UNIVERSITY OF ILLINOIS EXTENSION
College of Agricultural, Consumer, and Environmental Sciences

Illinois Fruit and Vegetable News

Vol. 19, No. 15, December 5, 2013
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://ipm.illinois.edu/ifvn/. 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

The 2014 Illinois Specialty Crops, Agritourism, and Organics Conference will be held January 8-10, 2014.

Check the Illinois SARE calendar for a full list of programs and links for registration.
http://illinoissare.org/ and http://illinoissare.org/calendar.php
Also see the University of Illinois Extension Local Food Systems and Small Farms Team's web site at:
http://web.extension.illinois.edu/smallfarm/ and their calendar of events at
http://web.extension.illinois.edu/units/calendar.cfm?UnitID=629.

- **2014 Illinois Specialty Crop, Agritourism, and Organics Conference, January 8-10, 2014**, Crowne Plaza Hotel and Conference Center, Springfield, IL. Lots more details to come, but it's time to mark your calendars. The keynote speaker on January 9 will be Elliot Coleman, co-author of *Four-Season Harvest: How to Harvest Fresh Organic Vegetables from Your Home Garden All Year Long*, and author of other widely popular books on high tunnel production and organic production. In addition to concurrent tracks on fruits, vegetables, herbs, agritourism, and organics on January 9 and 10, pre-conference workshops on January 8 will feature (1) Pumpkin Production, Pest Management, and Marketing; (2) Season Extension and Year-Round Markets; (3) GAPS and Food Safety Guidelines for Growers who Sell at Farmers' Markets; and (4) Optimizing Plasticulture and Drip Irrigation Practices (a.m.) and Growing Unique Fruits and Vegetables (p.m.). In addition, training and testing for the Private Applicator License (pesticides) will also be offered on January 8.
- **Horseradish Growers Conference, January 30, 2014.** Madison-Monroe-St Clair Branch Office, Collinsville, IL. Contact Patricia Stanton, 618-344-4230 or pstanton@illinois.edu, to receive registration materials.
- **Illinois Grape Growers and Vintners Association Annual Conference, January 30-February 1, 2014.** Crowne Plaza Hotel and Conference Center, Springfield IL. Contact: Megan Pressnall, Director of External

Relations, IGGVA, 217-726-8518 or megan@illinoiswine.com. Registration coming soon at http://www.illinoiswine.org/index.html.

- **Southwestern Illinois Commercial Tree Fruit School, February 4, 2014.** Knights of Columbus Hall, Hardin, IL. Contact: Michelle Vogel at 618-576-2293 or mbergv@illinois.edu. Registration coming soon at http://web.extension.illinois.edu/ccgms/.
- **Southern Illinois Commercial Tree Fruit School, February 5, 2014.** Mt Vernon Holiday Inn, Mt. Vernon, IL. Contact: Patricia Stanton at 618-344-4230 or pstanton@illinois.edu. Registration coming soon at http://web.extension.illinois.edu/mms/.
- **Illinois Small Fruit & Strawberry School and Southern Illinois Commercial Vegetable School, February 11-12, 2014.** Mt Vernon Holiday Inn, Mt. Vernon, IL. Contact: Patricia Stanton at 618-344-4230 or pstanton@illinois.edu. Registration coming soon at http://web.extension.illinois.edu/mms/.
- **Hydroponic Production Workshop, Urbana, IL, February 18-19, 2014.** University of Illinois Campus, Urbana, IL. This 2-day workshop will cover basic hydroponic principles and practices and will include both classroom and hands-on lab activities. The cost for the 2-day program is $95 per person, and one guest per registrant can attend for an additional $45. For more information or to register please email jkindhar@illinois.edu or call 618/695-2770. *See the agenda for this workshop under the Vegetable Production heading below.*
- **Hydroponic Production Workshop, St. Charles, IL, February 25-26, 2014.** St. Charles, IL (University of Illinois Kane County Extension Office and the St. Charles Horticulture Research Center). This 2-day workshop will cover basic hydroponic principles and practices and will include both classroom and hands-on lab activities. The cost for the 2-day program is $95 per person, and one guest per registrant can attend for an additional $45. For more information or to register please email Shelby Henning at shenning@illinois.edu or call 630-584-7254. *See the agenda for this workshop under the Vegetable Production heading below.*

