

The Berry Basket

Newsletter for Missouri Specialty Crop Producers

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Summer 2007

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No Blueberries -- Now What?

By Ben Fuqua

Professor, Soil Science

Missouri State University

The “Easter Freeze” played havoc with the 2007 blueberry crop in Missouri. Temperatures in the high teens/low twenties on April 7th, 8th, and 9th severely damaged cane tips and destroyed nearly all flowers/fruit buds in blueberry plantings throughout the state. For the first time in over 30 years, there will be few, if any “Missouri grown blueberries” for consumers to buy. Although there are no berries to pick, blueberry plants are perennials and must receive proper care this year to be ready to produce a bountiful crop in 2008. Fertilization, irrigation, and weed control are just as critical this summer as in past years when the plants produced fruit.

Fertilization. Plant nutrients are needed by blueberries plants for new growth and overall plant vigor. The amount of fertilizer to apply in 2007 depends on age of plants and plant vigor. Young plants (under age 5) should be fertilized at the normal recommended rate. This will allow plants to produce many new canes and consequently more fruiting wood for next year. Although the additional cane growth will probably mean more pruning next winter/spring, growers will be able to choose the stronger, larger, and more productive canes to form the framework of the plant. For older blueberry plants, the amount of fertilizer to apply this year should depend more on the plant vigor. Older, low vigor plants should be

From the Editors

by Marilyn Odneal, Managing Editor

All of the Berry Basket staff wish a fond farewell to Suzi Teghtmeyer, our former librarian and wish her well in her new job as Agricultural Librarian at Michigan State University. We also say hello to Jennifer Schutter’s new baby boy, Justin!

<http://mtngrv.missouristate.edu/newslet.htm>

Berry Basket Newsletter Staff:

Patrick Byers, Gaylord Moore and Marilyn Odneal

Pamela Mayer - proofing, layout and mailing list

Paula Diggs - printing

Sharon Walker - posting and sending

Please direct comments to:

Marilyn Odneal

Missouri State University - Mountain Grove

9740 Red Spring Road

Mountain Grove, MO 65711-2999

phone: 417-547-7513, fax: 417-547-7540

e-mail: MarilynOdneal@missouristate.edu

fertilized the same as young plants. Healthy plants consistently producing 5-10 new canes each year and showing no signs of any nutrient deficiencies can probably have the second and/or third nitrogen application reduced by 35 to 50% without any detrimental affects. (Check results from last years leaf analyses to determine if plants nutrient contents are within the “adequate” ranges).

Irrigation. Insuring that blueberry plants have adequate water is essential. Fortunately this spring, rainfall has been abundant in many parts of Missouri and the need for supplemental water hasn't yet been needed. However, the normally dry months of July and August (plus September and October in some years) are still to come and irrigation will likely be needed. (An “ole timer” once stated that “regardless of when it last rained, in Missouri you're only 10 days from a drought”). That statement holds true in most years, so keep the irrigation system repaired and ready to go. Blueberry plants should be watered, if needed, until frost. Soils should be kept moist and not allowed to get too dry.

Weed Control. Control of weeds, both broadleaf and grasses, will probably be more of a challenge this year than ever before. By growers not being in the planting during berry harvest, weeds may be overlooked and weed control neglected. Do not allow weeds to grow as they compete with the blueberry plants for water, light, plant nutrients, etc. Use appropriate chemical and/or mechanical means to keep weeds from going to seed and creating major headaches for next year.

Be alert for other problems. Japanese beetles are now beginning to show up in many parts of Missouri. Although there are no blueberries to attack, the beetles can severely damage (skeletonize) the plant leaves. Growers should frequently assess leaf damage and take necessary control measures when needed.

Watch for other nutrient problems. Even with no berry production this year, nutrient deficiencies can still occur. Watch for iron deficiencies in particular. Lack of iron in plants causes a yellowing (chlorosis) of young leaves.

The best remedy for an iron deficiency is to apply iron chelate or other iron compounds as a foliar spray to plant leaves.

As always, soil and leaf analyses are recommended in order to “fine tune” fertilizer recommendation for the next year. Soil and leaf samples should be taken in early August for best results.

Summary. While the 2007 blueberry season in Missouri was a “bust” and the budget has certainly taken a major hit, growers must get plants ready for 2008. Most Missourians cannot remember a year as devastating to fruit growers as 2007. But fruit growers are eternal “optimists” and with Mother Nature's help, 2008 will be a great year!!

BenFuqua@missouristate.edu

Basic Causes for Tomato Wilt

By Gaylord Moore

Horticulture Specialist

University of Missouri Extension

Every gardener who has grown tomatoes for any length of time has experienced some type of tomato wilt. It is not always easy to determine the exact cause of wilt, but with various signs, symptoms and specific environmental conditions present the grower has a better chance for correct diagnosis.

This listing and discussion of tomato wilt certainly is not inclusive, but here are the most common problems I observe in home gardens.

Verticillium wilt - This vascular disease is caused by a soilborne fungus. Most modern tomatoes have this disease resistance bred into the variety. However, most of the heirloom varieties are susceptible to the wilt.

