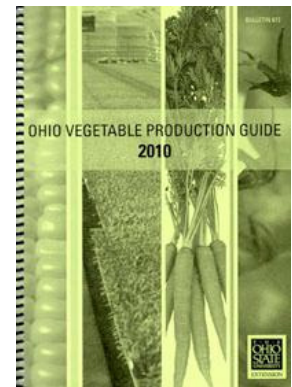




Ohio Fruit ICM News

The consistent cold weather without extreme lows has been kind to the fruit crops. Bud injury and tissue damage should not be a concern as we move into the last part of winter. However, the recent very heavy snow cover that has blanketed most of Ohio may lead to some extensive rodent damage to some of the fruit crops.

Most OSU Extension offices should now have available copies of the 2010 Midwest Small Fruit and Grape Spray Guide, 2010 Midwest Tree Fruit Spray Guide and the 2010 Ohio Vegetable Production Guide (which is available online at: <http://ohioline.osu.edu/b672/>). These publications are also available through OSU eStore at: <http://estore.osu-extension.org/>.



Upcoming Program in Muskingum County:

Friday, February 26, 2010::

Eastern Ohio Fruit and Vegetable School

Topics Include: Fruit Disease Update, Vegetable Disease Update, Small Fruit Update, Food Safety/Good Ag Practices, plus several other topics.

Please send reservation form by Feb. 20. For an informational flyer with registration form click on following link:

<http://licking.osu.edu/topics/agriculture-and-natural-resources/page-links/Eastern%20Ohio%20Fruit%20and%20Veg%20School-101.pdf>

Upcoming Program in Knox County:

February 18 & 25, March 4, 2010:

2010 DK Fruit and Vegetable School, Ostrander, Ohio.

Topics Include: Sweet Corn, Vegetables, Brambles, Strawberries, Pumpkins, and High Tunnel Products

RSVP by Feb. 16 to 740-833-2030. For an informational flyer click on following link:

<http://delaware.osu.edu/topics/agriculture-and-natural-resources/fruit%20and%20veg%20school%20flyer.pdf>



EMPOWERMENT THROUGH EDUCATION

Intensive Blueberry IPM Scout Training Program

Michigan State University Extension

The "Intensive Blueberry IPM Scout Training Program" will be held on March 15-16 at the Fillmore Conference room in West Olive, MI. This is the classroom portion of the two segment training program. Hands-on training sessions will be May 27 and June 17. The March program registration is \$250 per person and includes lunch. For more information, contact Dr. Anamaria Gomez gomezrod@msu.edu or (269) 561-5040. **Download brochure and registration information at:**

<http://ipmnews.msu.edu/fruit/LinkClick.aspx?fileticket=RKRHINhTJjw%3d&t=abid=123>



Come to Fennville for GAP Training Programs for Blueberry or Apple Growers

Michigan State University Extension



Two workshops – one for blueberry growers and another for apples – on "GAP for Food Safety: Preparedness for Third Party Audits for Blueberry Production" will be held at the Trevor Nichols Research Complex in Fennville, Michigan this winter.

For blueberry growers – February 25-26

This program is great for growers, packers and shippers. GAP for Food Safety training provides trainees with information to minimize microbial food safety hazards in blueberry production. In addition, it delivers information on how to develop your own Food Safety manual in preparation for a GAP audit and certification. The hands-on training includes an on-site GAP mock audit and development of a Hazard Analysis and Critical Control Point program. Registration is \$275 (includes lunch) and is due by February 24. For more information, contact Dr. Anamaria Gomez gomezrod@msu.edu or (269) 561-5040. **Download brochure and registration information at:**

<http://ipmnews.msu.edu/fruit/LinkClick.aspx?fileticket=jc5SV%2bWjxvg%3d&t=bid=123>

For apple growers – March 25

Trevor Nichols Research Complex will also host a GAP food safety training session on March 24 for those in apple production. Participants will learn how to reduce any contamination risks to provide safer and better quality apples. The training will also help growers comply with food safety standards set by regulations and buyers. With this training farmers will improve their productivity and profit. Registration is \$250 and includes lunch. For more information, contact Dr. Anamaria Gomez gomezrod@msu.edu or (269) 561-5040. **Download brochure and registration information at:**

<http://ipmnews.msu.edu/fruit/LinkClick.aspx?fileticket=ipIA0uUp63I%3d&t=bid=123>

New York Berry News:

Currant Events

Cornell University

March 30, 2010: 2010 Ontario Strawberry School, Newtonville, Ontario, Canada. For flyer with more information click on the following link:

<http://www.ontarioberries.com/2010strawberryschool.pdf>

University of Illinois Extension

Upcoming Program:

The 2010 Illinois Small Fruit and Strawberry Schools will be held March 2 and 3 at the Holiday Inn in Mt. Vernon.

