



# Extension Gardener

NC STATE UNIVERSITY

NORTH CAROLINA COOPERATIVE EXTENSION

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Empowering gardeners. Providing garden solutions.

## Why Do Leaves Change Colors?

Society is profoundly affected by autumn. Every year as the days get shorter, nights grow longer and the temperature outdoors becomes cooler, the leaves in our abundant deciduous forests across the state and country begin to turn bright hues of gold and crimson. Millions of tourists come to visit our national and state forests every year to experience fall's brilliance. Perhaps the warm coolers are nature's way of warming our spirits in preparation for the cold temperatures that follow.

The changing of color in leaves is largely connected to the change in day length. As days grow shorter, photosynthesis and chlorophyll production in the leaves slow down until they eventually come to a stop. Chlorophyll is what gives leaves their green color. When chlorophyll is absent, the other pigments present inside the leaf begin to appear. These pigments are known as carotenoids. They produce colors of yellow, orange and brown.

In addition to being influenced by the change in day length, a plant's fall color is affected by the weather and the intensity of light. Anthocyanins are red and purple pigments that are produced when excessive amounts of sugar in the leaves combine with bright light. Scientists hypothesize that the anthocyanin pigments in

leaves help to protect the photosynthetic system as plants prepare to go dormant and nutrients are being transferred to other areas of the plant. The anthocyanin pigments produced in some leaves depend largely on the pH level of the cell sap (sugar) in the leaf. Leaves with highly acidic cell sap produce very red hues, while leaves with lower pH levels produce purple hues.

The changing fall weather causes a corky membrane to develop between the branch and the leaf stem. This membrane reduces the flow of nutrients into the leaf and begins the leaf-changing process, which is completed when a layer of cells at the base of each leaf is clogged, sealing the foliage from the environment and finally causing the leaf to fall.

Nature creates this magical canvas every fall, which is an inspiration to gardeners and outdoor enthusiasts. Consider incorporating a few tree specimens into your landscape that have stunning fall foliage. The United States National Arboretum has a wonderful list of plants with fall foliage colors that range from yellow to brilliant red. Visit [www.usna.usda.gov/PhotoGallery/FallFoliage/FallColorList.html](http://www.usna.usda.gov/PhotoGallery/FallFoliage/FallColorList.html). To find more information on planting trees and shrubs in North Carolina, visit [www.ces.ncsu.edu/depts/hort/hil/hil-601.html](http://www.ces.ncsu.edu/depts/hort/hil/hil-601.html).

—Michelle Wallace

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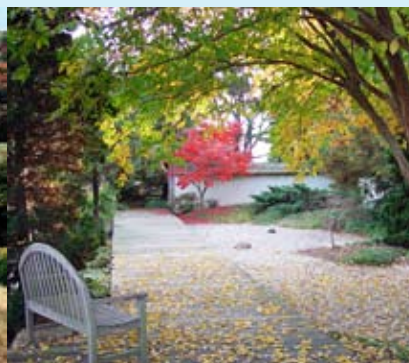
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C. Schneider, USDA—NRCS



JC Raulston Arboretum



C. Schneider, USDA—NRCS

## Upcoming Events

## September 12

**Vegetable Gardening Through the Seasons** (9 AM – 2 PM)

Randolph County Cooperative Extension Center, 112 W. Walker Ave., Asheboro

- Learn how to clean up this year's vegetable garden and prepare for the next. Call 336.318.6000 to pre-register.

## September 14

**Farm Show and Tell** (5:30 -7:30 PM)

Lee Calhoun's Heirloom Southern Apple Orchard, Pittsboro

- The author of the book *Old Southern Apples* will provide a tour of his orchard with more than 400 varieties of heirloom southern apples. Contact Debbie Roos, 919.542.8202.

## September 25 – 27, Southern Ideal Home Show

State Fairgrounds, Raleigh

- Stop by the Extension Gardener Learning Center in Dorton Arena to get your gardening questions answered by Extension agents and Master Gardeners.

