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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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Plant spring-flowering bulbs now

While you're in the garden this fall, consider planting some spring-blooming bulbs. A true bulb is a modified stem that is surrounded by scale-like modified leaves that store food for the shoots. But when you're shopping for bulbs at a garden center, you may also be purchasing corms, tubers, tuberous roots, or rhizomes. It's easiest not to get too caught up in the botany; these "bulbs" are all grouped together because their care in the garden is generally the same.

You can usually find bulbs at the garden center, but you may choose to order from a catalog or online retailer for a wider selection. Ordering well in advance can often open up more options, as rare varieties may sell out quickly. However, even if you wait until the fall, you're bound to find some beautiful options for planting in your garden. Select large, firm bulbs, and avoid any bulb that is soft or mushy.

Most people think of tulips, daffodils, and hyacinths when they are planting spring-flowering bulbs. Gardeners in North Carolina often grow tulips as annuals because they don't reliably come back in all areas. Daffodils are a good choice if deer are a pest in your yard, and daffodils tend to return to the garden year after year.

You may wish to branch out to other options. Crocuses offer color very early in the spring. Try an allium for extra interest in the garden. Their



Early crocuses usher in spring with fresh color.
©Leslie Peck, Forsyth County Extension Center



Daffodils come in a variety of sizes and colors.
©Leslie Peck, Forsyth County Extension Center

globe-shaped flowers are exciting, especially if you're gardening with kids. For gardeners battling deer, consider growing summer snowflake (*Leucojum aestivum*) or a variety of the genus *Scilla*.

After selecting bulbs, it's time to plant. Wait until soil temperatures have cooled to below 60°F. Depending on where you live in North Carolina, this soil temperature could occur in October or as late as December or January.

Bulbs grow best in well-drained soil; incorporate compost or peat moss into the top 12 to 18 inches of soil to improve drainage, especially if you have heavy clay soil. Dig with a trowel or bulb planter, or attach an auger bit to your drill. Generally, you want to plant the bulbs at a depth that is two to three times the width of the bulb.

For optimal color and impact in the spring, plant bulbs close together. You can even layer smaller bulbs on top of larger ones, then finish with some cool-season annuals on top. Planting the bulbs in a drifting pattern will be visually pleasing when they emerge in the spring.

After planting bulbs, it's a good idea to put some slow-release fertilizer and mulch down. Follow your soil test report for the best fertilizer option. Then sit back, let the bulbs chill in the winter, and wait for the springtime show your bulbs are sure to bring.

—Leslie Peck

Extension Showcase

Soil School

With the start of school in Transylvania County, we see something magical happen in the garden and in the classroom. NC State Extension Master GardenerSM volunteers (MGVs) are growing both gardens and minds! NC Cooperative Extension in Transylvania County begins its eighth year of "Soil School" this school year. Soil School is an incredible partnership between MGVs, Brevard Elementary School, and 4-H. The program uses the **Soil Solutions** curriculum developed by Liz Driscoll at NC State University to teach third-grade science standards. MGVs teach a series of six lessons that include three lessons in the garden and three in the classroom.

During the series, students learn plant parts and function, the parts of a flower, pollination, and soil properties. All lessons are taught using engaging hands-on activities. Students also learn other math and science skills, including the scientific method, making careful observations, and taking measurements. Brevard Elementary third-grade teachers have expressed their appreciation for the improvement in understanding of these science concepts among their students. The students loved "learning with the Master Gardeners" and "going to the garden because we got to see worms and cool plants!"

—Sara Freeman

©Sara Freeman, Transylvania County Extension Center



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Smart Gardening: Attract beneficial insects with herbs



Holy basil (*Ocimum tenuiflorum*). ©Elina Snyder, Caldwell County Extension Center