A trade show both days features vendors offering products, supplies and services to small fruit and strawberry growers.

Registration by February 25 is \$30 per farm family and includes admission to the educational sessions and trade show along with one copy of the *2010 Midwest Commercial Small Fruit and Grape Spray Guide* and one copy of the *2010 School Proceedings*. Late and at-door registration is \$35.

For complete details, visit the <http://web.extension.illinois.edu/regions/hort/hort2.htm> website and click the "Commercial Growers" section. Or, contact Bronwyn Aly at the University of Illinois Dixon Springs Agricultural Center, 618-695-2441.

If you have articles for the newsletter that you would like to have considered to be included in upcoming issues, please submit to either Howard Siegrist at siegrist.1@cfaes.osu.edu or Melissa Swearingen at swearingen.34@cfaes.osu.edu

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We gratefully acknowledge the continued help and financial support of our local county commissioners. We appreciate their input and participation in our programming efforts.

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Keith L. Smith, Ph.D., Associate Vice President for Agricultural Administration and Director, Ohio State University Extension
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Alternative Method to Protect Rootstock Available to Grape Growers

Doug Doohan, Professor, Dept. Horticulture & Crop Science, OARDC Weed Ecologist
Ohio State University Extension

An alternative method for protecting rootstock while controlling weeds and promoting environmental sustainability may be available to grape producers, specifically those who grow the crop in cold climates.

Ohio State University scientists with the Ohio Agricultural Research and Development Center have found that herbicide-treated mulch, popular in the green industry for its myriad of environmental and production benefits, is proving successful in vinifera grape production. Vinifera grape varieties are used to make wine.

“Vinifera grapes produced in the United States have to be grafted onto an insect-resistant root stock to grow and stay healthy. That graft union must be protected from the cold weather and to do that growers usually cover the graft union with a layer of soil in the fall,” said Doug Doohan, an OARDC weed ecologist. “However, over time the organic matter of the soil degrades, the soil complicates weed control and any vineyards situated along hillsides become severely eroded.”

Researchers replaced the layer of soil with a layer of mulch (either wheat straw or shredded bark), sprayed the mulch with an herbicide, and discovered a whole host of benefits that the soil couldn’t provide.

The mulch did a better job at protecting the grape vines from frigid temperatures and helped conserve moisture for later use by the plants. The herbicide application enhanced weed control and the mulch/herbicide combo reduced the amount of leaching and soil runoff. In addition, researchers found that yields had improved, mostly likely because of the increase in organic matter, and, curiously, the quality of the juice improved as well.

“For grape growers who want to demonstrate sustainability and produce a successful crop, this is a system they can use,” said Doohan, who also holds an Ohio State University Extension appointment. “This approach is useful anywhere freezing temperatures threaten the life of the grape vine.”

The study, “Herbicide-Treated Mulch May Reduce Soil Erosion and Pesticide Off-Site Movement in Vinifera Vineyards,” was recently reported at the 2009 Ohio Grape and Wine Conference and at the 34th Annual Eastern Section Conference of the American Society for Enology & Viticulture. The abstract was published in the December 2009 issue of the American Journal of Enology and Viticulture. The four-year research was funded by the Ohio Grape Industries Committee. Doohan said that the study is a jumping off point for future research.

“One of the outstanding questions from the study is the cost of implementing the alternative system, which compared to the traditional method is much more expensive in basic cost and inputs,” said Doohan. “But the indirect savings -- from reduction of soil erosion to the reduction of leaching to savings in herbicide applications -- needs to be calculated.”

Other researchers involved in the study include OARDC viticulturist Imed Dami, OARDC soil microbiologist Warren Dick, and OARDC research assistant Linjian Jiang.



Michigan Spring Peach Update – March 10, 2010

Bill Shane, Extension Educator
Michigan State University Extension



Peach growers are always looking for ways to improve their profitability. The 2010 Spring Peach Update is a day long meeting with educational sessions and discussions on growing, packing and marketing high quality peaches. This year's Michigan Spring Peach Update will be held on March 10 at the Jordon B. Tatter Conference Center of the Southwest Michigan Research and Extension Center, 1791 Hillandale Road, Benton Harbor, Michigan.