## October 15 – 25, North Carolina State Fair

State Fairgrounds, Raleigh

**Growing, the Green Way 2009**

The following classes will be held during September through early December in three locations: Guilford County Cooperative Extension Center, Greensboro Arboretum Education Building, and Bur-Mil Park Wildlife Education Center.

**Lawn Care, the Easy Way!** \$5**Butterfly Gardening** \$5**Spring Bulb Planting** \$15**Aesthetically Pleasing Rain Gardens** \$5**Good Tree, Bad Tree – What Is Best for the Triad** \$5**Christmas Centerpieces** \$15

Each class will be held at the three locations on different dates. Phone 336.375.5876 for class dates, times, and directions. Class size is limited to 30 participants, so make reservations early.

## Sustainable Gardening — Turf management for home lawns

Lawns are environmentally beneficial in many ways. They reduce runoff and soil erosion, protect ground and surface water quality, and absorb carbon dioxide. In addition, lawns play an important role in moderating summer temperatures while improving the overall quality of our air. We can make our lawns even more of an environmental asset by applying sustainable turf management principles.

*Sustainable turf management* refers to the practice of maintaining turf in an environmentally sound and cost-effective manner. By practicing sustainable turf management, homeowners can effectively reduce a significant amount of water, fertilizer and labor while maintaining healthy lawns. Here are some ideas and tips.

Begin by setting goals. Evaluate your property according to these goals based on the degree of sustainability you wish to achieve. One of the first items on your list might be to reduce the overall size of your lawn based on the amount of foot traffic it receives. Areas of the yard that are not visited regularly could be converted to ground covers that are more sustainable and cost less to maintain.

If planting a new lawn, take a soil test and follow recommendations. Select the best grass

type for your area. Your county Extension center can advise you as to the best varieties for your particular situation and area as well as the optimum planting dates.

**Watering Tips.** Overwatering is wasteful and causes lawns to grow faster, which will require more mowing. Overwatering also produces conditions favorable to certain disease and pest problems. Water your lawn during the early morning to minimize loss from evaporation. Avoid watering in the evening because this may encourage diseases. Check irrigation systems to make sure that the water is falling on the turf. Also check for leaks and adjust sprinkler heads to avoid causing dry or wet areas.

**Mowing Tips.** Cut grass when it is dry. Keep mower blades sharp, and mow to recommended heights. Practice “grasscycling,” the natural practice of leaving grass clippings on the lawn when mowing. The clippings will decompose and return valuable nutrients to the soil. Purchasing a mulching mower will aid grasscycling by cutting the grass into small pieces and forcing them into the turf.

—Angelo Randaci

## Food Production — Fall vegetable harvest

Cooler autumn temperatures make it a delight to spend time in the garden and also provide an advantage when it's time to harvest your fall crops. Maturing crops, including cabbages and root crops, will maintain their quality and stand much longer in the garden during the fall season.

Leafy greens, such as kale, spinach, collards and lettuce, can be harvested a leaf or two at a time from each plant during the season, leaving the smaller leaves in the center portion of the plant to continue growing and producing new leaves. Or you can harvest all of the leaves at once from the mature plants late in the season.

Harvesting cold-hardy vegetables after they have been hit with a touch of frost can enhance the flavor and increase the sweetness of greens such as kale and collards. After gathering the greens, allow the plants to over-winter in the ground. Cover the plants with a light layer of

mulch or row covers, and you'll be rewarded with future harvests just as soon as winter has ended and spring arrives.

We all have a few green tomatoes that didn't quite ripen. These can be harvested green and allowed to ripen in storage. Wash the tomatoes well in soapy water, rinse, allow drying, then wrap them in newspaper and place them in a cool storage. You'll have red tomatoes well past the frost date.

Don't panic upon the arrival of frost or light freezes, as a period of Indian summer often follows with mild weather conditions that encourage fall crops to continue growing and producing for the kitchen. Your fall vegetables should be harvested, however, before severe freezes take hold in the garden to avoid damage to the crops and to make harvesting easier for the gardener.

