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Extension Gardener provides timely, research-based horticultural information. We publish four issues per year. Send comments about *Extension Gardener* to:

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Water Quality and Home Lawn Care

North Carolinians care for about 1 million acres of home lawn. When a lawn gets more fertilizer than is needed or when fertilizers and pesticides accidentally get onto paved surfaces, the excess is likely to run off into the nearest stream or seep through the soil into the groundwater. To care for your lawn in ways that prevent and reduce contamination of our water resources, rely on these tips:

Establishing a Healthy Lawn

- Test the soil before you plant to find out the right amount of lime and fertilizer for your particular conditions.
- Cover seeded areas with mulch to aid establishment and reduce runoff and erosion.
- Water newly seeded areas lightly and frequently while the lawn is getting established. Do not water so much that runoff occurs.

Watering

- Water the grass—not the pavement or the driveway. Position sprinklers and automatic irrigation systems so that the water falls only on the lawn and not on paved surfaces.
- Do not water too much. Conserve water by carefully managing automatic irrigation systems. Install rain or soil moisture sensors to override the timer when necessary.

Fertilizing

- Apply the right amount of fertilizer at the right time of year to maintain a healthy lawn and reduce water pollution. See NC State Extension's **lawn maintenance calendars** for specific advice.
- Calibrate your spreader each time you use it to ensure a balanced pattern of coverage that applies the desired rate of fertilizer and lime.



Position sprinklers so water falls only on the lawn. ©NC State Communication Services. All rights reserved.



Apply fertilizer and lime at the proper rate. ©NC State Communication Services. All rights reserved.

- Shut off the spreader when you cross paved surfaces or bare ground to avoid applying fertilizer to hard surfaces where stormwater will carry it away in the next rain. If fertilizer particles do land on a hard surface, sweep or blow them back onto the lawn.
- Leave clippings on the lawn to decompose and return their nutrients to the soil. This “grasscycling” can provide about 25 percent of the nutrients recommended for the lawn.

Managing Pests

- Identify the true cause of any problems and decide if you really need to take any action. Treat only those areas that have pest problems.
- Plan to treat the pest when it is most susceptible and the lawn is most tolerant. Follow label directions to apply the pesticide at the correct rate and time.
- Pay attention to the weather forecast. Do not apply pesticides when heavy rain is likely.
- Calibrate your sprayer to deliver the correct amount of pesticide.
- Mix liquid solutions and fill sprayers on grassy surfaces so no liquid spills on pavements or bare areas.
- Mix granular materials and fill applicators on smooth, impenetrable surfaces so you can clean up any spills.

This information is adapted from an NC State Extension publication, *Water Quality and Home Lawn Care* (AG-626), which is available online: content.ces.ncsu.edu/water-quality-and-home-lawn-care.

Extension Showcase

The Arboretum and Gardens at Tanglewood Park

When pondering new additions to your garden, one of the best ways to get inspired and make informed plant selections is to visit other gardens, public or private, and see what's growing there. In Forsyth County, the Arboretum and Gardens at Tanglewood Park showcase plants that grow in the NC piedmont.

The Arboretum is managed by the Forsyth County Extension center, in partnership with Forsyth County Parks and Recreation and Extension Master GardenerSM Volunteers (EMGVs). The Arboretum is maintained in large part by EMGVs who dedicate over 4,000 volunteer hours a year.

The Arboretum is open to the public during the normal operating hours of Tanglewood Park, a Forsyth County Park located in Clemmons. Spring is a great time to see spring ephemerals blooming in the Wildflower Garden, or to catch a stunning display of magnolia flowers in the Main Entrance area.

In addition, Forsyth County EMGVs invite the public to attend the spring plant sale at the Arboretum on April 20 through 22. More information about the Arboretum and the educational programs offered there can be found at go.ncsu.edu/ArbAtTanglewood or forsyth.cc/ces.

—Leslie Peck

©Forsyth County, Tanglewood Park



extensiongardener.ncsu.edu

Smart Gardening: Drought-tolerant plants for NC gardens



Butterfly weeds are NC natives that tolerate drought.
©Mary Keim, CC BY-NC-SA - 2.0

Although succulents such as prickly pear cacti (*Opuntia* sp.) are native to North Carolina, other plants are adapted to cope with dry conditions in different ways, providing the potential for drought-tolerant gardens with a diversity of textures, shapes, and colors. One adaptation is the production of fine hairs that reflect sunlight and protect leaves from the wind's drying effects. Fine hairs often bestow a silvery appearance that creates a pleasing contrast with more colorful neighbors. Examples include lamb's ear (*Stachys byzantina*), which lives up to its namesake with velvety leaves, and Russian sage (*Perovskia atriplicifolia*), which produces spikes of lavender flowers from late spring through autumn.