Peach growers are always looking for ways to improve their profitability. The 2010 Spring Peach Update is a day long meeting with educational sessions and discussions on growing, packing and marketing high quality peaches.

Topics covered include new insecticides and insect management strategies, disease control, marketing strategies for peaches, farm marketing of peaches, mechanical peach thinning, and new peach varieties. Attendees will be eligible for credits toward their recertification of their Michigan pesticide applicators license.

Advanced registration is \$25 for current Michigan Peach Sponsor members and \$30 for non-members, and \$5 more when registering at the door. Registration begins at 8:00 AM, the program begins at 9:00 AM and concludes at 4:30 PM. Registration includes lunch and refreshments for breaks. For further meeting information, contact the conference coordinator Dr. Bill Shane at shane@msu.edu or (269) 944-1477 x 205 or go visit the web site:

www.michiganpeach.org .

This meeting is brought to you by the Michigan Peach Sponsors, Michigan State University, and the Michigan Horticultural Society.

Update on Storing Honeycrisp Apples in Michigan

Randy Beaudry and Carolina Contreras, Horticulture
Michigan State University Extension



Despite the fact that the Honeycrisp apple fruit has been grown commercially in the United States for nearly 20 years (Honeycrisp was first planted in 1962 as seed produced from a 1960 cross of Macoun and Honeygold, as part of the University of Minnesota apple breeding program and released in 1991), its production has only recently been significant enough to warrant the development of storage strategies to hold it beyond three to four months of refrigerated air storage.

Honeycrisp was first planted in 1962 as seed produced from a 1960 cross of Macoun and Honeygold, as part of the University of Minnesota apple breeding program and released in 1991. Despite the fact that the Honeycrisp apple fruit has been grown commercially in the United States for nearly 20 years, its production has only recently been significant enough to warrant the development of storage strategies to hold it beyond three to four months of refrigerated air storage. Significant production acreage can now be found in Michigan, Minnesota, New York, Nova Scotia, Ontario, and, following recent plantings, Washington.

Although the variety was bred as part of a breeding program to develop winter hardy cultivars, the fruit has proven to be quite sensitive to low temperatures encountered in storage.

Read recommendations for Honeycrisp storage in Michigan (pdf file):

<http://apples.msu.edu/pdf/HoneycrispStorageRpt09.pdf>

US and Ontario region-by-region storage recommendations for Honeycrisp (pdf file):

<http://apples.msu.edu/pdf/RegionalRecHoneycrisp.pdf>

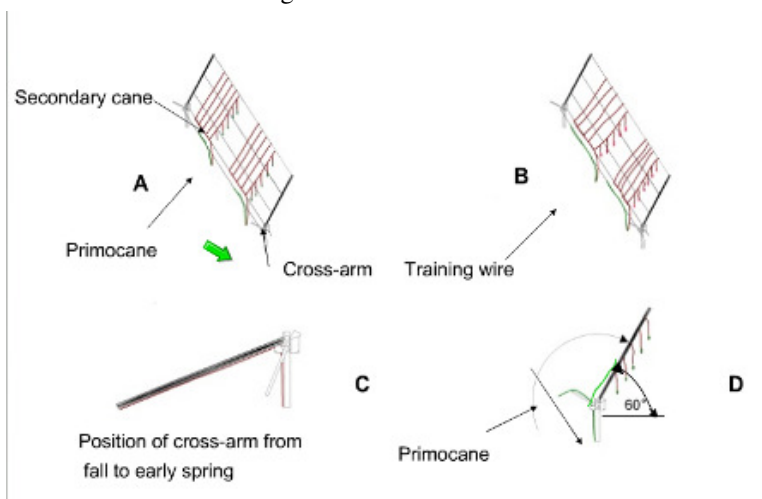
Visit: www.apples.msu.edu for more apple information.

Blackberries in Cold Climates

Molly Shaw, South Central Fruit and Vegetable program, Tioga County, Cornell University Extension

Cornell has been hosting a series of berry webinars this past fall and winter. They've gotten quite an impressive lineup of speakers, folks who know a lot about their particular subject. The information for this article was from the January 6 Webinar, presentation by Fumiomi Takeda, with the USDA-ARS in West Virginia. To listen to the archived webinars (free!) go to the Cornell Berry webpage, <http://www.fruit.cornell.edu/berry.html>, and check out archived webinars at the right.