The first symptom of this disease is midday wilting, then recovery at night. Verticillium is more prevalent in cooler weather, and symptoms are more pronounced when the plant has a heavy fruit load.

The best way to control this disease is to choose resistant varieties. In most commercial retail greenhouses and garden centers the tomato label will identify resistance to special disease problems such as verticillium and fusarium wilt, specific viruses, and nematodes.

Crop rotation in the garden will reduce tomato wilt caused by vascular diseases. Planting crops other than tomatoes such as potatoes, peppers, and eggplant in the same area for three to four years is recommended.

Fusarium wilt – In some ways similar to verticillium this wilt is more prevalent in warmer weather. Again, this is a soilborne disease that attacks the plant through the root system.

A nice test to determine if your tomato may have fusarium wilt is to cut into the lower stem near the ground. If the center of the stem has a

brown discoloration it is likely fusarium.

Once the plant indicates the problem very little can be done to save the plant. Crop rotation and resistant varieties remain your best control strategies.

Nematodes – These soilborne roundworms attack the root system of tomatoes preventing water and nutrient uptake. Other symptoms include stunting followed by wilting. These little critters attack the root and cause swelling or galls on the roots.

The letter “N” will follow the variety name of the tomato to indicate nematode resistance.

Walnut wilt – Walnut trees near your garden can prove deadly to numerous vegetable crops including tomatoes. The black walnut and other nut species such as pecan or butter nut produces a chemical known as juglone that may be passed on to the vegetable crop through the roots. Juglone is found in all parts of the tree but the highest concentration is located within the root system. In good soils where the root system of a walnut may be extensive, the roots are known to extend well beyond the drip line of the tree.

Wilt symptoms can occur on all or part of the tomato plant. The best control is to be aware of the potential problem and avoid planting within at least twenty five feet of the walnut. Another option would be to remove the walnut tree or locate the garden elsewhere.

For a listing of vegetable crops susceptible and resistant to black walnut toxicity go on line at www.ces.purdue.edu/extmedia/HO/HO-193.pdf

Waterlogged soil – Roots need oxygen to grow. Where tomatoes are planted in a heavy clay soil or drainage is a problem, wilting may be a symptom following a heavy rain.

If you have no other options where to plant tomatoes and drainage is a problem consider planting on a raised bed or small berm to reduce the potential of “wet feet”.

MooreG@missouri.edu

After the Freeze

By Marilyn Odneal, Patrick Byers, and John Avery
Missouri State University

There have been many interesting observations after the freeze as far as crop level and plant recovery. Gaylord Moore observed that “about half of the Japanese maples in the Springfield area were badly damaged or killed”. The mulberry varieties in the Horticulture Garden at Mountain Grove were killed and not all have resprouted from the base. Unfortunately the mulberry weeds are sprouting from the base if they were missed from being pulled last year. We also lost one plum, one peach, a jujube, and a medlar from the garden. A Montmorency sour cherry has also developed a severe crack in the trunk from the freeze and may not survive. The Brown Turkey figs were killed to the crown, but have resprouted from the base and will bear a crop on new wood. Many herbaceous ornamentals have recovered well including hostas and dianthus. Hardy shrub roses and vines are doing well at the station including Scarlet Meidiland, White Meidiland, and Electric Blanket landscape roses, Frau Dagmar Hastropp and Cecile Brunner shrub roses, and New Dawn climbing rose. There is damage on our climbing improved Blaze, however, it is resprouting from the base.

John Avery, field supervisor at the Fruit Experiment Station at Mountain Grove, assessed the field plantings and notes that “freeze recovery seems to be good in most fruit crops. Plants are growing good and damage seems to be light on most tree or vines. It seems where there are signs of continuing stress the individual plant was already weak before the freeze hit. I think there will be a lot of excess growth this year on plants which will need to be pruned off in the coming dormant period. Return bloom next year should be very good with all the excess energy going into producing flower buds for next year. “

Patrick Byers assesses the fruit crop situation. As far as **apples**, there is a light crop reported from around the state. I’ve heard estimates of 10-15% of a full crop. There seems to be little tree injury on apples. Fireblight, however, is a real problem this year, and there may be a connection (of course, the weather this spring has been perfect for FB).

Peaches and other stone fruit – no crop reported. No wood injury is reported.

Strawberries – matted row plantings seem to have recovered from the freeze damage to a level that warrants keeping previously strong plantings for another cropping year. The crop level was estimated at 5% to 20%. Plasticulture plantings had a cropping level of estimated 10% to 25%.

Blackberries and Raspberries – several growers are reporting collapse of floricanes before and during fruiting (as expected, damaged vascular tissue is probably the culprit). The crop will be impacted.

Blueberries – growers report tip dieback and loss of most of the crop. The plants, however, seem to be recovering nicely. Persimmon Hill has 10-15% of a crop. The other plantings that I have visited have little crop.

