

Plant Wise

IOWA STATE UNIVERSITY
Extension and Outreach

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Fall Color in the Landscape

By Cindy Haynes
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As the days grow shorter, I am reminded why fall is such a wonderful time. Not only is the weather cool enough to open the windows - but still warm enough for long walks outdoors without multiple layers of clothes – fall also offers up a kaleidoscope of colors on trees and shrubs. The brilliant display in my neighborhood and on campus tempers my thoughts of a long winter ahead.

While Iowa may not be especially noted for fall color and "leaf peeping" like the New England states, it really is quite spectacular. Growing up in the deep South, where fall color is more subdued, I have come to appreciate the varied colors of an Iowa fall.

How does fall color actually happen inside the leaf of those deciduous trees and shrubs each year? The science behind fall color revolves around 3 pigments in the leaf and the weather (of course!). The three pigments are chlorophyll, carotenoids, and anthocyanins. Chlorophyll is the green pigment vital to the ultimate production of carbohydrates via photosynthesis in plants. Chlorophyll makes most plants green. Carotenoids are yellow or orange pigments that make carrots, corn, banana skins, daffodil flowers, and egg yolks colorful. Anthocyanins are the red or purple pigments found in red skinned apples, grapes, plums, and other fruit like strawberries, blueberries, and cranberries.

While plants are actively growing, chlorophyll is often the dominant pigment in each leaf. This is not surprising since it is needed for photosynthesis. Because it is so important, chlorophyll is constantly being produced as long as the weather is warm and the days are long.

Carotenoids are also present in the leaves throughout the growing season; they are simply masked by chlorophyll until fall. So what happens in fall to displace the ever-present chlorophyll? As the summer progresses



into fall, the length of the day shortens. Or more appropriately from the plant's perspective, the length of the night gets longer. Long nights are a signal to the plant to prepare for winter, causing the veins that connect the leaves to the stems to start closing. This limits the amount of water and other necessary resources that can travel to the leaf...and prevents the continual production of chlorophyll. As chlorophyll declines, the green pigment of leaves goes away – exposing the other pigments present in the leaf.

While yellow and orange carotenoids are present in the leaves throughout the growing season, the red and purple anthocyanins are produced in the leaf in late summer and early fall. As the leaf veins restricted the transport of resources into the leaf, it also restricted the exit of carbohydrates out of the leaves. Many tree and shrub species will use these carbohydrates to create anthocyanins. The amount of anthocyanin produced and the resulting intensity of color are affected by environmental conditions. Warm, dry summer days followed by cool, dry nights in fall usually produce the most brilliant fall color.

Not every tree or shrub species produces carotenoids or anthocyanins in quantities that lead to a dramatic color display. And because the weather is different each year, the amount of these pigments in species that do normally produce them will vary – causing the fall color to be better or worse than the year before.

So take a hike outdoors and enjoy the autumnal display in your neighborhood or nearby park. You too will be impressed at the brilliant picture a couple of pigments can paint in the landscape.

If You Plant it, They Will Come

By Denise Fikes
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Mills County Extension



There are two plants which I have determined will always have a home in my garden – no matter where I live, or how large or small my garden becomes through the years. I grow these plants not only for the various attributes they both possess, but also because they both offer a guarantee of bringing the added beauty and fascination of caterpillars and gorgeous butterflies to my landscape. The plants are curled parsley (*Petroselinum crispum*) and butterfly weed (*Asclepias tuberosa*).

Curled parsley is a plant I have included in my vegetable bed for years now. It never disappoints. Not only is it a beautiful plant with its mound of leaf stalks tipped with three leaflets of dark green tightly curled leaves, but it also has a lovely aroma, and provides wonderful flavor to many dishes.

Parsley is a member of the carrot family and is one of the most nutritious of all herbs. An excellent source of vitamins A and C. Although parsley is a biennial, it is usually treated as an annual. It grows best in full sun with moderately rich, well-drained soil. Plants will reach a height of 8 – 14 inches tall, forming dense clumps which are great for borders, interplanting in garden beds, or in containers.

