Plant Wise

IOWA STATE UNIVERSITY
University Extension

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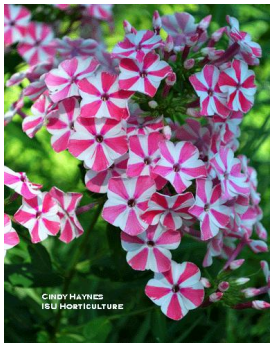
August 2010

Growing Garden Phlox



Phlox 'Peppermint Twist' in bloom. Photo by Cindy Haynes.

By Cindy Haynes
Department of Horticulture
Iowa State University Extension

There are many perennials that bloom reliably every summer. One that is particularly impressive in my garden this summer is the garden phlox (*Phlox paniculata*). There are over 60 phlox species native to North America. While many of these species are suitable for Midwestern gardens, garden phlox is probably the most popular. Plants range in height from 1 ½ feet tall to over 5 feet tall. Blooms first appear in mid-June in Iowa and may last for a month or more. Flower colors include lavender, white, orange/peach, pink, red, and many with light or darker centers or "eyes". This prairie native prefers sunny sites with moist, well-drained soils and good air circulation.

The "Achilles' heel" of many cultivars is susceptibility to powdery mildew. Powdery mildew is a fungus that creates the appearance of a fine white dust or powder on the plant foliage. Powdery mildew rarely kills affected plants but it can reduce vigor and be unsightly in the landscape. Twenty or thirty years ago, most of the cultivars of garden phlox were susceptible to powdery mildew. The practical management option was to pick the best color for your garden and hope that powdery mildew wouldn't be horrible that year. If you were a perfectionist, you sprayed your plants every couple of weeks with a fungicide to prevent powdery mildew. Today there are many newer introductions that are more resistant to powdery mildew and therefore don't require fungicide treatment. Even the best of the best, however, can occasionally get powdery mildew in hot, humid years. So, give them plenty of room and do not overcrowd them in the garden. This will give plants plenty of air circulation. Frequent division may also be necessary to further promote air circulation and keep plants vigorous.

The cultivar 'David' is the standard for powdery mildew resistant phlox and has been what the newer cultivars are measured against. The Chicago Botanic Garden conducted a trial of phlox in an attempt to determine which cultivars performed the best in the Midwest. Performance was based on many factors including (but not limited to) flower production and incidence of powdery mildew. Below are some of the top rated cultivars from the Chicago Botanic Garden trial of garden phlox. For more information on the trial, see the Chicago Botanic Garden web site. (www.chicagobotanic.org)

This doesn't mean you shouldn't try other garden phlox – like the one pictured above ('Peppermint Twist'). Some of the newest cultivars haven't been in production long enough for sufficient testing and powdery mildew may arise (or maybe not!).

Cultivar	Flower Color	Height	Comments
Bright Eyes	Pink with dark eye	2-3 feet	Fair resistance to powdery mildew
David	White	3-4 feet	Fair resistance to powdery mildew
Eva Cullum	Pink with dark eye	2-3 ½ feet	Fair resistance to powdery mildew
Franz Schubert	Lilac with dark eye	2-3 feet	Fair resistance to powdery mildew
Katherine	Lavender with white eye	3-4 feet	Good resistance to powdery mildew
Prime Minister	White with red eye	2-3 feet	Good resistance to powdery mildew
Robert Poore*	Lavender		Newer cv.; considered good resistance *not evaluated at Chicago Botanic Garden

Vertebrates in the Vegetables!

By Dr. Jim Pease, Emeritus
Extension Wildlife Specialist
Iowa State University - retired

This is a frustrating time of year for many gardeners. After working hard all spring to get plants and seeds into the ground, fighting the weather, and conquering the weeds, the harvest has begun. But, just as the beans begin to bear and the hostas bloom, some other vertebrate critters begin to harvest the plants as well. Rabbits, ground squirrels, tree squirrels, pocket gophers, or deer arrive to take advantage of the plantings you have provided--assuming that you have provided food just for them! Like many staff from Extension offices or county conservation boards, I receive the phone calls from these frustrated gardeners. Usually they begin with something like: "ARRGH!"

The two major defenses gardeners have against such competition are: repellents and exclusion. Repellents are either area repellents or taste repellents. Area repellents repel the animal by smell. As the name implies, the chemical is aromatic and fills the air in the general area of the planting. The smell is offensive to the animal and it avoids the area. Examples of such repellents include hanging bags of human hair or bars of soap or commercial products like moth balls (naphthalene).