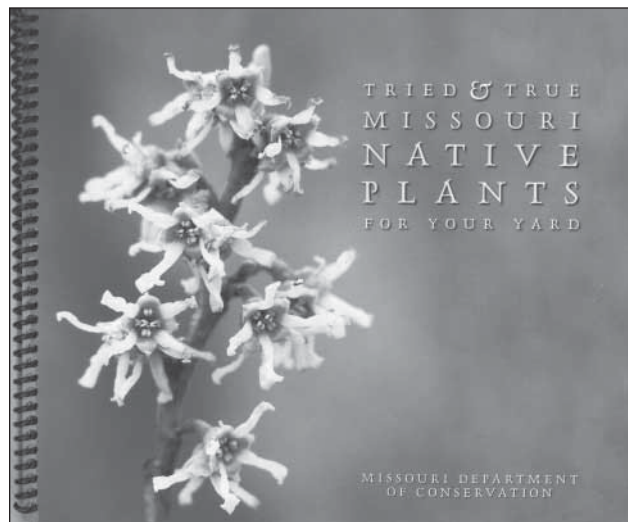
To help growers manage the crop this year, Andy Allen, the State Extension Viticulturist, has been holding Best Management Practice meetings throughout Missouri and Arkansas. An excerpt from the Institute for Continental Climate Viticulture and Enology website (<http://iccve.missouri.edu/>) update is as follows: “At this point, recovery in most varieties looks promising and many vineyards will produce more crop than previously expected based on the amount of bud injury seen.

All in all, things look better than they did in early April and we can chalk this year up as a valuable learning experience!
MarilynOdoneal@missouristate.edu
PLByers@missouristate.edu
JohnAvery@missouristate.edu

Tried and True

By Barbara Fairchild
Communications Specialist
Grow Native!

Puzzled about which native plants will work best in your yard? Find the answer in *Tried and True: Missouri Native Plants for Your Yard*,



which showcases more than 100 plants native to Missouri. In addition to colorful photos, *Tried & True* includes detailed tables that describe the light and moisture preference, mature height and spread, season of interest, wildlife benefits and maintenance tips for each plant. Grouping plants into sections that include vines, ferns, grasses and sedges, perennials, shrubs and trees, both large and small, makes it easy to locate plants that fill a specific need. There also are tips for getting started with native plants and a chart that suggests native plant alternatives for frequently used yard plants. Armed with this information you will be able to pick plants best suited for your site—plants that survive in drought or flood, hot, sunny conditions or deep shade, in thin, dry, shallow soil or rich, moist soil. With a little planning, you'll have flowers blooming from very early spring until late fall. Perhaps more importantly, you will be creating a habitat that feeds and shelters desirable wildlife.

Barbara.Fairchild@mdc.mo.gov

The “Fourth” Berry: Blackberries

By Marilyn Odneal
Horticulture Outreach Advisor
Missouri State University

Blackberries are a wonderful wild treat in the Ozarks. Many brave summer heat, ticks, chiggers, and poison ivy to gather ingredients for their prized blackberry cobbler. Fortunately, for those who would rather grow blackberries in their garden or buy them from the farmer, one of the largest blackberry breeding programs in the world is located next door to us in Arkansas. Dr. James N. Moore, the renowned plant breeder from the University of Arkansas, was most generous with his knowledge and very helpful to growers and gardeners throughout his career. He began a blackberry breeding program in 1964 naming the released varieties after American Indian Tribes. The first unpatented varieties released were Cherokee, Comanche and Cheyenne and these varieties are adapted to southern Missouri. This breeding program continues today under the excellent direction of Dr. John Clark and many exciting, more widely adapted, patented varieties have been release since then with new ones on the horizon. According to Dr. Clark, “New advances should include more thornless, floricanne-fruiting types with excellent postharvest handling for a range of ripening dates, along with improved thorny and THORNLESS primocane-fruiting types. Progress in all these areas in breeding continues to be exciting in Arkansas.”

Blackberries fall into one of three cane architecture categories: erect, semi-erect and trailing. In Missouri, the erect and semi-erect types are grown. Erect blackberries will spread and form a hedgerow while the semi-erect remain as separate plants with the canes growing from a defined crown that does not spread out. The Arkansas releases are erect and include the thorny varieties Cherokee, Comanche, Cheyenne, Chickasaw, Choctaw,

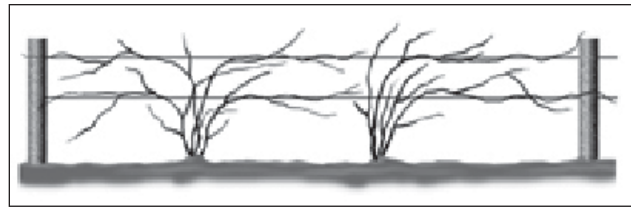


Blackberries typically blossom in May in southern Missouri and often herald “Blackberry Winter”.