Notes from Chris Doll

A correction on contact information for Chris Doll …

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Fruit Production and Pest Management

Dixon Springs High Tunnel Raspberry Trial

A high tunnel raspberry cultivar trial was established at the University of Illinois Dixon Springs Agricultural Center in 2011. The plants are grown in raised beds with trickle irrigation. The results of the 2013 trial are presented in Table 1.

Results from 2012 trial can be found in the April 11, 2013 Illinois Fruit and Vegetable Newsletter. The trial contains only primocane bearing cultivars, and harvest in 2013 began on May 28 and concluded on November 12. The 2013 season was shortened due to an early fall freeze.

Table 1. RASPBERRY DATA, 2013

Cultivar	Avg. Yield [a] (*pounds/10-ft plot*)	Extrapolated Yield for 30' x 96' Tunnel *(Avg. pounds)*	Extrapolated Yield for 30' x 96' Tunnel *(Avg. pints)*
Joan J	35.26	1904	2929
Polka	24.15	1304	2006
Autumn Britten	21.26	1148	1766
Joan Irene	20.68	1116	1716
Josephine	19.33	1043	1604
Caroline	18.67	1008	1550
Polana	18.57	1002	1541
Nantahala	13.46	726	471

[a] Data represent means of three ten foot plots.

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

Update on Vole Management

Robert Crassweller of Penn State University wrote an excellent article on vole management in the November 14 issue of Penn State's ***Fruit Times*** newsletter. Chris Doll passed it along, and it's pasted in below, with the original article and lots of other great updates available at http://extension.psu.edu/plants/tree-fruit/news. (Note that references to Pennsylvania regulations, etc. are left in place … the article is simply copied from ***Fruit Times***.)

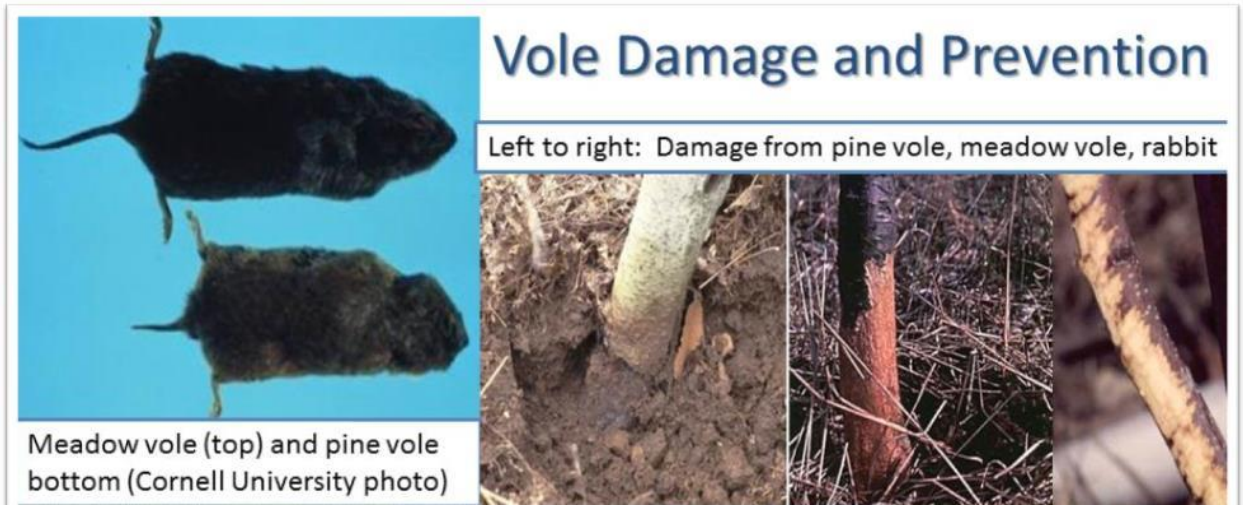
Management Considerations for Sites where Monitoring has Revealed High Vole Populations (by Robert Crassweller)

Vole populations exhibit distinctive population fluctuations of approximately 4 year cycles, and based on reports from around the state, this may be an "up" year. One of the last tasks in getting the orchards ready for winter is planning your strategy to control voles and prevent their damage.