Taste repellents are more effective in that they are applied directly to the plant and repel the animal by having a bad taste. The idea is that the animal may sample the plant once, but the bad taste keeps it from trying it again. Examples include such "home remedies" as cayenne pepper and commercial products containing such chemicals as thiram, putrescent egg solids, or other foul-tasting products. Some plants appear to naturally contain chemicals that are repellents to browsing by deer, rabbits, or other animals.

Repellents are not, however, a cure-all. Area repellents are limited in effectiveness, but may be useful if placed around the perimeter of the garden area. Taste repellents cannot be applied to plants you intend to eat since you would also find the taste offensive. Most repellents must be reapplied regularly, especially after rain or periods of extreme heat. Not all products are registered for or effective against all species. And, if an animal is hungry enough, they will often ignore the bad smell or taste. Despite these limitations, many gardeners may find repellents to be the best alternative in their particular circumstance.

Another more permanent protection against unwanted sampling of your garden is exclusion. You may exclude in several ways, depending upon the area you are in and the situation. Individual plants may be surrounded by plastic tubes, chicken wire, or hardware cloth fences. You may also fence off your whole garden area to exclude the worst offenders. When my family moved back to a rural area a few years ago, the first thing we did to our new garden plot--before we put a single seed or plant in the ground--was to fence it against rabbits and deer. We still have the occasional plant lost to a chipmunk since they can climb the fence. But that level of damage is tolerable. Rabbit and deer damage could be total if they were not fenced out.

The size and mesh of the fence depend upon what you are trying to exclude. For rabbits, 1-inch mesh "chicken-wire" fence at least 2 feet high will successfully exclude them, especially if the bottom 2-3 inches are buried below ground level. For deer, you may use a variety of fences including electrical tape or strong large mesh of any kind. Old "hog wire" fencing filling many farm gullies will suffice, especially if several sections are erected, reaching a height of 8 feet. In small garden plots, you may be successful with fences somewhat shorter than that, but no lower than 5-6 feet.

Gardeners may find also that general clean-up of garden areas will eliminate the brush, log, or junk piles that provide protective cover for many of the offending critters. Also, the presence of pet dogs and cats will often serve as an aversion to these wildlife. Be sure that local leash laws are followed.

Above all, keep in mind that your gardens are often planted as attractants to wildlife. Unfortunately, it will attract both those critters you want and those you don't. Some damage should be expected. When your tolerance level for such damage cannot be raised any higher, then try some of these repellent or exclusion methods.

Cover Up to Protect Melons Against Wilt

By Mark Gleason
Plant Pathologist
Iowa State University

Muskmelons (aka cantaloupes) are among the finest products of Iowa summers. Whether you grow your own or just harvest them from a supermarket shelf, muskmelons rank right up there with tomatoes as indispensable summer treats.

If you do grow your own muskmelons, you already know that they face many perils between May and August. Probably the greatest threat to Iowa muskmelons is a disease called bacterial wilt. Bacterial wilt causes the vines to collapse, wither and die. Many home gardeners have given up on muskmelons because of the trauma inflicted by this fearsome disease.

Bacterial wilt is caused by an oddball bacterium by the name of Erwinia tracheiphila. One of the odd things about E. tracheiphila is its penchant for living inside certain cucurbit plants (muskmelons, cucumbers and sometimes squashes) and insects. The two insect species that harbor the bacterial wilt bad boy are striped and spotted cucumber beetles. When the bacterium isn't inside cucumber beetles, it's usually wreaking havoc inside a cucurbit plant.

Like other wilt bacteria, E. tracheiphila multiplies in the water-conducting parts of a muskmelon vine, to the point where it blocks water movement. Once that happens, the thirsty vines overheat and die.

The bacterial wilt story also is the story of cucumber beetles. When the adult beetles go to sleep for the winter, E. tracheiphila shelters in their digestive tracts. In the springtime when hopeful gardeners are laying out their tender transplants, hungry cucumber beetles rise from their beds in the soil and buzz into the air with two urgent missions: find a cucurbit plant and eat it.

Then comes the ugly part: transmission. Cucumber beetles feeding on cucurbits release E. tracheiphila from, well, both ends of themselves. The bacteria manage to move into the leaves and stems through the feeding wounds created by their beetle taxis. Within a week to 10 days, bacteria have multiplied prodigiously inside the vines, and the heartbreak of wilting commences.