Kiowa, and Shawnee and the thornless varieties Apache, Arapaho, Navaho, and Ouachita. Even though erect blackberries can be grown without a trellis, more people are using two-wire “T” trellises where wires run along the outer edges of the hedgerow, at about 3 - 4 feet high and about 2 to 2 1/2 feet apart, protecting the canes from wind damage. Two lower wires are also often used, with these about 12 to 18 inches off the ground and about 18 to 24 inches between the wires; these lower wires are valuable to keep the first-year growth off the ground for second-year in the field harvest. Chester Thornless, from the USDA breeding program, is semi-erect. It, along with Triple Crown,



The double “T” trellis is gaining in popularity for erect blackberry hedgerow support, particularly in windy areas. Photo courtesy of Joe Masabni, UKY



The two wire trellis is used to support semi-erect blackberries. Source: cahe.nmsu.edu/pubs/h/h-325.html

are recommended semi-erect varieties for commercial production in Missouri. Semi-erect blackberries require a trellis, like a common one or two wire grape trellis, and are trained up from the crown like a fan; the canes tied to the wires. If a one wire trellis is used, then the wire is set at about 6 feet high, and if a two wire trellis is used, then two wires, one at 3 and one at 6 feet above the ground are used.

Blackberries in commercial cultivation produce fruit only on canes that grew the previous season, so in a given season, blackberries will produce fruit on the 2-year floricanes and will produce new primocanes in the current season for next year’s crop. Both erect and semi-erect blackberry primocanes are “tipped” during the growing season to induce lateral branching. These lateral branches bear the crop next year if they survive the winter cold. If they are damaged by the cold, they may not produce, but will produce new primocanes from the crown for the next season’s crop.

Recently, however, there has been a great advance in the world of blackberries. The Arkansas breeding program released Prime-Ark primocane fruiting varieties where the berries are produced on the new primocanes. Prime-Jim and Prime-Jan, named after Dr. and Mrs. Moore, have been released so far. Although these varieties are best suited to home gardens and only limited commercial trial since they do not ship well, the fact that primocane producing varieties are possible will lead to more primocane fruiting varieties expanding the possibilities for commercial production of blackberries beyond the traditional season.

Blackberry cultural requirements are similar to other fruit crops. Production is



Ripe blackberry getting ready for a cobbler.

limited primarily by winter cold injury to the overwintering canes in Missouri. Luckily, however, blackberries usually bloom in May in southern Missouri, so they are not at as much risk of late freeze damage to flowers as are strawberries and blueberries which blossom earlier. The mild cold spell during blackberry blossom, known as “Blackberry Winter” is usually not a threat. (2007 was no exception to our blackberry winter, except that it was preceded by the great Easter freeze!)

Placing fourth in popularity among U. S. consumers, behind strawberries, blueberries and red raspberries, blackberries never-the-less are becoming more and more popular. One reason is that blackberries from Mexico and South America are found in the produce section of the grocery store even during the winter months, which help make consumers more aware of this fruit choice. In the U. S., berries like Navaho, Arapaho, Apache and Chester ship well and acreage is expanding in Georgia, Arkansas, Texas and North Carolina for production for shipping, so we will be seeing more and more blackberries on the shelf during our growing season in the summer. This will help the “fourth” fruit more popular than ever.

Blackberries are popular in other countries as well and worldwide acreage has increased 45% since 1995. Surprisingly, Serbia in Eastern Europe has approximately 13,100 acres planted in blackberries, the greatest planted area in the

world. The United States accounts for 67% of the area planted in North America with 11,900 acres. Sixty-five percent of the blackberries cultivated in the U. S. are in Oregon. Missouri has about 100 acres of blackberries in cultivation. Mexico accounts for 32% of the production area in North America while China accounts for all of the reported production in Asia; 3,830 acres.

Patrick Byers, Fruit Grower Advisor at the State Fruit Experiment Station at Mountain Grove, has some blackberry favorites. Byers’ best picks include; Navaho for keeping quality, Chester as the semi-erect variety, Apache for an upright thornless variety, Chickasaw for an upright thorny variety, and Kiowa for the biggest berries.

Due to advances in production and shipping, better cultivars and enhanced consumer awareness of this great fruit, who knows? Blackberries may move from number 4 to number ?

If you are interested in either home or commercial blackberry production in Missouri, check out the following sources of information.

For Information on **University of Arkansas Fruit Varieties**, John R. Clark Ph. D., Professor, University of Arkansas: http://www.aragriculture.org/horticulture/fruits_nuts/default.htm

For a downloadable copy of **Growing Blackberries in Missouri by Patrick Byers**, visit the website at <http://mtngrv.missouristate.edu/Publications/>

References: Special thanks to Dr. John R. Clark, University of Arkansas, for his review of and additions to this article.

Clark, John R. July-September 2005. Changing Times for Eastern United States Blackberries. HortTechnology 15(3):491-494.

Strik, B. C., J. R. Clark, C. E. Finn and M. P. Bañados. April-June 2007. Worldwide Blackberry Production. HortTechnology 17(2):205-213.

MarilynOdneal@missouristate.edu

Alan Stevens to be Featured at Missouri Cut Flowers: From Field to Market

*By Marilyn Odneal
Horticulture Outreach Advisor
Missouri State University*

Dr. Alan Stevens, Director of the Kansas State University Horticulture Research and Extension Center and author of the book "Field Grown Cut Flowers: A Commercial Growers Guide" will be the featured speaker at the Missouri Cut Flowers: From Field to Market Workshop to be held on Wednesday, September 5, 2007 at the State Fruit Experiment Station in Mountain Grove. This workshop is presented by Grow Native! and Missouri State University. Vendors and sponsor organizations will also participate.