Blackberries, those hot summer delicacies, don't fruit consistently in NY. Like summer bearing raspberries, they produce flowers and fruit on one-year-old canes. This means that the canes that grow in summer 2009, with their delicate flower buds formed in the fall, must be exposed to our harsh winters before they flower and fruit in 2010. Triple Crown and Apache, two erect (upright-growing) cultivars) don't need winter protection in zone 6B. But the southern tier of NY is zone 5A-5B, which means we see average winter minimum temperatures of -15 to -20°F. -10°F kills half the flower buds on these varieties. Trailing blackberries, developed in the pacific northwest, have winter damage at +12°F ("Siskiyou" is one



example). No wonder we have trouble getting blackberries to fruit consistently in NY! You'll find wild blackberries that fruit in protected locations near field edges and spots with more snow cover, but we also tend to not notice as much when wild blackberries fail to fruit in a given year. It's a different matter when you've planted canes and are expected a yield to pay the bills!

Side note from Courtney Weber, Cornell berry breeder

In general, most summer bearing blackberries will suffer cold damage in most of NY. Illini (Illini Hardy) is the hardiest and does fruit here most years. It is very thorny and fruit quality is average. Chester and Triple Crown are the hardiest thornless varieties but have fruited here only 1 time in 5 years due to cold damage.

Prime Jim and Prime Jan are two newer primocane-fruited blackberry varieties. These plants behave like fall-bearing raspberries—they send up shoots in the spring, make flowers on these, and fruit in the fall. The nice thing about them is that canes don't have to make it through the winter above ground before fruiting, but the bad thing is that since they fruit in late September/October, so the frost ends the season before most of the fruit is ripe.

For the last several years, Dr. Takeda has been working out a trellising system for blackberries that allows them to be laid on the ground and covered with row cover for the winter. This added winter protection has allowed blackberries to make it through the winter without damage.

The trellis system consists of an upright post sticking 2 feet out of the ground attached with a moveable joint to a 5 foot long bar ("cross arm"). Trellis wires are run between the moveable cross arms like what is used to trellis wine grapes (see illustration).

Blackberries are planted 5-6 feet apart within the row and trained to the trellis. The first 3-4 primocanes to grow out of the crown are bent horizontally at 24" high to follow the lowest trellis wire, right where the joint is that starts the moveable cross arm. All later-emerging primocanes are cut off. The young canes are flexible enough to make the 90° bend, though when canes get older they lose this flexibility. The primocanes now run horizontally along the trellis, and send out long laterals which grow vertically up the trellis, which is tilted a bit north from the vertical. In the fall these laterals are tied to the trellis wires, and the whole 5 foot cross arm is rotated down to the ground with the vines sandwiched underneath. A heavy row cover is fastened over the row which is now only 2 feet high off the ground and left on for the winter. In spring, the cross arm is rotated back up to the original position, the buds wake up, flower, and fruit. A bonus is that the fruit all ends up on the down-side of the slanted trellis wires, increasing harvest efficiency by 30%.

The Cadillac version of winter protection for blackberries is to grow them in a high tunnel. The unheated tunnel provides enough winter protection that they bear a full crop the next year, basking in the heat of the tunnel. Blackberries are different than raspberries in that they relish hot weather—they're adapted to the southern states after all. Even though the unheated tunnel can see winter temperatures as cold as the open air around the tunnel, the protection from wind and desiccation is enough to keep the buds alive. For full directions on how to do this, see Cornell's High Tunnel Bramble production guide, linked off the Cornell Berry website (see link above).



Understanding the Role of Root Diseases in Strawberry and Raspberry Decline

Kerik D. Cox, Assistant Professor, Dept. of Plant Pathology and Plant-Microbe Biology,
Cornell University, NYSAES

Root diseases are particularly devastating and frustrating to manage in small fruit production operations. This is especially the case for established operations because the most effective management practices must be implemented prior to planting. The pathogens causing root diseases are all soil-borne and remain protected within the soil. In addition, the most diagnostic symptoms are also below ground, which prevents one from recognizing the problem during time when action could be taken to save the planting.