I would be happy to grow parsley just for its good looks and attraction for butterfly caterpillars, but then you add the bonus of harvesting and using the herb in my favorite dishes, and it's a no-brainer. Parsley can be harvested once it has produced leaf stems with three segments. Store freshly picked leaves in the refrigerator in a plastic bag 2 weeks. It is also very easy to dry. I use my microwave. After washing and drying with paper towels, snip the leaflets from the stems and place them in a single layer on a paper plate. Microwave on high for 60 seconds, stir them around a little and repeat for 45 seconds. If the leaves crumble easily, you're done! If not, give them another 30 seconds on high. Store dried parsley in an air-tight jar for up to a year.

I'm happy to share my parsley with these guys...



You may be thinking "Wow, look at all those monarch butterfly caterpillars!" Sadly, you would be mistaken, but don't feel bad. To the untrained eye, they do look very similar.



Monarch Caterpillar



Swallowtail Caterpillar

The caterpillars that have happily munched my parsley plants every year, are actually the larvae of the spectacular Black Swallowtail butterfly (*Papilio polyxenes asterius* Stoll). Its wingspan can reach 4 ½



inches! Winter is spent in the chrysalis (pupa) stage. Adults emerge in the spring and seek host plants. Females lay round, yellow to cream colored eggs on the leaves. Caterpillars hatching from eggs are initially black with a white saddle. After molting several times, each larvae transforms into a chrysalis that is suspended from a plant stem by a thread. Parsley shares its "host plant" duties with dill, fennel, and other members of the carrot family.



The other plant I love to grow, Butterfly Weed, can be found hosting many a party for that Black Swallowtail caterpillar lookalike – the Monarch Caterpillar. I fell in love with the brilliant orange clusters of flowers that exploded on my first plant last year. The perennial plant grows best in full sun in zones 4 – 9. It reaches a height of 2 to 3 feet. It prefers a drier, less fertile soil and does not transplant well because of the long taproot, but requires very little care. I expanded my collection to 7 plants this year, and was rewarded by weeks of eye-catching color, as well as an endless parade of monarch caterpillars, chrysalis, and butterflies!



The Monarch butterfly (*Danaus plexippus*) is among the



best known of the world's butterflies due to their remarkable ability to migrate, wide distribution, and charismatic appearance. Monarchs lay their eggs singly on the

underside of the leaf, and sometimes on the flowers of different milkweeds. The larva hatch and begin feeding on the leaves of the host plant. The pupa (chrysalis) is formed by the larva hanging on a substrate, such as underside of leaves and twigs, usually away from the host plant. When formed, it is green with gold markings.



I found many of these hanging on the underside of our deck and really enjoyed keeping an eye on them. Once they turned from the jewel-like green and gold, to a darker color where you could actually see the butterfly wing markings, the



butterflies would emerge within 24 hours. I had to keep a close surveillance on a few of the newly emerged beauties as their wings were drying. My curious cats love to follow me around my garden and check out whatever I'm checking out. Consequently, they spent a few afternoons locked in the garage!

Nature is filled with endless wonders, curiosities, and phenomena. The transformation of a caterpillar to butterfly is just one of them, I know. But it is ever amazing and awe-inspiring to me. Consider planting one of these plants in your garden and enjoy the show to follow. Is this Heaven? No, it's Iowa!

Pesky Little Flies

By Laura Jesse
Entomologist
Iowa State University

Fruit flies have stout bodies and red eyes.



It is never fun to walk into the kitchen and notice little flies resting on the walls and

cupboards. Where did these flies come from? And most importantly, how do I get rid of them?

There are a handful of common flies that we find in homes. Two of the common small flies are fruit flies and fungus gnats. Fruit flies have stout bodies and red eyes. Fungus gnats look like small mosquitoes. Both flies are less than one-fourth of an inch in size.