In the Mid-Atlantic region we have two major types of voles—pine (*Microtus pinetorum*) and meadow (*Mictrotus pennsylvanicsus*). The pine vole is smaller, usually 4 to 6 inches long, while the meadow vole is 5 ½ to 7 ½ inches in length. Their habitat is slightly different: meadow voles tend to spend their time above ground building surface runways in long grass, while the pine voles tend to burrow down in subterranean runs. Voles are active both day and night and do not have a hibernation period.

Damage by the two species is slightly different. Pine voles feed on roots below the surface (see photo) while meadow voles tend to feed around the base of the tree above the surface.

Do not confuse meadow vole damage with that caused by rabbits. Rabbit damage will extend up the trunk and typically shows more gnawing injury. An interesting note for orchards located in more northern areas where snow may persist for several weeks: you may see damage up into the tree when meadow voles can run across the snow surface.



Left to right: Chemical management (bait station for toxicant placement); habitat modification (closely mowed drive middles; and indirect chemical management (vegetation-free tree rows).

Monitoring Vole Activity

The first step in any vole control program is to monitor the orchard to determine the extent of the population present. Monitoring consists of providing some "sheltered" locations in the orchard such as arched roofing shingles, tires cut in half, "PVC T-tubes", used aluminum soda cans or anything that can provide temporary shelter for the voles. Monitoring stations are best concentrated close to where orchard blocks adjoin woods or open fields but should also be scattered throughout large blocks. The apple index method is the most common method of monitoring. First place the "shelters" in the orchard, preferably where you may see or suspect vole runs. Make a grid map of the locations of the stations. Leave them in place for 3 to 5 days before baiting them. To bait them cut 0.5 inch square chunks of apples and place them under the shelter. Be sure to map the orchard as to the locations of the bait stations. Wait 24 hours and return to the bait stations and examine the apples for evidence of chewing on the apple or its absence. Marking the grid map you created with a + or – will give you a visual representation of the spread of the voles. Wherever there is a concentration of the vole population will be the area that you need to concentrate control measures.

Another method of determining the population is to set traps and monitor them. (Note: trapping is not an efficient control method in large orchards). For meadow voles, place the traps in runways, flush with the ground and perpendicular to the runway. Place the trigger end in the runway. For pine voles, locate a tunnel and place the trap within the tunnel and perpendicular to it. Put a cover such as a bent roofing shingle or box over the traps. This helps protect most non-target animals and makes the voles more likely to enter the site.

Cultural Management

Cultural controls can be utilized to reduce populations and potential damage. The first line of defense is to mow the orchard row middles closely to reduce potential cover for the voles. A closely mown sod will expose the voles to

attacks by predatory birds such as hawks and owls. **Providing good nesting places for predatory birds can also help control the population. However, if you go this route, you probably should not be using poison baiting techniques.**

Tree guards are another effective means to prevent damage to the trees. Wire mesh, perforated wire guards, and plastic wraps placed around the base of the tree can be effective deterrents to meadow vole damage. However, for the tree guards to be effective for pine voles they need to be buried several inches below the surface.

Habitat modification should also be a primary mechanism to control potential damage. Voles can live in dense populations in ditch banks, rights-of-way and water ways. Closely mowing adjacent fields and burning down weeds will help prevent voles from commuting between those areas and the orchard.

Repellents on a small scale may serve to reduce damage. Materials that contain thiram or capsaicin are available that can be applied directly to the trunks of trees. Protection is relatively short term. Due to changing chemical regulations, before applying a material containing thiram make sure it is labeled for use in fruit trees.