Dr. Stevens will present two topics, "Field Grown Cut Flowers: A Commercial Growers Guide to the Basics of Production" covering the basic planting, care-as-needed, and harvest activities required to successfully produce a crop of specialty cut flowers. His second presentation, entitled "Marketing and Adding Value to Your Cut Flowers", will discuss how growing a crop only spends money and labor. You don't make any money until you sell the crop. Marketing needs to be high on your priority list. Adding value to increase your price or to sell more flowers will boost your profits. This talk will provide marketing ideas. Also included will be an introduction to coloring fresh and dried flowers with dye mixed in water and absorbed up the stems.

As Research & Extension Specialist for Commercial Floriculture, Dr. Stevens can share a rich background in producing commercial cut flowers. In addition to authoring a comprehensive book on the subject, he is also author of a series of extension publications on Specialty Cut Flowers, a two-term President of the Preserved Floral Products Association, an international association of dried and preserved flower producers, a two-term Regional Director



Dr. Alan Stevens, Director of the Kansas State University Horticulture Research and Extension Center

and member of the Board of Directors of the Association of Specialty Cut Flower Growers (U.S. & Canada) and has served 13 years as the Executive Secretary of the Kansas Greenhouse Growers Association.

Two successful area cut flower growers will also be featured at the workshop. Mary Fritz will present "Growing Flowers for the Bridal Bouquet" and Susan Jones will present "Growing Cut Flowers at Wild Goose Gardens".

Mary Fritz is the sole proprietor of Windy Hill Cut Flower Farm. Mary earned her B.S. in Biological & Physical Sciences from Western Illinois University, Graduate Studies in Earth Science at St. Louis University, Certificate of



Mary Fritz - Windy Hill Cut Flower Farm

Specialization – Gardener Training from a joint program between Missouri Botanical Garden and St. Louis Community College at Meramec and a Specialist Degree in Horticultural from St. Louis Community College at Meramec. She worked for thirteen years as a high school science teacher and retired from Southwestern Bell Corporation Marketing Department.

Susan Jones owns and operates Wild Goose Gardens cut flower farm in Osceola, Missouri. Susan grows both woody and herbaceous plants for cuts and manages several hoop houses. She markets both to wholesale and retail outlets. Susan is very enthusiastic that her son has decided to become a cut flower farmer to work with her in the business. He is leaving a successful career as a lawyer to become a cut flower farmer and will participate in her presentation.

The cut flower workshop will be held on the afternoon of September 5. Registration is required and includes a fee for materials and lunch. The morning sessions, however, are free of charge and require no pre-registration.



Susan Jones - Wild Goose Gardens

Missouri Cut Flowers: From Field to Market

Morning Session - free and does not require pre-registration.

Registration and sales 8:30am

9:15 – 10:15 – field tour and cut flower planting

10:30 am

- Vendors and plant slae
- Native plant garden
- Compost Display
- Raised beds
- Straw bale garden
- Home orchard and vineyard
- Slope garden
- Ozark home landscape
- New and unusual fruits

Afternoon Session - requires registration and fees for lunch and materials

Please see the registration form included in the Berry Basket or go to <http://mtngrv.missouristate.edu/CutFlowerWorkshop.htm> to download the form.

11:30 - Welcome by Dr. Anson Elliott

11:30 – 12:30 serve box lunch

12:30 – 1:30pm Field Grown Cut Flowers,
A Commercial Growers Guide to the
Basics of Production by Dr. Alan Stevens

1:40 - 2:10 Marketing and Adding Value to Your
Cut Flowers by Dr. Alan Stevens

2:10 - 2:30 Break

2:30 - 3:15 Growing Flowers for the Bridal
Bouquet by Mary Fritz

3:15 – 4:00 Growing Cut Flowers at Wild Goose
Gardens by Susan Jones

Please register by August 29

Vendors - please register by August 15th to participate in this event. Please see the registration form included in the Berry Basket or go to <http://mtngrv.missouristate.edu/CutFlowerWorkshop.htm> to download the form. MarilynOdneal@missouristate.edu

Those Pesky Summer Insects are Back

By *Mary K. Kroening*
Horticulture Specialist
University of Missouri

The typical summer insect pests are starting to appear throughout Missouri. We are also collecting Japanese beetles in traps in central Missouri. This is the earliest we have trapped this insect in this area.

Japanese beetles have recently been found in urban areas in Missouri and can be quite destructive to lawns, trees, flowers, and fruits. The adult beetle is about ½ inch long, and is metallic green and bronze with a row of white tufts of hair on each side of its body. Japanese beetles resemble green June beetles, but are about 1/3 the size of green June beetles. Adult beetles are usually spotted in the garden from mid-July through August. They are especially fond of roses, grapes, and flowers of all kinds. The larval stage is a typical white grub and feeds on the roots of grasses and primarily damage turf. If you find beetles that resemble Japanese beetles, please contact our office for assistance in identification as we are trying to ascertain the distribution of this insect in central Missouri.