In NY, the most common root diseases and disorders affect both raspberry and strawberry. Identifying the characteristics of these problems will help one understand their role in seasonal plant decline. These root diseases and disorders include:

Winter Injury (raspberry & strawberry): Decline from winter injury occurs when plants aren't well insulated against freezing during winter or when young tissue isn't protected against frost in the spring. Plants stressed by disease or abiotic factors prior to dormancy will be more susceptible to winter injury. Winter injury can result in reduced vigor and productivity, or kill plants outright. Winter injury to the roots can be diagnosed by cutting longitudinally through the crown of dying (not dead) plants. Initially, the cortex of roots and crown tissue will appear brown while the vascular tissue remains white and healthy. By contrast, most root diseases will preferentially affect the vascular tissue, and decay in the cortex occurs by secondary pathogens. In raspberries, winter injured plants will send up new canes that remain healthy through the season, while root disease will cause decline of canes throughout the season.

Phytophthora root rots (raspberry & strawberry-red stele): Phytophthora is an aquatic pathogen that prefers cool weather and free moisture (e.g. wet spots in the field). During Phytophthora infections, fine/lateral roots will decay first leaving only large primary roots, resulting in a rattail appearance. When the roots and crown are sectioned longitudinally, the vascular tissues will be reddish brown. As infection progresses and the plant dies, secondary decay fungi will rot the cortex of roots and the crown. Following plant death, infective propagules remain in dead plant tissue and the soil. These are capable of causing infections in later seasons after replanting. In both strawberries and raspberries there are resistant varieties to Phytophthora root rot.

Verticillium wilt (raspberry & strawberry): Verticillium wilt has the most distinctive symptoms of the root diseases presented here, and is easiest to diagnose. In strawberries, plants wilt and decline more slowly than other root diseases. The outer and older leaves wilt first, while the younger leaves remain small and stunted in the center. One will often find bluish streak-shaped lesions on the runners and petioles. In raspberry, the youngest canes will wilt first beginning from the base to the tip. On such canes, the petioles will remain attached with the oldest leaves at the base looking scorched and youngest leaves at the tip looking stunted, but often still green. Similar to strawberries, infected raspberry canes will also have bluish streak-shaped lesions within infected canes. In both strawberries and raspberries there are resistant varieties to Verticillium wilt.

Black root rot (strawberry): Black root rot of strawberry is a root disease caused by a complex of several pathogens. One of the pathogens, Pythium, is another aquatic organism similar to Phytophthora. Because of the similarities, the management practices for Phytophthora root rot are often effective for managing black root rot as well. Decline from black root rot usually occurs during the year of establishment, and like Phytophthora root rot, this disease primarily occurs in wet spots or in compacted soils with poor drainage. By harvest, infected plants will have decreased vigor, are stunted, and lack productivity. However, severely infected plants may be killed prior to harvest. Below the soil, the lateral/feeder roots will have decayed (similar to Phytophthora root rot), and the large primary roots will have dark lesions that expand overtime. Initially, the vascular tissue of infected roots appears white and healthy, but ultimately turns black as infection progresses. It is important not to confuse the black root rot with the natural blackening of strawberry roots that occurs with age. Older roots will have a black epidermal covering, but the cortex and vascular tissue will be firm and white instead of having dark lesions.

Continued on page 7

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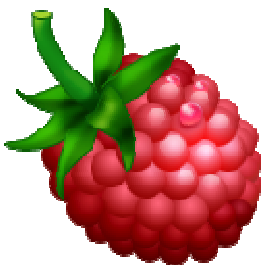
Understanding the Role of Root Diseases in Strawberry and Raspberry Decline

The Role of Root Diseases in Plant Decline During the 2009 Season: The beginning of the 2009 season was fairly dry, but the summer remained cool with considerable rainfall from late May through July. Disease pressure across all fruit commodities was extreme, and disease losses were unmanageable in many situations. There were many reports of small fruit plant decline, especially in strawberries. Unfortunately, the majority of the samples diagnosed by this program had progressed to a stage of decline where it was impossible to confirm root disease as the cause. Some samples provided clear indications of *Verticillium* wilt and signs of *Phytophthora* infected tissues, but others were simply winter injury. Although, many root diseases remained unconfirmed in 2009, the cool summer temperatures and heavy rains would have been quite conducive for *Phytophthora* root rot and black root rot complex of strawberry.