Indirect Chemical Management

As mention above in the cultural management section, voles dislike being exposed to predators and will tend to stay in tall vegetation. A vegetation-free herbicide strip underneath the trees can help to reduce potential damage of meadow voles. This species will tend to shy away from feeding on trees where they are exposed to view and attack by predators. **Fall application of herbicides will not only help in your weed management program for next spring but also help reduce vole damage.**

Chemical Management

The application of toxic baits is probably the quickest and most effective method of reducing troublesome populations. **These baits are applied in the fall after harvest preferably before the ground freezes and may need a re-application in the spring if monitoring shows a resurgence of the populations.**

Used in conjunction with habitat modification and cultural controls, rodenticides are an important part of vole control. Two types of rodenticides are often used—one to provide a quick reduction in numbers (high toxicity and fast acting, a single-dose toxicant) and the other to provide protection throughout the winter (one of the anticoagulant baits). ZP Rodent Bait AG is a registered single dose toxicant and Ramik Brown is an anticoagulant. Both are currently registered for use in Pennsylvania orchards. To determine if a specific rodenticide can still be used, read the label very carefully. The label will provide information on rates and applications, and list legal uses for the product. Note any restrictions placed on the product. Most rodenticides may be used only during the dormant season when trees are not bearing fruit, and most are labeled as restricted-use pesticides and can only be purchased and used by a certified pesticide applicator. If the label does not specifically state that it is legal for use in orchards, you can contact the Department of Agriculture, Division of Agronomic Services to find out if the product is registered for use in Pennsylvania orchards.

Acute rodenticides, zinc phosphide materials, are fast acting poisons usually only requiring a single feeding. In contrast, the anti-coagulant materials require multiple feedings over several days. **One strategy is to apply an acute rodenticide to knock down the population followed by an anticoagulant for protection through the winter. The anticoagulants are more toxic to voles than to birds and other mammals and thus pose less of a risk to non-target wildlife. Even with this fact every effort should be made to protect non-target wildlife. Zinc phosphide materials are equally toxic to all vertebrates and should be used responsibly to minimize non-target wildlife. The best use of these materials is through the use of bait stations. To minimize feeding by non-target bird species use only the pelletized formulations and not the grain based formulations.**

Acute rodenticides can be applied at a rate of 2 lb/A when hand placing in runways or bait stations. The broadcast rate for these materials is 10 lb/A. **Never make applications to bare ground.** Anti-coagulant rodenticides should be applied at a rate of 10 lb/A when hand placing and 15 to 20 lb/A for broadcast applications.

Pine voles are not as active above ground, so bait should be placed directly in runways and burrow openings at two to four locations under infested trees. If runways and burrows cannot be found, roofing shingles, boards, or other objects placed on the ground at each placement site provide voles with shelters where they may build tunnels or nests. Place

bait under these shelters after they have been in place for several weeks. For pine voles, baits must be placed in the underground runways.

Timing influences the success of control programs. Wet weather reduces the effectiveness of rodenticides, so apply baits when weather is likely to be fair and dry for at least 3 days. Baits are most effective when naturally occurring foods, such as green vegetation and fruit drops, are limited. Late fall is an important time to bait voles because it serves to reduce populations before the onset of winter, when vole damage is most severe and snow cover precludes rodenticide use. **When winter survival is high, baits should be applied in the spring before the breeding season and before renewed growth of ground cover diminishes bait acceptance.**

Vegetable Production and Pest Management

High Tunnel Maintenance

Replacing the polyethylene plastic covering on high tunnels should be done every 4-5 years. As the plastic ages, the amount of light transmitted through it will be reduced, which can negatively affect the growth and development of plants.

Additionally, the use of shade cloths over the plastic tends to scratch the plastic as well, which adds to the wear and tear and potential failure of the plastic. Replacing the plastic at regular intervals saves having to replace the plastic during summer when a wind storm tears a hole in the 6-year-old plastic. Remember that the polyethylene is recyclable.

