Phytophthora capsici*, has become one of the most serious threats to production of cucurbits, eggplant, and pepper in the United States and worldwide. Recently, the incidence of seedling damping-off, foliar blight, and fruit rot caused by *P. capsici* has dramatically increased in Illinois, causing yield losses of up to 100%. A study was conducted to determine the host range of *P. capsici* isolates from Illinois. The pathogenicity of *P. capsici* isolates was evaluated on 45 species of herbaceous plants, including 36 species of crops grown in rotation sequences with pumpkin and nine species of weeds that commonly grow in pumpkin fields in Illinois. Plants were grown in the greenhouse and 4-wk-old seedlings were inoculated by adding 5 ml of a zoospore suspension (2×10^5 spores/ml of water) onto the soil surface around the stem of each plant in the pot. Twenty-two crop species and two weed species became infected with *P. capsici* and developed symptoms. *P. capsici* was re-isolated from all of the symptomatic plants by culturing tissues onto a semi-selective

medium (PARP). Also, *P. capsici* was detected in 87.5% of symptomatic plants by a PCR method using PCAP and IT5 primers. Cucurbits and pepper were the most susceptible hosts of *P. capsici*. Five crop species/varieties, beet (*Beta vulgaris*), Swiss chard (*Beta vulgaris* var. *ciela*), lima beans (*Phaseolus lunatus*), turnip (*Brassica rapa*), and spinach (*Spinacia olerace*), and one weed species, velvetleaf (*Abutilon theophrasti*), were found as hosts of *P. capsici* for the first time.



Pumpkin vine infected with *Phytophthora capsici*

Babadoost



Pumpkin vine fruit with *Phytophthora capsici*

Babadoost

Host plants of *P. capsici*: beet, cantaloupe, carrot, cucumber, eggplant, green bean, gourd, honeydew, lima bean, nightshade, onion, pepper, pumpkin, radish, snow pea, spinach, squash, Swiss-chard, tomato, tobacco, turnip, velvet-leaf, watermelon, zucchini.

Non-host plants of *P. capsici*: barley, basil, broccoli, cabbage, cauliflower, celery, chive, cocklebur, corn, crabgrass, dill, kale, lamb's-quarters, mustard, parsley, pigweed, puncture vine, sandbur, soybean, water hemp, wheat.

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

Quick Notes on Early Season Vegetable Insects

Cutworms	Remember to scout asparagus and early season sweet corn for feeding damage by cutworms, including black cutworm. In sweet corn, partially mature larvae cut seedlings just above the soil surface. Feeding occurs at night, and larvae move below ground during the daytime. Control by use of a “rescue treatment” of insecticide directed to the base of plants is justified at the 3- to 5-leaf stage if more than 3 percent of plants are cut and larvae are still present and feeding. In asparagus, cutworm feeding on spears results in crooking and distortion that makes the spears unmarketable. Treat if more than 5 percent of the crowns are infested. See the 2005 Illinois Agricultural Pest Management Handbook or the 2005 Midwest Vegetable Production Guide for specific insecticides and rates.
Asparagus beetle	Look for adults laying eggs on spears as soon as the crop begins to grow. Treat if infestations exceed 5 to 10 adults per 100 crowns or if eggs are present on more than 2 percent of the spears.

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Traps for Monitoring Vegetable Insects

Issue 3 of this newsletter covered pheromone traps for key fruit insects but did not include similar information for vegetable insect pests. As is the case with fruit insects, traps offer a timely way to monitor several key pests of vegetables, and the table below summarizes how to do so. I'll not repeat all the general information on pheromones or guidelines for handling and using pheromone lures here ... check [issue 3 from March 18, 2005](#) for that background.

Traps for monitoring vegetable insects.