Preparing for Root Diseases and Decline in 2010: Given the overall high disease pressure and favorable environmental conditions for disease in 2009, there could be considerable root disease inoculum present in small fruit plantings in 2010. In plantings with severe plant decline in low-lying wet areas, a phosphorous fungicide program may be warranted to prevent additional loss to *Phytophthora* or black root rot. In addition to diseases, winter injury could be more severe in 2010. Plants with high levels of disease (even foliar diseases like leaf spot) at harvest may be stressed or weakened as they enter dormancy and would be more susceptible to winter injury. In order to avoid plant decline in 2010, producers would be best served by ensuring plant insulation during winter and scouting during spring and early summer for the first signs of plant decline (e.g. wilting). If recognized early, the extent of losses could be mitigated.

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1. Maas, J.L. 1998. Compendium of Strawberry Diseases. APS Press. 98 p.
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3. Pritts, M. and Handley, D. 1989. Bramble Production Guide. NRAES-35. Cornell cooperative Extension, Ithaca, NY, 200 p.
4. Ellis, M.A., Converse, R.H., Williams, R.N., and Williamson, B. 1991. Compendium of Raspberry and Blackberry Diseases and Insects. APS Press. 100 p.



Central Ohio Poison Control Number

(800) 222-1222

TTY # is (614) 228-2272

Salad Vegetables and Produce Safety Standards

Peter Hirst, Dept. of Horticulture & Landscape Architecture
Purdue University

Are pre-packaged salad vegetables as safe as people think? This has been the subject of a number of recent articles in the popular press about the safety of salad greens. Part of this discussion is probably fueled by a bill currently in the US Senate, Senate Bill 510, the Food Safety Modernization Act, that would set stronger produce safety standards. While this may sound good, it would probably result in additional FDA regulation of farms and/or farm produce. Most organic and small farm groups oppose this bill. Perhaps in response to this, Senator Debbie Stabenow (D-MI) has introduced the Growing Safe Food Act (S. 2758) to create a national food safety training and technical assistance program. It would deliver training and technical assistance appropriate to small and mid scale farms to reduce the incidence of food borne illness. The Perishable Pundit website (<http://www.perishablepundit.com/>) has an interesting article on truth and fiction surrounding these issues.



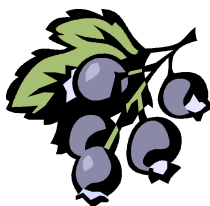
Pruning Brambles, Pruning Blueberries, and Straw Removal on Strawberries

Bruce Bordelon, Dept. of Horticulture & Landscape Architecture
Purdue University

Pruning Brambles: March is a good time to finish pruning summer-bearing brambles. Last years fruited canes should be removed now if they were not removed last summer or fall. Remove weak or spindly floricanes and thin to 4-6 canes per foot of row. Laterals on blackberries and black and purple raspberries should be trimmed back to about 2/3 to 3/4 of their original length to promote flowering on strong wood. Red raspberry canes can be tipped if desired, but should not be tipped more than 1/4 of the cane length. If the planting is trellised, the canes should be tied to the wires now before growth starts. Fall bearing types can be mowed to the ground now for a fall-only harvest, or the fruited tips can be removed if a summer and fall harvest is desired. Remove and destroy the prunings to help prevent anthracnose and botrytis.

Pruning Blueberries: Spring is the best time to prune blueberries. Try to establish an even number of canes of various age classes. A well-pruned blueberry bush should have about 15-25 canes (depending on age, cultivar and growth habit) with approximately 1/3 in the 5-7 year-old class, 1/3 in the 2-4 year-old class, and 1/3 new canes for renewal. Pruning should open the center of the bush to encourage new canes to grow upright. Also, remove low, drooping branches. Detailed pruning to remove weak growth in the tops of the canes will reduce the number of fruit and improve fruit size.

Straw Removal on Strawberries: The proper time to remove straw from matted row strawberries is when the bare-soil temperature at 4 inches averages about 40-43 °F. This usually coincides with mid to late March in central Indiana. Plants will begin pushing new leaves as the soil temperatures rise steadily through the month, so the straw should be raked off the tops of the beds and into the row middles. Leaving some straw on top of the beds for plants to grow up through provides a clean surface for fruit. Straw should be removed before the plants grow enough to cause yellowing of foliage. Allowing the leaves to become etiolated (yellowed with long petioles) due to late straw removal can reduce yields by as much as 25%. However, uncovering the plants early may promote early growth and increase chances of frost or freeze injury. The difference between early removal and late removal may increased first harvest by about three days, so there is no real advantage. After the straw is removed the frost protection irrigation equipment should be set up and tested and made ready for frost during bloom.