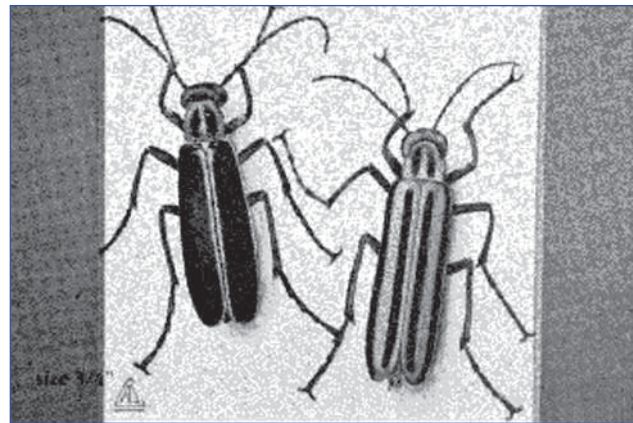
Japanese Beetle

Source:

www.ces.purdue.edu/CES/Marion/ConHortProbs01.htm

Another beetle that wreaks havoc in home gardens are blister beetles. Blister beetles range from ½ to 1 inch in length and are easily recognized by their characteristic shape; narrow, cylindrical, with a distinct “neck-like” appearance when viewed from above. Their colors range from black to gray to brown and some species have orange stripes. Blister beetles appear in late June and early July and feed on the leaves and flowers of most plants. They can cause serious damage, and can completely defoliate many plants such as clematis on an annual basis. Blister beetles also produce a protective toxic chemical, cantharidin, which is released when they are disturbed or crushed. This chemical can cause blistering of the skin, especially tender skin. Blister beetles are also highly toxic to some livestock, including horses, which sometimes eat them in alfalfa hay. Blister beetles usually travel in groups and tend to mass in one area of the garden. Blister beetles come into the garden quickly, feed heavily, and disappear quite abruptly. They tend to feed on the same plants from year to year, thus you can protect your plants using row covers or shade cloth. Blister beetles are also usually easily controlled with several garden insecticides.

And for those of you wondering what happened to your hollyhock and columbine leaves? Many plants were attacked heavily this year by leafmining insects. Leafminers are the larval stage of various insects, that upon hatching from the egg, tunnel into the leaves



Blister Beetles

Source: ipm.ncsu.edu/.../insects/insects_soybeans.html

between the upper and lower surfaces to feed on the inner part of the leaves. Sometimes, these insects will skeletonize the leaves until nothing is left such as was the case with hollyhocks this year. Other plants commonly attacked by various species of leafminers include larkspur, nasturtium, verbena, and chrysanthemum.

We are also experiencing heavy aphid infestations on many different plants including trees and shrubs, annual and perennials, and tomato plants. Aphids, sometimes called 'plant lice', are one of the most common insects that can attack home, garden and landscape plants. Aphids have an extremely high rate of reproduction, which enables insect numbers to build up very rapidly. When aphid numbers are high, plants are stressed and therefore less vigorous. Aphids damage the plant by piercing the leaves, stems and flowers and sucking sap and other fluids, weakening plants and leaving them discolored and stunted. Foliage may look puckered or distorted. Aphids have many natural enemies that successfully attack them and provide very effective control. They are a favorite diet for ladybird beetles which eat entire aphids. One ladybird beetle can eat up to 100 aphids per day. Encourage natural enemies of aphids by using synthetic insecticides as little as possible. Before treating any plants, thoroughly inspect the plant for presence of natural enemies. Aphids can be knocked off the plants with a strong spray of water every couple of days. Aphids tend to congregate on the under sides of the leaves, thus you need to water spray under the leaves as well as on the tops. Insecticidal soaps or horticultural oils also work well to control aphids. It is best to not apply insecticidal soaps or horticultural oils in direct sunlight as they can have phytotoxic effects on the plant. Heavy aphid infestations can be difficult to control if aphids hunker down in the folds of leaves, flower buds, or new growth. Aphid colonies can be reduced by pruning and disposing of aphid infested plant material, and can also be controlled by squishing with fingers. kroeningm@missouri.edu

Ag Department Offers Organic Certification Reimbursement

(JEFFERSON CITY, Mo.) — The Missouri Department of Agriculture (MDA) announced today that through a cooperative agreement with the U.S. Department of Agriculture's (USDA) National Organic Program, the department is helping to provide cost-share monies to Missouri producers. This cost-share program provides assistance for qualified organic producers in the areas of crop, wild crop or livestock and handlers of agricultural products who obtain certification under USDA's National Organic Program.

This program will allow MDA to reimburse each eligible producer up to 75% of their certification costs, not exceeding \$500. The reimbursement payment will depend upon the amount the producer has been billed for certification between Oct. 1, 2004 and the date of application.

For organic producers to qualify, applicants will be required to complete a signed application and supply a copy of their organic certificates, with an invoice documenting their cost of certification. To obtain an application and complete guidelines, visit <http://www.mda.mo.gov/Market/organic.htm>

Since funds are limited, MDA will process applications in the order received until all funds are consumed or until Sept. 30, 2007. All applications must be postmarked by Sept. 30, 2007.