Insect Pest	Comments on Using Traps to Monitor Populations
Black cutworm	Use BCW pheromone lures from any of the suppliers in the table below in paper sticky traps (wing traps or large delta traps) beginning in March to detect migrations of moths from the south on storm fronts. (Black cutworm does not overwinter in Illinois.) Capturing moths serves as the biofix for a degree-day model that predicts when larvae will reach the growth stages that cut seedlings. Counts from traps are submitted by a network of cooperators and summarized in the Illinois Pest Management and Crop Development Bulletin .
Corn flea beetle	Yellow sticky traps can be used to monitor corn flea beetles and determine whether or not to control them to limit losses to Stewart's wilt in wilt-susceptible sweet corn hybrids. (Corn flea beetles transmit the bacteria that cause Stewart's wilt.) Purchase 6" X 12" yellow sticky cards and cut them in half to yield 6" X 6" squares. Attach them to stakes just above the soil surface and parallel to corn rows in sweet corn just before seedlings emerge. Use 5 to 10 per planting. Threshold through the 5-leaf stage = 2 per trap per day in processing sweet corn; consistent presence is probably enough to warrant control in high-value fresh-market hybrids if they are wilt-susceptible. (These traps do not use any pheromones or other chemical attractants ... the yellow color is attractive to corn flea beetles. Great lakes IPM is one supplier of yellow sticky traps.)
Cabbage looper and diamondback moth	Pheromone lures for these important pests of cabbage, broccoli, and related crucifer crops are available from all the suppliers in the table below. In general, scouting programs based on presence of larvae on plants provide the basis for control decisions, and pheromone traps do not always provide a lot of additional useful information. If you use them to get a more thorough picture of the insects' population cycles, typical paper sticky traps (wing traps or large delta traps) work just fine.
Squash vine borer	Pheromone lures are available from Great Lakes IPM and perhaps other suppliers, but users should be aware that the lures are not entirely specific for squash vine borer ... they catch some other related clear-wing moths as well. Be sure to identify the insects captured in your traps. Paper sticky traps work fine ... begin monitoring as soon as vines begin to run.
Corn earworm	Trapping for corn earworm, particularly in sweet corn production, is probably the most important use of traps in vegetable crop pest management in the Midwest. Buy corn earworm "luretapes" made by Hercon (available from Great Lakes IPM and others) ... they are more effective than other pheromone lures for corn earworm. Use a large, cone-shaped trap made of hardware cloth or nylon; paper sticky traps do not work in trapping corn earworm moths. Begin trapping as soon as corn begins silking.
European corn borer	Pheromone lures are available for European corn borer, but be sure to buy both the lure for the "Iowa strain" and the "New York strain" and use them in separate traps. We have both strains of European corn borer in the Midwest, and they respond to slightly different pheromones. The other option is to use a light trap ... the standard way that sweet corn processing companies monitor European corn borer flights.

Suppliers of pheromone traps include:

Supplier	Address	Phone & Fax
Great Lakes IPM	10220 Church Road Vestaburg, MI 48891 email: glipm@nethawk.com On the web at: http://www.greatlakesipm.com	Ph. 989-268-5593 Ph. 800-235-0285 Fax: 517-268-5311
Gempler's	P.O. Box 270 Mt. Horeb, WI 53572 On the web at: http://www.gemplers.com/	Ph. 800-272-7672 Fax: 800-551-1128

IPM Technologies, Inc.	4134 North Vancouver Ave., # 105 Portland, OR 97217 email: info@ipmtech.com On the web at: http://www.ipmtech.com	Ph. 503-288-2493 Ph. 888-IPM-TRAP Fax: 503-288-1887
Phero Tech Inc.	7572 Progress Way Delta, British Columbia, CANADA V4G 1E9 e-mail: info@pherotech.com On the web at: http://www.pherotech.com/	Ph. 604-940-9944 Ph. 800-665-0076 Fax: 604-940-9433
Suterra	213 Southwest Columbia Street Bend, OR 97702 email: agsales@suterra.com On the web at: http://www.suterra.com	Ph. 541-388-3688 Ph. 866-326-6737 Fax: 541-388-3705