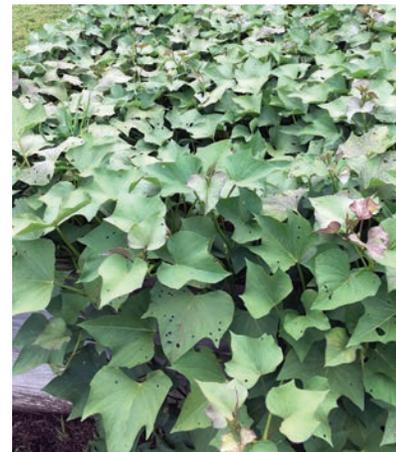
Growing aromatic and medicinal herbs doesn't just benefit you after harvest; it can also help you manage insects by attracting beneficial insects and pollinators. Many popular herbs are in plant families that support beneficial insects, including the Lamiaceae or mint family, Asteraceae or daisy family, Verbenaceae, and Apiaceae or carrot family. These families are known to attract insects that prey on insect pests. The beneficial predators include braconid wasps, lacewings, and tachinid flies. In addition to many flavors of mint and basil, other herbs to try from the mint family include lemon balm, holy basil or tulsi, and anise hyssop. Anise hyssop is an excellent herb for pollinators. Its leaves are sweet and have a licorice flavor. It can be added fresh to herb-based salad dressings or dried and blended with other herbs in tea. Calendula, chamomile, and coneflowers (*Echinacea* species) are useful herbs in the daisy family that also offer attractive floral additions to a garden. Dill, parsley, cilantro, and chervil are in the carrot family. Many herbs can be used fresh in cooking, dried and blended into teas, processed into tinctures, or otherwise made into a medicinal form. It is important to know which part of the plant is desired when considering harvest. For example, chamomile flowers are the desired part, and the foliage is bitter. Be aware of each plant's growth habit before planting it into your garden. Many of the mint family herbs can spread aggressively and should be kept in pots. Other herbs, including holy basil, calendula, and coneflowers, will reseed readily, and you will find more growing in your garden each year. Herbs can be dried in a dehydrator or air-dried in a room with good air circulation, or frozen. For more information on growing herbs, visit newcropsorganics.ces.ncsu.edu/herb/culinary-aromatic-herbs/.

—Elina Snyder

Food Production: Sweetpotatoes

Most commercial production is in eastern NC, but we can grow sweetpotatoes well in the mountains at lower elevations. Plant a small slip in spring, and enjoy several pounds of sweet treats from each plant come fall. They will do best in looser soils, such as bottomlands free of root-knot nematodes or in raised beds. Popular orange-fleshed varieties include 'Beauregard' and 'Covington'. 'Bonita', 'White Hamon', and 'O'Henry' have white or cream-colored flesh. Japanese purple cultivars have purple skin and white flesh. There are all-purple varieties and many others to choose from. NC State has long been a source of improved sweetpotato genetics. Sweetpotatoes are grown from a "slip," a vegetative cutting from a sprout growing on a tuber. Plant in spring after any danger of frost, once soil temperatures average 65°F. Incorporate lime and fertilizer prior to planting according to soil test results. Plant slips 4 to 5 inches deep with cut edge down, 9 to 15 inches between slips, in ridged rows 3 to 4 feet apart. Maintain consistent soil moisture after planting, and provide 1 inch of water per week with rainfall or irrigation. Keep your sweetpotatoes weed-free with 1 to 2 inches of straw mulch or by cultivating one to two times before the vines start running. Eventually healthy vines will cover the soil. To minimize disease, purchase slips from a reputable supplier and do not grow slips from diseased tubers. Harvest according to days to maturity. To harvest, cut the vines away from the crown and loosen tubers with a shovel or fork placed far enough away from the tubers to avoid damage. Wash soil off and cure in a warm (85 to 90°F) place with high humidity and good air circulation around each tuber for one to two weeks before eating or placing in storage. Store sweetpotatoes in a dark place with temperatures above 55°F.

—Elina Snyder



Sweetpotatoes grown from spring-planted slips can be harvested in the fall. ©Elina Snyder, Caldwell County Extension Center

Pest Alert: Fall webworms

With fall's impending arrival, a pest is showing up that causes much concern and worry to homeowners: the fall webworm. Its large webby nests appear in trees in late summer, making the homeowner think that an insect-driven apocalypse is about to commence. But fear not. The fall webworm's bark is worse than its bite. Fall webworm (*Hypantria cunea*) is the larva of the fall webworm moth. The white moth lays eggs on the undersides of the leaves of more than 90 deciduous trees. In about a month the eggs hatch and small caterpillars start devouring leaves and building silken webs around leaves at the ends of tree branches. As the caterpillars eat leaves and grow, they enlarge the nest to take in more leaves. They feed for about six weeks before dropping to the ground, where they overwinter in the ground in the pupal stage.