We consider these flies a nuisance pest because they don't damage anything. Like all flies they have a complete life with an egg stage, larval stage, pupal stage and adult stage. The adult flies are the annoyance, but it is the larval flies that we need to locate and control.

These flies get into homes from the outdoors or occasionally are brought in on rotting fruit. Household insecticide sprays labeled for fly control can be used to eliminate the adult flies that are present at the time of treatment but this will be only a temporary relief at best. If you want to get rid of the flies you need to focus on locating where the larvae are feeding. Fly breeding areas are occasionally very difficult to locate and Regardless of where the flies originate, the adults will be seen at windows and sinks, as they are attracted to light and to moisture.

Fruit flies can reproduce anywhere there is fermenting organic matter that stays consistently wet or moist. Rotting fruit is one possibility, but it takes almost two weeks for larvae to develop into adult flies. If you are a better housekeeper than I am, it is likely you will have thrown away any rotten fruit or vegetables before the flies have time to complete their life cycle.

The most likely of such sites in the home is a slow-moving or seldom-used sink, bathtub, shower or floor drain in which a layer of slime (gelatinous film) has built up above the water line. One way to check individual drains is to cover the drain with a plastic film taped to the floor or fixture. If the flies are breeding in that drain, the adults will accumulate underneath the film within a day or two. Other moist accumulations of fermenting organic matter are possible and should be considered. These include wet areas under dripping pipes and refrigeration equipment, garbage containers and discarded bottles and cans.

The most effective method to eliminate fruit flies developing in drains is to clean the inside of the drain pipe to eliminate the organic matter. Clean slow-moving drains with a stiff brush or other tool. Drains that cannot be scrubbed can be rinsed with water under high pressure or "sterilized" by slowly pouring boiling water down along the sides of the drain pipe. Another possibility is the use of a bacterial drain treatment that biodegrades the organic matter. Follow label directions carefully for best results. There is no benefit to treating drains with bleach or ammonia.

Fungus gnats are frequently quite plentiful outdoors in fungi, damp soil and decayed vegetable matter. Though fungus gnats occasionally wander in from outdoors, a persistent problem with this nuisance in the house indicates an indoor breeding site. The immature stage of the fungus gnat is a small white maggot that lives in very moist areas high in decaying organic matter. This habitat may occur indoors with houseplants or in slow-running drains, moisture-accumulating cracks and crevices, refrigerator drain pans and other places where fungi and slime accumulate.

When houseplants are infested, it is often because they are overwatered. Fungus gnats cannot survive in houseplants if the soil is permitted to dry out almost to the leaf-wilting point between waterings. Otherwise, houseplant insecticide spray can be applied to the surface of the soil and around the edges of the pot.

Growing and Caring for Aloe Vera Plants

By Suzanne Schraft
Master Gardener Intern
Mills County



Of the 260 species of Aloes in the world, most are native to Africa. They vary in size from one inch to massive plant colonies composed of hundreds of plants – each two feet in diameter. The most commonly known variety of Aloe plants is *Aloe barbadensis* – better known as Aloe vera.

All Aloes are semi-tropical succulent plants. They form a rosette of fleshy, triangular-shaped leaves. Some species have small spines along the leaf margins. They can only be grown outside where there is no danger of freezing. They benefit from spending time outside in the summer, but will not survive an Iowa winter.

With proper care, mature Aloe may even bloom, producing a tall stalk covered with bright-colored coral flowers. The nectar from the flowers attracts butterflies and is a favorite food for hummingbirds!



Since Aloe is relatively low maintenance, it is a great plant to enjoy in the house. It is very succulent and consists of 95% water. Hence, they are intolerant of frost. Aloe plants are available in most garden shops or

nurseries. It is best to leave your Aloe plant in the pot and place it near a window that gets a lot of sun. If taken outdoors for the summer, place your plant in full sun or light shade. It will thrive in soil that is fertile and fast draining. Established plants will survive a drought quite well.

During the winter months, or indoor under low light conditions, the plant will go dormant and require very little moisture. During this period watering should be minimal. Allow the soil to become completely dry before giving the plant a cup of water. During the summer months, the soil should be completely soaked, but then be allowed to dry out again before re-watering.