As if this disaster scenario weren't bad enough, cucumber beetles feeding on the sick plants can pick up the bacteria, and a new generation of beetle taxis is created. In fact, several generations of cucumber beetles can hatch and do their voracious thing in a single growing season.

So what's a gardener to do? One strategy – the one adopted by commercial growers – is to spray insecticides every week or two, all season long, to deter cucumber beetles. Many gardeners (and even some commercial growers) are unwilling to wage such intense chemical warfare, so they have sought other solutions.

At ISU over the past several years, our research group tested some no-pesticide and reduced-pesticide tactics at several ISU farms around the state. The most successful approach against bacterial wilt was row covers.

Row covers are long, thin sheets of translucent polyester or cotton fabric that are installed on metal hoops over young cucurbit transplants in May. A row cover forms a tunnel about 18 inches high over the row, with the edges and ends tucked into the soil.

An obvious purpose of row covers is to keep cucumber beetles away from the plants. But they also keep the soil warmer, providing the heat-loving cucurbits with a head start. The result is larger plants and an earlier melon harvest.

Like all good things, row covers must end. They need to be removed when the cucurbit plants start to bloom, since they exclude not only cucumber beetles but also bees and other pollinators. At that point (mid-June or so), the plants are once again exposed to the depredations of cucumber beetles.

Despite this loss of protection, muskmelon plants that were covered for the first month of the season tend to suffer less damage from bacterial wilt than plants that were never covered – and have higher yields, too. So the early protection pays off. Field experiments in three Iowa locations over two years confirmed the advantages of row covers in suppressing bacterial wilt and raising yields.

Can plants that are exposed to cucumber beetles after the row covers are removed succumb to bacterial wilt? Yes – but the chances are less than if the plants had never been covered. Even if you use insecticides after uncovering, at least you didn't need to spray during the covered period. But even if you don't use any insecticides, or just those that are organically approved, row covers give you an edge in the cucumber beetle-bacterial wilt wars.

Commercially available row covers are fairly durable, so they can be reused in later years if handled carefully. One word of caution: avoid planting a cucurbit crop where you grew any cucurbits the previous year, since you don't want cucumber beetles emerging from the ground right under your row covers.

The cucumber beetles won't thank you, but using row covers can make it easier to beat bacterial wilt and have sweet, juicy muskmelons to harvest in August.

Upcoming Horticulture Events of Interest:

Glenwood Lake Park Farmers Market
Wednesdays, June 2 to Sept. 8 4:00PM – 7:00PM
Vendors offering locally-grown garden and orchard produce, baked goods, eggs, & crafts.
ISU Mills County Master Gardeners will have a question/answer table to help you solve your garden problems.

Silver City Farmers Market
Saturdays throughout the summer 8:00AM – 11:30AM
ISU Mills County Master Gardeners on hand to answer all your gardening questions!

Summer Webinar – 3rd Session
Tuesday, Aug 24 (see following article)

Master Gardener Training Classes
Begin Thursday, Sept. 9 (see notice on the last page)

Call 624-8616 for more information.

SUMMER WEBINAR SERIES!

Iowa State University Extension presents

Gardening Green 2010

Brought to you by the Iowa Master Gardener program

The third session of this series will be presented on August 24.

Time: 6:30 – 8:30 PM
Location: Mills County Extension Office, Malvern
Who: All are welcome!
Cost: $5.00 per session

No pre-registration required

Rain Gardens in Iowa *– August 24*
This session will illustrate the design and maintenance of rain gardens as a best management practice (BMP) for storm water management in your landscape. Soil preparation and appropriate plant species selection will be emphasized. This topic will be presented by Dr. Ann Marie VanDerZanden, Dept. of Horticulture, Iowa State University.

Please join us to learn more about this timely topic in gardening!

Ask the ISU Extension Gardening Expert

What can be done to control the iris borer?
The mature stage of the iris borer is a grayish brown moth. Female moths lay eggs on iris foliage and other nearby plants in late summer/early fall. The eggs hatch the following spring. The small larvae (caterpillars) bore their way into the iris foliage and feed on leaf tissue. Over time, the larvae tunnel down through the leaves and into the rhizomes. The caterpillars continue to feed inside the rhizomes and eventually destroy much of them. When fully grown, the larvae move into the soil and pupate. Adults (moths) emerge in late summer.

Iris borers can be controlled by sanitation and the timely application of insecticides. Remove and destroy dead iris foliage in late fall or very early spring. This will eliminate many of the iris borer eggs. An insecticide can be applied in spring when the new shoots are four to six inches in length. An application of an insecticide at this time should destroy the small iris borer larvae before they have the opportunity to tunnel into the iris foliage. Products that contain acephate, permethrin or spinosad should be effective. As always, carefully read and follow label directions when using pesticides.