Other tasks for high tunnel growers as the season comes to a close include draining water lines for all but frost-free hydrants. And don't forget to drain or remove any fertilizer injectors before freezing temperatures occur.

Sanitation is also an important task. While many leaf diseases are reduced when vegetables are grown in a high tunnel, others, such as leaf mold on tomato, seem to thrive. Consider applying a sanitizer to reduce overwintering disease. There are several commercial disinfectant products available that are more effective than Clorox bleach. Sanitize the entire inside of the tunnel, including stakes and trellising, any tools or benches, polyethylene plastic, ground covers, trays, etc. Remove any plant materials.

Mike Roegge (roeggem@illinois.edu; 217-223-8380)

Hydroponic Production Workshops

The University of Illinois will host two 2-day workshops on hydroponic production. The workshops will provide information to anyone interested in hydroponic small fruit or vegetable production. The number of producers using hydroponic production systems in Illinois is increasing, and there are many people who have indicated a desire to learn more about hydroponic production for both recreational and commercial growing. These workshops will offer the opportunity to get a strong foundation in basic hydroponic principles and practices and will include both classroom and hands-on lab activities. The cost for the 2-day workshops is $95 per person, and one guest per registrant will be allowed for an additional $45. The workshop at Urbana will be held on February 18-19, 2014, and the workshop at St. Charles will be held on February 25 and 26, 2014. For more information or to register, please email jkindhar@illinois.edu or call 618/695-2770 for the Urbana workshop or contact Shelby Henning at shenning@illinois.edu for the St. Charles workshop. The tentative program for these workshops is …

Day 1

9:00 Overview of Hydroponic Production Systems
10:30 Basics of Greenhouse and High Tunnel Growing
12:00 Lunch
1:30 Greenhouse tour
2:30 Plant Nutrition Basics
3:30 Leafy Greens, Cucumber, and Strawberry Hydroponic Production Basics
5:00 Adjourn

Day 2

9:00 Basics of Starting a Horticulture Business
10:30 Water Testing, Fertilizers and Feeding
12:00 Lunch
1:00 Greenhouse Integrated Pest Management
2:15 Tomato Production Basics
3:15 Greenhouse Tour – Hydroponic Systems Demonstrations
5:00 Adjourn

Local Foods Issues

More on the GAPs Audit Cost-share Program

In the October 14 issue of this newsletter, we published a brief article on the successful GAPs certification of Montalbano Farms. Sweet corn producer Brian Severson of Dwight in Grundy County (www.qualityorganic.com) also successfully passed a USDA food inspection audit in late summer. Brian was motivated by the market advantage that GAPs would give to his sales of fresh and frozen sweet corn. His target market is a public school system which requires GAPs audits. Ellen Phillips and James Theuri, University of Illinois Extension Educators, along with Liz Maynard, Vegetable Specialist from Purdue University, assisted in in development of his Food Safety Plan, and Ellen and James conducted a mock audit of his operation in August. The Severson Farm is the second farm to receive a GAPs Audit Cost-share to help pay for the cost of the audit. The GAPs Audit Cost-share is funded by a University of Illinois Extension grant from the Illinois Department of Agriculture, Illinois Specialty Crops Block Grants program. To find an application, see http://web.extension.illinois.edu/smallfarm/foodsafety.html.

James Theuri (jtheu50@illinois.edu; 815-933-8337) and Ellen Phillips (708-449-4320; ephillps@illinois.edu)

Less seriously … ok, some new bumper stickers

- Watch out for the idiot behind me!
- Buckle up... it makes it harder for the aliens to suck you out of your car.
- There are 2 types of pedestrians, the quick and the dead.
- He who laughs last thinks slowest.
- All men are idiots, and I married their king.
- Friends help you move; real friends help you move the body.
- Very funny Scotty; now beam down my clothes.
- Mothers with teenagers know why animals eat their young.
- I love to give homemade gifts, which one of my kids do you want?
- They didn't let me out, they just gave me a day pass!

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