Since Aloes have a shallow root system, choose a wider pot rather than a deep one. The planter should have a drainage hole, or you may add a 1-2 inch layer of gravel in the bottom for proper drainage. Use a good commercial potting mix with extra perlite, granite grit, or coarse sand added. You may also use a packaged “cacti mix” soil.

Fertilizing is not necessary for growth or plant health but if you want your Aloe to bloom, apply 10-40-10 once a year in the spring. You may propagate Aloe Vera plants by removing the offshoots, which are produced around the base of mature plants.

Aloe vera has medium green, fleshy leaves that ooze a clear gel when broken. This gel is commonly used to soothe minor burns and abrasions.

Upcoming Horticulture Events of Interest:

**Fall 2011 Seminar Series
Presented by the Mills County Master Gardeners**

“Growing Cactus & Succulents”

Date: Monday, October 3

Time: 7:00 – 8:00 PM

Place: Glenwood Resource Center
Visitor’s Center Conference Room

Cost: \$2.00

Succulents are easy to grow and come in a vast array of colors, shapes, and sizes. Kathy Bokelman, president of River City Cactus & Succulent Society, Master Gardener, and assistant editor of Hobby Greenhouse magazine, will introduce you to the fascinating world of these plants and share her expertise in successfully growing them, inside and out (yes, there are many winter hardy cactus that can be grown in our area!)

“Flooding Effects on Trees & Shrubs”

Date: Monday, October 17

Time: 7:00 – 8:00 PM

Place: Glenwood Resource Center
Visitor’s Center Conference Room

Cost: *This seminar is FREE*

Are you concerned about how the flooding will affect trees in the area’s parks and on your property? Dr. John Ball, SDSU Extension Forestry Specialist, will address the factors that will play a role in the short and long term health of area trees that have been inundated by the flooded river and higher water tables underground.

Ask the ISU Extension Gardening Expert

How do I over-winter my gladiolus bulbs?

Carefully dig up the plants with a spade in late summer/early fall. Gently shake off the soil from the bulb-like corms. Then cut off the foliage 1 to 2 inches above the corms. Dry the corms for two to



three weeks in a warm, dry, well-ventilated location. When thoroughly dry, remove and discard the old dried up mother corms located at the base of the new corms. Remove the tiny corms (cormels) found around the base of the new corms. Save the small corms for propagation purposes or discard them. Place the corms in mesh bags or old nylon stockings and hang in a cool, dry, well-ventilated location. Storage temperatures should be 35 to 45 degrees Fahrenheit.

How do I over-winter dahlias?

Several days after a killing frost, cut the plants back to within 2 to 4 inches of the ground. Carefully dig up the tuberous roots with a spade or shovel. Gently shake off the soil, then cut the stems back to the crown. Wash the tuberous roots to remove any remaining soil. Allow the tuberous roots to dry for about 24 hours. After drying, place the dahlia clumps upside down in boxes or other containers and cover them with vermiculite, peat moss or wood shavings. Store the dahlias in a cool (40 to 50 F), dry location.

How do I over-winter cannas indoors?

Cut the plants back to within 4 to 6 inches of the ground a few days after a hard, killing freeze. Then carefully dig up the canna clumps with a spade or garden fork. Leave a small amount of soil around the cannas. Allow them to dry for several hours. Afterwards, place the cannas in large boxes, wire crates or in mesh bags. Store the cannas in a cool (40 to 50 F), dry location.

How can I keep squirrels from digging up newly planted tulip bulbs?