How do you divide bearded irises?
While bearded irises are easy-to-grow perennials, they need to be divided every three to five years. If not divided, plants become overcrowded and flower production decreases. Crowded plants are also more prone to disease problems. In Iowa, the best time to dig, divide and replant bearded irises is in July and August.

Bearded irises grow from thick, underground stems called rhizomes. Carefully dig up the iris clumps with a spade. Cut back the leaves to one-third their original height. Wash the soil from the rhizomes and roots with a forceful stream of water from the garden hose. Then cut the rhizomes apart with a sharp knife. Each division should have a fan of leaves, a healthy rhizome and several large roots. Discard all diseased or insect damaged rhizomes.

Bearded irises perform best in fertile, well-drained soils and full sun. The planting site should receive at least six hours of direct sun per day. When planting bearded irises, dig a hole large enough to accommodate the rhizome and roots. Build a mound in the center of the hole. Place a rhizome on top of the mound and spread the roots in the surrounding trench. Then cover with soil. When planted, the rhizome should be just below the soil surface. Finally, water each plant thoroughly.

To obtain a good flower display, plant at least 3 rhizomes of one variety in a group. Space the rhizomes 12 to 24 inches apart.

My vegetable garden was recently flooded. Can I eat the vegetables?
Some fruits and vegetables are more susceptible than others to bacterial contamination. Leafy vegetables (such as lettuce, cabbage, mustard, kale, collards, spinach and Swiss Chard), fleshy vegetables (such as tomatoes, summer squash and peppers) and berry fruits (such as strawberries) are highly susceptible to bacterial contamination. Silt and other contaminants may be imbedded in the leaves, petioles, stems or other natural openings of fleshy structures and can be difficult to remove. Do not use leafy and fleshy vegetables if mature when flooded. In the case of strawberries, do not use any fruit that is set on, regardless of maturity.

Root crops (such as beets, carrots and potatoes) are less susceptible to bacterial contamination. Scrub, peel and cook them before eating. Because radishes and green onions are not cooked, they should not be used. Green onions can be left to grow into mature bulbs for later use.

Vegetables with a protective shell, skin or husk (such as peas, winter squash and sweet corn) should be washed thoroughly before the protective structures are removed. After removing the shells, skins or husks, cook before eating.

In general, fruits and vegetables that were immature at the time of flooding should be safe to eat by the time they are ready to harvest. This would include vegetables in the blossom or pre-blossom stage. For additional safety, wash thoroughly and cook before eating.

A brown or black spot develops on the bottom of my tomatoes. What is the problem and how can it be prevented?
Blossom end rot is probably responsible for the brown or black spots on the bottom of your tomatoes. Blossom end rot is a physiological disorder caused by a lack of calcium in the developing fruit. Wide fluctuations in soil moisture levels impair calcium uptake by the root system. Symptoms initially appear as a small, sunken brown or black spot on the blossom end of the fruit. Secondary decay fungi invade the affected area and cause it to rot. Blossom end rot is most common on the earliest maturing fruit that ripen in July and early August. Blossom end rot also may occur on peppers and summer squash.

The occurrence of blossom end rot can be reduced by mulching and watering during dry periods to maintain uniform soil moisture levels. Also, avoid applying large amounts of nitrogen to tomatoes as excessive nitrogen fertilization may contribute to blossom end rot. Adding calcium to the soil is generally ineffective.

Pick and discard fruit affected with blossom end rot. The removal of the affected fruit will allow the tomato plant to channel all of its resources into the growth and development of the remaining fruit.

Hummingbird Moths Attract Attention in Late Summer

By Laura Jesse
Plant and Insect Diagnostic Clinic
Iowa State University

There are several species of hawk moths that feed on nectar from deep throated flowers in the fall of the year. Because these large, stout-bodied moth behave in a manner similar to hummingbirds (except the moths usually feed in the evening), they are called hummingbird moths. This is a bit misleading since there is one species that has the official name of hummingbird moth, but for the entire group, "hummingbird moth" is a convenient nickname.

Hummingbird moths are large and about the size of a hummingbird. There the physical resemblance ends. The moths have fuzzy bodies and antennae, both characteristics never found in birds. However, it is remarkable how much the moths behave like hummingbirds. They hover in mid-air and flit from one flower to the next. Favorite flowers include deep-throated blossoms such as petunias and hosta blooms. With a very rapid wingbeat, they are capable of hovering in mid air just in front of flowers as they sip nectar through their extended proboscis. A tiny amount of nectar is withdrawn during a brief visit to each flower.