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Fruit Production and Pest Management

Strawberry Plasticulture Herbicide Study, 2004-2005

In considering weed control options for plasticulture strawberries with the phase-out of the soil fumigant, methyl bromide, a small herbicide study was started at the Dixon Springs Ag Center last fall. Black plastic mulch does give good weed control except for areas where the plastic has been punched out or is missing (i.e. right around the plant). This study involved six different herbicide treatments. Although NONE of the products currently have a label for use in plasticulture strawberries, three of the products are labeled for use in matted row strawberry production. Both Camarosa and Sweet Charlie varieties were included in the study with 10 plants of each variety in each treatment plot. In order to apply the herbicide under the black plastic, two passes were made through the field with the bed shaper/mulch layer machine on September 24, 2004. After the first pass, the beds were formed and the herbicides were applied. Black plastic mulch and trickle irrigation tape were laid during the second pass through the field. Plug plants were set the first week of October. The field was observed for plant injury and weed emergence/injury at 4 days and 2 weeks after planting, with no noticeable injury seen. Row cover was applied for winter protection around Thanksgiving and was removed on March 15, 2005, and the plots were rated for plant injury and weed emergence. The table below summarizes rating data as well as treatment rates and types of weeds observed in the plots. The figures that follow illustrate the representative views of the plots on March 15, 2005. Plant injury in a few of the plots was seen as smaller plants that appeared stunted and hadn't grown since planting. Yield data will be taken from these plots and reported later in the season.

Summary of plant injury and weed control for five soil-applied herbicides in strawberry plasticulture.

Herbicide & Rate	Strawberry Plant Count	Strawberry Injury Rating	Weed Emergence Rating	Percent Weed Control	Weeds Observed
Dacthal 10 lb/A	20	0	1.3	87	wild onion, smallflower bittercress, yellow rocket mustard
Spartan 8 oz/A	19.7	0	1.3	87	henbit, grasses, wild onion
Devrinol 8 lb/A	18.3	1.7	4.0	60	henbit, wild geranium, wild onion
Sinbar 4 oz/A	18.0	0.7	4.7	53	henbit, grasses, chickweed, wild geranium, wild onion, dandelion
Untreated check	18.7	0	8.7	13	henbit, grasses, chickweed, wild geranium, wild onion
Aim 1 oz/A	19.7	0	10.0	0	henbit, grasses, chickweed, wild geranium, wild onion



Dacthal- (L) and Spartan-treated ®) plots.



Devrinol- (L) and Sinbar-treated ®) plots.



Untreated (L) and Aim-treated ®) plots.

This issue's words of wisdom ...

There may be a few repeats here, but ...

NEW WORDS AND DEFINITIONS 2005

Bozone (n.): The substance surrounding stupid people that stops bright ideas from penetrating. The bozone unfortunately, shows little sign of breaking down in the near future.

Cashtration (n.): The act of buying a house, which renders the subject financially impotent for an indefinite period.

Sarchasm (n): The gulf between the author of sarcastic wit and the person who doesn't get it.

Inoculatte (v): To take coffee intravenously when you are running late.

Hipatitis (n): Terminal coolness.

Karmageddon (n): It's like, when everybody is sending off all these really bad vibes, right? And then, like, the Earth explodes and it's like, a serious bummer.

Decafalon (n.): The grueling event of getting through the day consuming only things that are good for you.

Glibido (v): All talk and no action.

Dopeler effect (n): The tendency of stupid ideas to seem smarter when they come very quickly.

Arachnoleptic fit (n.): The frantic dance performed just after you've accidentally walked through a spider web.

Beelzebug (n.): Satan in the form of a mosquito that gets into your bedroom at three in the morning and cannot be cast out.

Caterpallor (n.): The color you turn after finding half a grub in the fruit you're eating.

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