For more information, contact Lane McConnell, agriculture promotions specialist, at (573) 526-4984 or via email at Lane.McConnell@mda.mo.gov

*Missouri Department of Agriculture
Agriculture News*

*For Immediate Release: Monday July 2, 2007
Media Contact: Misti Preston (573) 751-8596*

Missouri Exchange

*By Barbara Fairchild
Communications Specialist
Grow Native!*

If you have a bumper crop of honey or nuts or whatever and don't know what to do with it, check out Missouri Exchange (www.missouriexchange.com). This recently developed Web site is in the business of connecting buyers and sellers of Missouri products and does it 24/7. Placing product information on the site is as simple as filling out a brief registration form. Once approved, you can begin listing the products you have for sale, give information about your business, post photos and create a link to your personal Web site. Having this information on Missouri Exchange provides an outlet for your product without owning a retail store or spending time at a farmers' market. Instead, you can do your merchandising from your computer and at a time that fits your schedule, whether it's late evening, early morning, a week day or the weekend.

Potential buyers are welcome to browse the site to see what is available or to post requests for products they are seeking. Browsing does not require registration, however to buy a product or to post a request, buyers must register. Again, it is a simple process and registration is free for both buyers and sellers. A visit to the Web site will show you how easy it is.

While still in the early developmental stage, the site already has 80 registered members, 32 member listings in the Member Directory and 60 listings of products to sell or requests-to-buy. The site was launched February 5 and is a partnership between Grow Native!, a joint program of the Missouri Department of Conservation and the Missouri Department of Agriculture, and the University of Missouri Center for Agroforestry.

The chief objective of the site is to link buyers and sellers of products grown in Missouri, with an emphasis on plant products,

which are divided into these categories: native plant materials, edibles, herbs, greenhouse/nursery, decorative products, specialty wood products, timber and others. In addition, there is an array of educational information for both buyers and sellers.

To access it, click the Info button. Sellers will find information on pricing, shipping, quality standards and more. Buyers will find information on how to handle products when they receive them, how to preserve them, even recipes.

The site is a tool that facilitates the exchange of Missouri products. As with any tool, it is useful only if it is used. The partnership that developed the site encourages Missouri sellers to register and list products on the site. They urge buyers from Missouri and throughout the country to visit the site often and to post requests for the products they're not finding. By creating a community of buyers and sellers, the site will help fill the needs of buyers and provide income for producers. To learn more, visit www.missouriexchange.com Barbara.Fairchild@mdc.mo.gov

Farewell

*By Suzi Teghtmeyer
Librarian, Missouri State University
Paul Evans Library of Fruit Science*

Dear Berry Basket Readers,

With a heavy heart I must say farewell as librarian of the Paul Evans Library of Fruit Science and as a Berry Basket contributor. The position of agriculture librarian at Michigan State University was offered and I accepted, and so this is my last contribution as the Evans librarian.

Let me say that the last eight years have been the best in my life. The Fruit Station personnel, my librarian colleagues in Springfield, and all of you readers who've sent me feedback over the years have been kind and ultimately a pleasure to work with every day.

As the first accredited librarian of Evans Library, I have had the task of organizing the books, journals, and government documents, and seeing them entered into the electronic catalog so that we as well as others nationwide could see what materials from which to learn. With the help of donations and contributions of other libraries and organizations, I've been able to build the collection up to support the pomological research of the Station and as well as those beyond the city limits. If I may say, Evans Library has one of the best grape and wine journal collections in the Midwest, with an equally extensive collection of international conference proceedings and obscure fruit, grape and wine titles. The knowledge located here in the materials is massive, dated from a reprint of Pilney's work from 23A.D., to journal issues received this week, albeit most materials date from the 1890s through today. The library holds international works such as the Woburn Experimental Fruit Farm Reports, 1897-1920, and the Long Ashton Reports of the Agricultural and Horticultural Research Station (The National Fruit and Cider Institute), 1903-1987 (when it was closed), both of England.



Suzi Teghtmeyer, now Agriculture Librarian for Michigan State University

Extension publications from all 50 states and Canada on various fruits are here and accessible to be looked at for mention of heirloom and classic varieties. Works on gardening, garden design, alternative fruits, and plant genomics and genetics are here, too, so whether you have a green (or black!) thumb, or are interested in how plants function on the cellular level, Evans Library is your source of information.

As you know, I'm also active on the Web, compiling sites that are beneficial to fruit growers near and far. I hope that you have found the online resources helpful and interesting. I've enjoyed hunting them down and grouping them so you don't have to waste the time.

As I've said before, Evans Library is open to the public to visit and conduct research, and we also honor interlibrary loan requests. I hope that when you are stymied by a fruit question and you don't know where to turn, remember the wealth of information located in Mountain Grove.

I bid you farewell, but I am confident that the stewardship of Evans Library will be passed into good hands, and its mission to serve the pomological needs of it's patrons, local and distant, will continue.