Several things can be done to make it difficult for squirrels to dig up tulip bulbs. When planting tulips and other spring-flowering bulbs, make sure they are planted at the proper depth. Plant tulips, daffodils and hyacinths 6 to 8 inches deep. Smaller bulbs, such as crocuses and grape hyacinths, should be planted 3 to 4 inches deep. As you place soil over the bulbs, carefully tamp down the soil with your hands or foot. Then water the planting area. Planting the bulbs at the proper depth and firming the soil should make it more difficult for the squirrels to dig up the bulbs. While the aforementioned measures should help, the best way to prevent squirrels from digging up tulips and other bulbs is to cover the planting area with a piece of chicken wire or hardware cloth. Bricks or other heavy objects can be placed on the fencing material to keep it in place. It should be safe to remove the fencing material in winter when the ground freezes.

When should I harvest apples?

A taste test is the best way to determine when to harvest apples. Mature apples are firm, crisp, juicy, well-colored and have developed the characteristic flavor of the variety. Color alone is not a reliable indicator of maturity. Red Delicious apples, for example, often turn red before the fruit are mature. Fruit harvested too early are astringent, sour, starchy and poorly flavored. Apples harvested too late are soft and mushy.

When should I harvest pears?

Pears should not be allowed to ripen on the tree. If the fruit are left on the tree to ripen, stone cells develop in the fruit giving the pear a gritty texture. Tree-ripened fruit are also poorly flavored. Harvest pears when the color of the fruit changes from a deep green to a light green. Also, the small spots (lenticels) on the fruit surface change from white to brown. At the time of harvest, the fruit will still be firm, not soft.



How do I ripen pears?

Pears should be ripened indoors at a temperature of 60 to 70 F. The ripening process should take seven to ten days. To hasten ripening, place the fruit in a sealed plastic bag. Pears give off ethylene gas which accumulates in the bag and promotes ripening.

What is that tiny bug with the painful bite?

During the late summer, a small, black and white insect known as the minute pirate bug makes its presence known in a very convincing manner by biting with an impact that is out of proportion to its size. Minute pirate bugs are present all summer in fields, woodlands, gardens and landscapes where they feed on small insects and insect eggs. They quietly go about their business without anyone taking notice until late in the summer when they migrate from fields and woodlands and begin the disagreeable behavior of biting humans. Their bite is surprisingly painful for such a small insect as they probe their short blunt beak into the skin. They do not feed on blood or inject a venom or saliva. People differ in their response to pirate bug bites. Bites on some swell up like a mosquito bite, some turn red and for others there is no reaction at all.

When can I cut back my rhubarb plants?

Don't cut back the rhubarb until the foliage and stalks have been destroyed by a hard freeze. To produce a good crop next spring, the rhubarb plants must manufacture and store adequate levels of food in their roots. The foliage continues to manufacture food as long as it's healthy. Once destroyed, the foliage and stalks can be removed.

OCTOBER GARDENING TO DO LIST



- Keep plants, especially newly planted trees, shrubs, and perennials, well watered until the ground freezes.
- Remove plant debris from the vegetable garden to protect next year's planting from insect and disease build-up.
- Stop fertilizing house plants.

- Remove stakes and supports as plants decline. Clean them and store them properly for next year's garden.
- To initiate flowering, begin exposing poinsettias and holiday cacti to short days. Refer to ISU publications RG 308 and RG 316
- Plant spring flowering bulbs.
- Inspect all plants before bringing them back inside for the winter. Look for insect pests and disease. Treat as needed.
- Continue to mow your lawn until the grass stops growing – when temperatures are consistently below 50°.
- Leave stems, flower heads, and seedpods standing for winter interest.
- Leave asparagus growth in place over winter.
- Harvest all full-sized tomatoes and peppers before frost.

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

Iowa State University Publications

- PM 2079 Flowering Plants for the Late Summer Garden
RG 316 Poinsettia Care
RG 308 Growing Holiday Cacti
RG 328 Growing Amaryllis
PM 1943 Deciduous Shrubs
RG 601 Gardening for Butterflies
PM 731 Harvesting and Storing Vegetables
RG 320 Growing and Over-wintering Garden Geraniums
RG 304 Late Season Perennial Flowers

[Horticulture Publications on-line](http://www.extension.iastate.edu/store/ListCategories)
<http://www.extension.iastate.edu/store/ListCategories>

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