Other plants conserve water with waxy coatings and thick leaves. Most hollies (*Ilex* sp.) prefer moist soil. But the *Ilex* genus includes over 1,000 cultivars, including varieties that stand up to drought. Predominantly evergreens, hollies are also able to tolerate severe cold, a condition synonymous with drought because water is unavailable when it takes the form of ice. Junipers, pines, and spruces have taken this adaptation one step further with needlelike leaves to minimize transpiration. The development of taproots provides yet another survival mechanism. Deep root systems are better than shallow roots at storing water. Coneflowers (*Echinacea* sp.) and butterfly weeds (*Asclepias* sp.) are good examples, along with a host of other flowering perennials. Drought-tolerant plants may require watering for several years after planting. But once established, they will provide years of low-maintenance beauty. Because NC piedmont weather varies widely and droughts are part of this cycle, it pays to be prepared. For additional tips and a detailed list of drought tolerant plants, visit ncbg.unc.edu/gardening-for-drought/. —Phyllis Baker Smith

Food Production: Head lettuce

Head lettuce can be direct-seeded in the spring, but it is also fun to provide a jump start by planting transplants. Using transplants may help reduce loss to crickets, which love the sweet cotyledon leaves of seedlings. Begin by preparing your potting media. Amend it liberally with compost, and fertilize well. Include phosphorous in the mix to support a strong taproot and ensure the pH is between 6.0 to 6.7. Choose a variety adapted to the growing season, whether early, mid, or late. Place seeds in damp paper towels in the refrigerator overnight to speed up germination. At the Sandhills Research Station, we've been growing various head lettuce varieties throughout fall and spring, using plastic mulch, drip irrigation, and following organic practices.

We've been amazed at the taste and quality of the lettuce we've grown. Lettuce is surprisingly hardy, toughing out spring temperatures in the low 20s°F with no protection and nary a brown leaf. There are many varieties available. Try 'New Red Fire', which makes a large head with brilliant burgundy-red and lime-green coloring. A wonderful bibb is the lovely 'Rosaine,' a dark-burgundy mini head lettuce as beautiful as a flower. The bonus of growing your own lettuce is the incredibly long shelf life—up to three or four weeks with proper handling. The key is proper harvest: Pick early in the morning, when temperatures are cooler and the lettuce head is fully hydrated. Be sure the lettuce is well-watered prior to harvest as hydrated heads are less likely to develop the milky latex sap that can make the lettuce taste bitter. If your heads should get limp in the fridge, soaking lettuce in cold water can help restore taste and texture. —Paige Burns



The brilliant color of 'New Red Fire.'
©Paige Burns

Pest Alert: Moles are always on the move

It's important to determine that a mole is responsible for the damage to your yard before deciding on the best control option. The most common signs that a mole is in your yard are tunnels that are pushed up and dome-shaped. There may also be small mounds that are 2 to 12 inches high. Moles are 5 to 8 inches long with very short tails, pointed noses, and short front legs that are paddle-shaped. This shape allows a mole to "swim" through soil. A mole's eyes and ears are not visible. Moles are not rodents but are classified as insectivores, meaning their diet consists primarily of insects. About 80 to 90 percent of their diet, however, is composed of earthworms. The remaining portion is from insect larvae (grubs) and insects such as ants.



Trapping the star-nosed mole requires a permit.
 @gordanramseysubmissions, CC by 2.0

Many gardeners consider moles an asset in the landscape as moles loosen the soil and feed on garden pests. Moles do not eat plant material, but may damage roots while moving through the soil. Moles are always on the move, rarely staying in one yard for an extended time. Their natural predators include snakes, foxes, coyotes, weasels, and birds of prey. Creating beneficial habitats for these predators can dramatically decrease the mole population. You can work on habitat creation with the **National Wildlife Federation** and other conservation organizations. Three types of moles occur in North Carolina: eastern, hairy-tailed, and star-nosed. Both the eastern and hairy-tailed moles are classified as pests. But the star-nosed is listed as a species of concern here, so a permit to trap is required from the NC Wildlife Resources Commission. For more information on moles, see the **Extension Gardener Handbook**.

— Jamie Warner

Lawns: Creating an attractive lawn

A lawn is a living carpet that has far more benefits than just being an attractive showpiece. Creating an attractive lawn takes more than just planting and watering in grass seed. A gardener must take time to properly plan out the lawn—from seed selection through lawn establishment and maintenance. The best time to do this is late winter through early spring.



Creating a lawn takes more than seeds and water.
 ©NC State Comm. Services, CC-by-NC SA 2.0.

Grass selection is the first issue to address. Factors to consider before planting include region, climate, use, and appearance. The great thing about being in the NC piedmont is that both warm- or cool-season grasses can be planted here. The most popular cool-season grass grown in the NC piedmont is fescue. Fescue grass includes tall fescue, Kentucky bluegrass, and fine fescues. Blends of fescue grass seed sold at garden centers usually include all three types. This blend allows the turf to withstand environmental and physical challenges. If warm-season grasses are preferred, choose from Bermuda, centipede, zoysia, St. Augustine, or carpetgrass. Unlike cool-season grasses that stay green through the winter, warm-season grasses go dormant and turn brown in winter. They grow more vigorously, however, and withstand the NC piedmont heat better than cool-season fescues. The decision ultimately belongs to the gardener.

Before planting, collect a soil sample from the site and send it off for analysis to determine how much, if any, lime will be needed and what nutrients should be added. If you have any other questions regarding your lawn, contact your **county Extension center**.