The hummingbird moths are several different species of sphinx moths, also known as hawk moths (Family Sphingidae). These are medium to large-sized moths with a robust body and narrow, elongate front wings. The wings have the shape of a wide, flat triangle ending in an acute angle at the farthest point. Sphinx moths may have a wingspread of up to 6 inches though a more common size in Iowa is a 2 to 4.5 inch wingspan. There are approximately 125 different species of sphinx moths in the U.S. and Canada.

The most commonly observed hummingbird-like moth is the whitelined sphinx, *Hyles lineata*, so named for the broad white stripe running diagonally to the outer tip of each front wing. This is a stout-bodied, brown moth with a wingspan of 2.5 to 3.5 inches. The delicate pink coloration of the hind wings is visible when the moths are hovering at flowers. Whitelined sphinx moths are as likely to fly during the day as they are at twilight. The tobacco hornworm moth is another common species.

Hummingbird moths are completely harmless. Their nectar-sipping activity causes no harm to the flowers. Even the hornworm caterpillar stage of most hummingbird moths is of relatively minor importance. Treatment is not warranted. Just enjoy the show!

Master Gardener Classes Coming This Fall

If you have an interest in gardening and would like to volunteer in your community, consider joining the Iowa Master Gardener program. Whether you are a long-term veteran of gardening or a novice, you are welcome to join. A new series of training classes will begin this September!

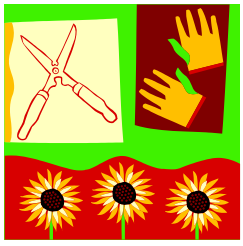
Since 1979, the Iowa Master Gardener program has trained over 9000 people. The Master Gardener program is unique both for its community emphasis and because it directly utilizes the broad research-based resources of Iowa State University.

The dates of the classes are: September through October 2010. They will be held on Tuesday and Thursday evenings, 6:15 - 9:30PM**.** There is also one Saturday "class on campus" in Ames in late October. The classes will begin on Thursday, Sept. 9 with an overview and materials hand out. The first training session will take place on Tuesday, Sept. 14**.**

We'd love to have you join us!!

Visit www.extension.iastate.edu/mills for more information, a registration form, and a schedule.

AUGUST GARDENING TO D0 LIST



- Harvest, dry, and store herbs for later use.
- Continue to control weeds in vegetable and flower gardens
- Help control mosquitoes by eliminating all sources of stagnant water in the landscape.
- Certain pesticides have a waiting period of several days between the time of last spray and harvest. Read and follow directions on all pesticide labels before applying them to vegetable crops. Wash all produce thoroughly before use.
- Plant seeds of radish, lettuce, and spinach for a fall harvest.
- Check trees for bagworms and fall webworms. Hand prune and destroy.
- Prepare thin and dead areas of the lawn for renovation. Mid-August to mid-September is the best time of the year to seed lawns.
- Water tomatoes consistently to avoid problems with splitting and blossom-end rot.
- Continue to harvest zucchini and cucumbers to keep plants productive.
- Place orders for fall planting of spring-flowering bulbs. Try something new this year in addition to tulips, daffodils, and crocus!
- Do not add weeds with mature seed heads to compost piles. Most home compost piles do not reach a high enough temperature to kill the weed seeds.
- In mid to late August, remove the blossoms and new growth on tomatoes to encourage ripening of existing tomatoes.
- Donate surplus garden produce to the local food pantry. Donations to the Bountiful Harvest Program may be brought to the Glenwood Farmers Market on Wednesday evenings.

Resources for Horticulture information

ISU's Hortline at (515) 294-3108
(Monday-Friday, 10 a.m.-noon, 1-4:30 p.m)

ISU/Mills County Extension: 712-624-8616
www.extension.iastate.edu/mills/yardgarden.htm

HorticulturePublications on-line
www.extension.iastate.edu/store

Iowa State University Publications

PM 820	Garden Soil Management (free)
PM 1266	Tomato Diseases and Disorders ($3.75) Full color 12p.
PM 683	Composting Yard Waste (free)
PM 534	Planting & Harvesting Times for Garden Vegetables (Free)
PM 1887	Selling Fruits and Vegetables (free)
PM 1777	Iowa Master Gardener brochure (free)
PM 1933	Common Rose Diseases (free)