Preventing Fire Blight in New Plantings

Janna Beckerman, Dept. of Botany & Plant Pathology
Purdue University

Fire blight is a devastating disease that seems to be on the uptick in Indiana. Unlike the majority of apple diseases, fire blight is caused by the bacterium, *Erwinia amylovora*. *Figure 1*. Once fire blight is established in the orchard, it is an uphill battle to get it under control. Thus, a key tactic in integrated management of fire blight is the simple prevention of its introduction into the orchard on new plantings. Many growers have suffered significant losses due to fire blight, and much of this problem can be traced back to infected nursery stock, and the use of highly susceptible varieties, like Jonathan, Gala (especially Grand Gala), Fuji, Braeburn, Ginger Gold, and Ida Red, to name but a few. If choosing any of these varieties, be sure they are grafted to B.9 rootstock, to minimize the risk of loss. For a listing of fire blight and other disease susceptibilities, see 'Disease susceptibility of common apple cultivars' at: <http://www.ces.purdue.edu/extmedia/BP/BP-132-W.pdf>.

After trees have arrived, examine nursery stock and do not plant any trees with suspicious cankers. Although reputable nurseries cull infected trees, there is always the potential that asymptomatic trees slip through and get planted. Under the appropriate conditions, the bacteria reproduce and multiply, and the symptoms of infection become apparent later in the season. In New York State, outbreaks in orchards have been traced back to nurseries. And if that isn't bad enough, some of these outbreaks were a result of streptomycin resistant *E. amylovora* (Russo, et al. 2008)

As if introducing fire blight into an orchard isn't bad enough! Movement of plant material is a common practice in the apple industry, and the high demand for trees often exceeds local nursery production. Many apple and pear nurseries are located in Michigan, Washington and Oregon, where streptomycin-resistant *E. amylovora* have been identified. *Figure 2*.

Apply copper after planting but before budbreak. Although most nursery stock is clean from fire blight, in this instance an ounce of prevention (or 2-4 lbs per acre, in the case of C-O-C-S) is worth an acre of management—and is a well-priced source of prevention, should there be any fire blight bacteria present on the nursery stock.

Because young trees are more susceptible to fire blight, and the more devastating rootstock blight, consider applying low-labeled rates of copper to prevent shoot blight infections in new plantings as well, if nearby blocks or orchards are infected. These sprays will also help prevent establishment of scab in the new planting.

After the planting is established, and as the season progresses, be sure to continue monitoring for blossom blight. Blossoms can be removed in the young planting by hand or by application of thinner. Be ready at petal fall to apply thinners if warm weather occurs at that time. If blossoms are maintained on the young trees, be sure to monitor weather conditions and apply streptomycin as recommended, by Maryblite or Cougarblight models (<http://www.ncw.wsu.edu/treefruit/fireblight/2000f.htm>). Continue monitoring planting for symptoms of infection after petal fall, and after any hail or damaging weather event. When infections are identified, be sure to promptly remove them at least 12" below infection, and preferably to a good pruning cut. Keep in mind that it usually takes 7-10 days for symptoms to develop after an infection has occurred, and that the bacteria are often beyond the brown visible infected area.

Fire blight can result in severe crop losses and tree death. Unfortunately, reliable control methods have not been developed, and this disease responds poorly to the few available treatments. For these reasons, preventing the establishment of fire blight in the orchard by carefully managing new plantings is the best possible management practice. *Figure 3*. Russo, N. L., Burr, T. J., Breth, D. I., and Aldwinckle, H. S. 2008. Isolation of streptomycin-resistant isolates of *Erwinia amylovora* in New York. Plant Dis. 92:714-718.

<http://apsjournals.apsnet.org/>



Figure 1. A scanning electron micrograph of the fire blight bacterium.

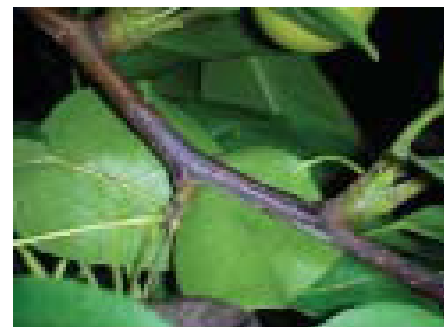


Figure 2. Fire Blight Pear



Figure 3. Apple Fire Blight

Spring Weed Management in Strawberries

Bruce Bordelon, Dept. of Horticulture & Landscape Architecture
Purdue University



There have been several herbicide label changes for strawberries. Growers should read the 2010 Midwest Small Fruit and Grape Spray Guide to familiarize themselves with these new changes. Changes that may influence weed management decisions for early spring are listed below.