All my best wishes,
----Suzi Teghtmeyer

Strawberry Plasticulture Workshop

By Pamela Mayer
Outreach/Publications Specialist and

Marilyn Odneal
Horticulture Outreach Advisor
Missouri State University

Saturday, June 30, the State Fruit Experiment Station hosted a Strawberry Plasticulture Workshop. The workshop was sponsored by the Arkansas Strawberry Growers Association.

Wayne Simpson and David Brown, Missouri strawberry growers and early adopters of the plasticulture system, are often asked questions about this production system by people



David Brown explains the plasticulture system for growing strawberries.

interested in getting started. In response to the number of inquiries they have received, Wayne and David decided to plan a beginner's workshop to help give interested people the information they need. They arranged for Jim Goodson, President of the Arkansas Strawberry Growers Association, to present information on Plasticulture from choosing the location to marketing at this workshop.

Dr. Anson Elliott, Director of the State Fruit Experiment Station greeted the participants and emphasized the importance of associations



Grade A Strawberries

like the Arkansas Strawberry Growers. "It is important to get the opportunity to learn from experienced growers who are willing to share ideas."

Patrick Byers, Fruit Grower Advisor, agreed and noted that the workshop served "About sixty-five interested strawberry growers and all were pleased with the program based on the evaluations."

Jim Goodson set the goal of the plasticulture strawberry producer to have about 5 branch crowns per plant in order to get 1 to 1 1/2 pounds of fruit per plant. "If you can produce an overall average yield through the years of 15,000 pounds per acre, you will succeed." Many tips on how to achieve this goal were given throughout the talk including avoiding planting on a north facing slope or plant a windbreak to protect from north winds; make sure your beds are built properly and that the soil is properly prepared; and make sure irrigation is intact to supply plants with water and nutrients.

Even though trickle irrigation is used, overhead sprinklers are used in addition to protect plants from spring freeze injury even when using row covers. Overheads are also useful in keeping moisture in the soil before the beds are formed (if it is very dry, you cannot form proper beds) and they can also cool plants in hot weather if run for 1 to 2 hours in the afternoon beginning about 1:30 pm. This is good for plants with heavy fruit set in the spring when the temperature gets over 91F.

The Easter Freeze this year showed many growers the value of double row covers. In general, single one ounce covers protect blossoms to 24F; 1.2 ounce covers to 22F; 1.5 ounce covers to 20F and a new double (0.75 ounce each layer) cover with air in between should protect blossoms down to 16F. New observations have led to the practice of removing the row covers during the winter except during extreme cold temperature. This removing and replacing cover during the winter yields superior results to the older practice of just applying the cover in November or December and leaving it on until late winter/spring.

Plasticulture strawberry production takes an extremely high level of management to produce a profitable crop year after year. Jim stressed the importance of attention to detail in this type of venture: "Fifty percent of the crop is due to the first 90% of your effort, and the other fifty percent of the crop due to the last 10% of your effort. You really need to dot the i's and cross the t's in order to realize that 1 - 1 1/2 pounds of yield per plant". Jim Goodson also noted that "marketing takes as much preparation and forethought as any other procedure."

The day was rainy and the ground was already deeply soaked from previous rains so the field portion of the event, the afternoon session at Simpson's Berries was a bit soggy,



Wayne Simpson demonstrates some plasticulture techniques for growing strawberries.

but Wayne was still able to demonstrate proper planting techniques and show some of his equipment innovations.

We'd like to thank the Arkansas Strawberry Growers Association for sharing their accumulated knowledge on Plasticulture with those of us in the Missouri Ozarks who wish to learn.

For more information on the Arkansas Strawberry Growers Association, including information on how to join, call or email Wayne Simpson, Secretary, 417-926-5308 chaplain1@centurytel.net
PMayer@missouristate.edu
MarilynOdneal@missouristate.edu

Coming Events

Missouri Cut Flowers: From Field to Market

Wednesday, September 5, 2007

State Fruit Experiment Station

Mountain Grove, Mo.

Sponsored by Grow Native! and
the State Fruit Experiment Station

Fall Horticulture Workshop

October 6, 2007

State Fruit Experiment Station

Mountain Grove, Mo.

Sponsored by Tri-County Master Gardeners and
the State Fruit Experiment Station

For information on these events, contact Pamela Mayer pmayer@missouristate.edu at the Missouri State Fruit Experiment Station, 9740 Red Spring Road, Mountain Grove, MO 65711-2999; telephone 417-547-7500; email StateFruitExperimentStation@missouristate.edu
<http://mtngrv.missouristate.edu/>

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Your editors of The Berry Basket:

Gaylord Moore, Area Horticulture Specialist,
University Extension, Springfield, Missouri.



Patrick Byers, Fruit Grower Advisor, and
Marilyn Odneal, Horticulture Outreach Advisor,
Missouri State University Dept of Agriculture,
State Fruit Experiment Station, Mountain Grove,
Missouri.



Send address changes and comments to:
Missouri State University
Dept of Agriculture
9740 Red Spring Road, Mtn. Grove, MO 65711 or
MarilynOdneal@missouristate.edu.