—Carl Matyas

## Garden Spot — *The Arboretum at Tanglewood*

The beautiful Arboretum at Tanglewood Park in Clemmons is made up of 15 themed gardens in a 6-acre site. Plants are labeled, and brick-paved walks make for an easy stroll.

Once the serene country estate of William and Kate B. Reynolds, Tanglewood Park is now a 1,300-acre county park overlooking the Yadkin River. The Arboretum is a small part of the park located behind the original Manor House, now a bed and breakfast. Plant lovers and photographers can appreciate the tranquil setting and enjoy nature's art. Explore the children's garden to see a variety of butterflies and a kid-friendly vegetable garden. A visit in the spring will find many North Carolina native species growing in the Wildflower Garden.

Extension Master Gardeners and other volunteers maintain the grounds and are available for advice, workshops, tours and school programs for the third grade by appointment.



Tanglewood's Arboretum includes a bog garden with pitcher plants (*Sarracenia*) and other bog species.

The gardens are open year-round, with a \$2 gate fee. Adult educational programs are given monthly year-round and more frequently in the spring. Contact Forsyth Cooperative Extension at 336.703.2850 or visit our Web site, which includes a virtual tour and list of the gardens: [www.tanglewoodgardens.org](http://www.tanglewoodgardens.org)

—Craig Mauney

## Environmental Stewardship — *Reduce energy use*

Fall is a wonderful time of year to be outside. But when the weather turns colder and you spend more time appreciating your garden from a favorite window, consider that the typical American family spends close to \$1,900 a year on their home utility bill! Heating, cooling and water heater operation account for approximately 62 percent of this cost. Here are several no- or low-cost steps you can take to make sure you reduce wasted energy and get the most from your heating dollar. (These steps will also help you get the most from your cooling dollar.)

Manage that thermostat! In fall and winter, lower the thermostat when you're not at home and while you're sleeping. You can save from 5 – 15 percent on your heating cost, depending on the number of degrees you decrease the thermostat. Have your heating/air conditioning unit serviced by a professional HVAC technician twice a year.

Clean or replace your furnace filters on a regular basis. Check ductwork, and repair any leaks with tape or mastic.

Find and repair air leaks around windows, doors and electrical outlets and switches. Many different types of weather stripping and sealing materials can be found at a local hardware store or home center. Inspect wall, ceiling and floor insulation to make sure that it is adequate and properly installed.

Plant deciduous trees to the southwest of your home to allow in some warming rays in winter and shade the roof from the hot sun in summer. Use evergreen screens along the northwest portions of your property to shield your home from cold winter winds.

Contact your local Cooperative Extension center to learn about additional steps you can take to conserve energy and save money.

—Jim Burke

## Tips & Tasks

### Lawns

- September is when tall fescue and bluegrass lawns should be seeded. Remember to mulch any newly seeded bare-ground areas with wheat or barley straw. Keep watered.
- Fertilize and lime your tall fescue lawns according to soil test results in September, and lightly fertilize again in November.
- Keep tree leaves from collecting on your lawn to prevent shading of new turf.
- Mow fescue tall to keep it healthy and prevent weed problems.

### Ornamentals

- Set out new plants or move the ones you have.
- Fill your compost bin with fallen leaves.
- Plant or divide spring-flowering bulbs, such as daffodils, crocuses and hyacinths.
- Consider digging and storing summer bulbs, such as gladioli, dahlias and caladiums, before frost.

### Edibles

- Plant fall vegetables, such as mustard greens, onions, radishes, turnips and more, in September
- Keep a close eye on the garden; insects and diseases can be more severe in the autumn.
- Plant 1-year-old asparagus crowns, and prune out older canes of blackberries and raspberries in November.