Gramoxone Inteon is the new formulation for strawberries. This formulation is designed to be safer to the user. However it is still restricted use and the signal word is still “Danger”. Gramoxone Inteon contains an “alginate” which is made from seaweed and slows absorption into the bloodstream. There is also an alerting agent that smells like decaying grass, and emetic and purgative, and a green dye. The new formulation also comes with some rate changes. Rates for the new formulation are 2.5 to 4 pints/acre.

Chateau (flumioxazin) is registered for pre and post emergence weed control in dormant strawberries. In dormant strawberries, the rate is 3 oz/acre. Also apply a crop oil concentrate at 1% or a non-ionic surfactant at ¼% by volume. Chateau will control emerged chickweed, field pansy, and oxalis if sufficient contact is made with the weeds. Chateau will not control all emerged weeds. Scout the field and check the labels. 2,4-D amine may still be required to control other emerged weeds.

Select 2EC (clethodim) is a grass specific herbicide registered in strawberry. It is applied at 6 to 8 ounces per acre. It is effective on small, actively growing grasses. It has improved activity over Poast on cool-season and perennial grasses. Add 1 qt/100 gal spray of crop oil concentrate. Repeat application at 14 days for perennial grasses. Ammonium sulfate can be added at 2.5 lb/acre to improve activity on perennial grasses. Do not apply within 4 days of harvest. Select will not kill old established grasses. Avoid spraying on hot humid days or some crop burning will result.

Ultra Blazer 2E (acifluorfen) is registered for use in annual and perennial strawberries. In matted row plantings, applications can be made after renovation and when plants are dormant during fall or early spring. The PHI for matted row strawberries is 120 days, so growers need to carefully consider spring application dates.

Pheromone Traps

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Pheromone traps are a good way of understanding the timing and magnitude of insect activity. There are a number of fruit pests that can be monitored using traps. The timing of beginning trapping is listed below.

When monitoring insects with pheromones, it is important to check the trap on a regular basis, at least several times per week. Daily is even better. Also, be sure to store the lures in a freezer and to replace them at the recommended intervals. Don't place two pheromone traps closer together than about 50 yards so that the pheromones don't interfere with each other.

<u>Pest</u>	<u>Start Trapping</u>
Redbanded leafroller	Green tip
Spotted tentiform leafminer	Green tip
Oriental fruit moth	Pink (in peaches)
Codling moth	Pink
Fruit tree leafroller	Pink
Lesser peachtree borer	Late April
Obliquebanded leafroller	Mid-May
Peachtree borer	Late May

USDA Announces Food Safety Initiatives for School Lunch and Other Food and Nutrition Assistance Programs

Article from Facts for Fancy Fruit Newsletter
Purdue University

The USDA announced a plan aimed at ensuring food safety in schools and nutrition assistance programs as part of a coordinated effort by agencies within the department. Key to the initiative is increasing communication and information sharing to more efficiently monitor product recalls and to identify potential food safety issues. The plan also includes the formation of a Center for Excellence to research produce safety, proper cooling practices, evaluation of in-school food safety programs and containment of norovirus (a leading cause of food-borne illness). For more details, click on the following link:

http://www.usda.gov/wps/portal/!ut/p/_s.7_0_A/7_0_1OB?navtype=MA&navid=HOME .



February Apple Volumes Down 10% From Last Year

Article from Facts for Fancy Fruit Newsletter
Purdue University

About 10% fewer U.S.-grown fresh-market apples were in storage Feb. 1 than a year ago at the same time.

About 67.4 million bushels were on hand Feb. 1, down from 75.2 million bushels last year and 3% below the five-year average of 65.8 million bushels, according to the February Market News report from the Vienna, Va.-based U.S. Apple Association.

Red delicious was the only leading apple variety to see an increase in storage volumes over Feb. 1, 2009. About 25.6 million bushels of fresh-market reds were on hand Feb. 1, up from 25.1 million last year.

Granny Smith, Golden Delicious and Fuji volumes all were down significantly.

Galas were down just slightly, from 8.7 million bushels last year to 8.2 million this year.

As a result, there are now more fresh-market galas in storage than any other variety except red delicious. Last year on Feb. 1, there were more Grannys, Goldens and Fujis than Galas in storage. (from The Packer)