—Brad Thompson

Tips & Tasks

Pruning roses: The basics

As another Valentine's Day comes and goes, I am again reminded that it's time to care for my roses.

Caring for your roses is essential to help promote robust and healthy plants that will be less susceptible to the typical diseases and pests that can plague roses in the North Carolina piedmont.

- The middle to end of February is the ideal time to prune your roses for the upcoming growing season.
- Time your pruning when the buds begin to swell.
- Floribunda and hybrid tea roses require an annual heavy pruning, while climbers and old-fashioned roses should be pruned after they bloom.
- Dead, damaged, or diseased parts of the plant should be removed at any time to prevent further problems.
- Sanitation is key in disease prevention, so remove all pruned materials, including canes and leaves from the base of the plant, and throw them away.
- Do not compost any diseased plant material.
- To prune, use sharp shears and disinfect the blade periodically with a 70 percent alcohol solution.
- Remove all dead, diseased, and damaged canes first, leaving three to five healthy canes. Then remove any canes that touch or cross over one another.
- Remember to wear leather gloves to avoid being pricked by a thorn!

—Lauren Hill

Helping You Grow

For Gardening Help, Ask an Extension Master GardenerSM Volunteer

Extension Master GardenerSM Volunteers (EMGVs) are local citizens who volunteer their time and expertise to support their county Extension centers. EMGVs receive intensive training on a wide range of gardening topics and are prepared to answer your gardening questions with research-based, nonbiased information from the land-grant university system.

There is an NC State Extension Master GardenerSM program in almost every NC county. Contact your local NC Cooperative Extension center to talk to an EMGV and get advice on such gardening problems and questions as these:

- What is wrong with my plants, and what can I do about it?
- When should I plant?
- What is this weed?
- What is this insect that I found on my plant?
- When should I prune?

When you contact your county Extension center, be prepared to provide enough information for an EMGV to help you. For example, if you have an insect, plant, or weed that needs to be identified, bring a sample to the Extension center or email several clear, focused, and close-up pictures.

To talk with an EMGV in your county, visit ces.ncsu.edu/local-county-center and find your county Extension center.

—Charlotte Glen

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Plant Watch: Carolina SweetheartTM redbud



©Mountain Horticultural Crops Research & Extension Center, NC State University

Bring in the spring with this new redbud (*Cercis canadensis* 'NCCC1' PPAF). This recent release is like "nothing else on the planet," says Professor Tom Ranney of NC State, who developed the cultivar in cooperation with the NC Nursery & Landscape Association. Blooming in early to midspring with bright pink blooms, the foliage emerges in a carnival of colors—starting off purple and developing into variegations of white, green, and hot pink. As spring gives way to summer, the leaves turn fully green. Bean-like pods are on display in the fall. When mature, this redbud will reach 20 to 30 feet tall and have a 25-to-30-foot umbrella-like spread. It does best in zones 6 to 9 with full sun to part shade.

Looking for a WOW factor for your landscape? The Carolina SweetheartTM redbud will provide it.

—Kira Chaloupka

Incredible Edibles: Florence fennel

Florence fennel (*Foeniculum vulgare* var. *azoricum*) is a great multi-use plant that is both a vegetable and an herb. The thickened, bulb-like base can be boiled, roasted, used raw, or sautéed like a vegetable, and the foliage can be used like an herb. Both parts have a distinct anise-like flavor and aroma. Florence fennel does well in most parts of North Carolina, with spring planting dates for the NC piedmont and coastal plain between March and April and a late summer planting in July and August. In the NC mountains, plant in the spring between April and May. This warm-season annual does best from seed and shouldn't be confused with fennel (*Foeniculum vulgare*), which is a perennial herb that is often used as an ornamental and pollinator plant.

—Hanna Smith



Florence fennel. ©Quinn Dombrowski, CC BY-SA 2.0



Beneficial insects feed on pest organisms. ©John Flannery, CC BY-ND 2.0

Sustainability: Beneficial insects

Often when we see an insect, especially if it's on one of our plants, we automatically assume that it is going to eat our entire plant and we will be left with little or nothing to show for all our hard work. Although there are some "bad" bugs out there, most insects (about 99 percent) are either harmless or are actually beneficial. These good guys, such as lady beetles, assassin bugs, and wasps,

are considered natural enemies to pest insects. By feeding on pests, these natural enemies can provide a natural approach to pest control. If we create environments that encourage populations of these beneficial insects, then we have a leg up on the bad guys. This practice reduces the amount of insecticides that we must use to keep our plants healthy and is one step in **integrated pest management (IPM)**. Along with other techniques that are part of IPM, we can use beneficials to manage pests in an economically viable and environmentally sound way. Chemicals from insecticides can leak into and pollute water resources, especially when not applied properly. Insecticides can be costly as well. Another part of IPM is knowing the "economic threshold," the amount of damage or insects present that you can tolerate before preventive measures must be taken, such as using chemicals. Encouraging beneficial insects in your garden can help keep pests in check and keep them below the economic threshold.

—Hanna Smith