—Fred Miller



J.C. Raulston Arboretum

**Showstopper** — ‘Rose Creek’ abelia

Clusters of tubular-shaped, dainty white flowers cover this dwarf form of abelia. ‘Rose Creek’ (*Abelia x grandiflora*) was selected by the University of Georgia for its low mounding growth habit, crimson stem color, mildly fragrant white flowers and exceptionally long blooming period – from May until frost. Since its release in 2001, this shrub has excited gardeners and commercial growers with its landscape potential. Growing 3 feet high and 3 to 4 feet wide, this abelia can be used as a low hedge, foundation plant and in outdoor containers. Truly a four-season plant, this evergreen shrub’s leaves emerge in spring with a pinkish cast and turn a lustrous dark-green in summer. A pink calyx remains after the white flowers fade, and the leaves transition to a verdant purple in winter.

Wonderfully compact, ‘Rose Creek’ abelia will grow in full sun to partial shade. Once established it is very drought tolerant.

—John Vining

**Incredible Edibles** — Grapes

Do you have muscadines growing in your yard? If you live in the lower piedmont or coastal plain, you should! The fruit has a distinct aroma, and is popular for making wine, pies and jellies. The juice is sweet with a light taste. Throughout the lower piedmont, try ‘Magnolia,’ ‘Carlos’ or ‘Sterling’ varieties. In the coastal plain, try ‘Cowart,’ ‘Noble’ and ‘Triumph.’ Muscadines can adapt to a range of soil types, but prefer a soil pH of 5.5 to 6.5 and well-drained sandy loam. The grapes are tasty, and studies show they are high in healthy antioxidants. Although muscadines do not grow well in the N.C. western mountains, gardeners there can consider ‘Niagara’ or ‘Concord’ grapes.

Visit [www.ces.ncsu.edu/depts/hort/hil/hil-8203.html](http://www.ces.ncsu.edu/depts/hort/hil/hil-8203.html).

—Della King

**Pest Alert** — Hemlock woolly adelgids

Although the native range for hemlocks includes the N.C. mountains and foothills, the eastern hemlock is frequently planted in landscapes throughout the state. A tiny introduced insect, the hemlock woolly adelgid, has spread from New England through the southern Appalachian Mountains and has occasionally been reported in other parts of North Carolina.

The hemlock woolly adelgid resembles an aphid and sucks sap from the needles. A heavy infestation drains so much energy from the tree that even a large tree can be killed in a few years. An infestation is easy to identify by the white cottony masses along the twigs, at the base of the needles.

Homeowners can treat infested trees. Small trees can be sprayed with insecticidal soap or horticultural oil. The best time to spray is Sep-

tember through November. Fair control can also be obtained by spraying in February or March. Trees probably will need to be sprayed every year. Large trees can be treated with a systemic soil drench using either imidacloprid (Merit or Bayer Advanced Tree and Shrub Insect Control) or dinotefuran (Safari). Measure the circumference and diameter of the tree trunk. Using the measurements, carefully follow label directions to calculate how much product to mix per gallon of water. Scrape a shallow trench around the tree’s base, and pour in the mixture. Treated trees should not need to be re-treated for 2 to 4 years. See this insect note: [www.ces.ncsu.edu/depts/ent/notes/O&T/trees/note119/note119.html](http://www.ces.ncsu.edu/depts/ent/notes/O&T/trees/note119/note119.html)

—Linda Blue



White cottony masses indicate a hemlock woolly adelgid infestation. (Photo courtesy USDA—NRCS)

Sustainability

**Barnyard Chickens**

Backyard chickens can be rewarding and sustainable. They dispose of vegetable scraps, reduce insect populations, lay fresh eggs and produce rich compost. In return, chickens require safe shelter, food and access to fresh water. Rid your garden of pesky insects by locating your chicken tractor over a vegetable bed prior to planting. Letting the chickens feed can reduce the population of borers and other soil insects. Feed all vegetable kitchen scraps to chickens to enhance their diet. Put chicken waste in the compost pile to make it heat up and the materials break down. After collecting fresh eggs in a variety of colors, with deep golden yolks and fresh taste, you won’t want to go back to grocery store eggs. So consider adding chickens to your garden.

—Cyndi Lauderdale

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