The best way to manage fall webworms is to tear open their nests so predators can eat the worms.
©Donna Teasley, Burke County Extension Center

Given the caterpillars' voracious appetites, you would think the defoliation of affected trees would cause damage. But as bad as it looks, because the defoliation takes place in late summer and fall, no damage is done to infested trees. By this time of year, trees have accumulated and stored enough food to get them through the winter, so the loss of leaves at this point is mainly cosmetic. You might even have cause to thank the fall webworms because every leaf they devour is one less leaf you have to rake. The application of pesticides is not effective on fall webworms because of the thickness of the webbing. A better way to control webworm nests is to take a stick and tear open the nests, exposing them to natural predators such as birds.

—Donna Teasley

Lawns: Let's all relax about our turf

The lawn, as we know it, has been around for the last hundred years. Prior to the 1700s, lawns were really meadows: mixtures of native grasses and broadleaf plants that were often kept short by grazing livestock. George Washington had sod from a meadow cut and brought to Mt. Vernon upon completion of his home. Sheep kept the grass mowed. Even centuries later when America's suburbs first came into existence after the soldiers came home from World War II, lawns were still mixtures of different grasses and broadleaf plants. In the 1950s, companies began a campaign to convince us all that our yards must be pure stands of one type of grass. I have seen an old herbicide advertisement that showed a monster-like clover towering over a defenseless lady ready to devour her *and* her yard. The message was clear...weeds are evil.

Growing grass shouldn't require so much work. People make grass difficult by overmanaging it. Homeowners stress grass by mowing too low. Then they fertilize the lawn to make it grow. Lush lawns attract pests. People are forced to apply chemicals to lawns to get rid of the pests. I call this feedback loop "the chemical treadmill." Until we relax our standards a bit, we will all be running on it. A perfect lawn requires chemicals and inorganic fertilizers—end of story. Do we need perfect lawns though? There is a better way. Turf owners should relax their standards and use proper turf management to achieve a healthier, stronger, more pest-resistant lawn. If gardeners choose the correct turf type, mow at the correct height, fertilize properly according to soil tests, use adequate irrigation, and accept a minimum amount of weeds, they can produce grass that requires less chemical input.

—Steve Pettis



Lawns were once meadows: mixtures of grasses and broadleaf plants for grazing.
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Tips & Tasks

Lawns

- Use grass clippings to add organic matter by leaving them in your yard rather than bagging.
- Collect leaves that fall from your trees for mulch or compost.
- Take a soil test before November to check your fertilization needs.
- Cool-season grasses can be seeded in early fall.
- Now is the time to fertilize established cool-season turf.

Landscape Ornamentals

- Prune plants that require fall pruning and add pruned limbs and leaves to your compost piles.
- Divide any bulbs that need to be divided.
- Fall is the best time to plant new shrubs and trees.
- Plant bulbs that require chilling hours throughout the winter to bloom.

Vegetable Gardens

- Check the **western NC planting calendar** from NC State to see which annual vegetables can be planted and harvested in the fall.
- Long season plants such as garlic can be planted now for spring harvest.
- Prepare your overwintering and seasonal extension spaces (such as cold frames and caterpillar tunnels) to protect your plantings from frost as the season progresses.
- Add flowers to your garden to attract additional pollinators.
- Fall and winter cover crops can be used to add biomass, fix nitrogen, and otherwise improve soil health.

—Hannah Bundy

Helping You Grow

NC Extension Gardener Plant Toolbox

Updates and changes to the NC State Plant Database make the site an even more valuable reference for gardeners (plants.ces.ncsu.edu/). You can still search by scientific or common name and use **Find a Plant** to select the perfect plant for a site. Now, in addition to considering what cultural conditions you can offer a plant and your preferences on color and size, you can factor in what function the plant should serve in the landscape (like attract wildlife, provide food or fragrance) and what challenges it might need to withstand (such as deer, wet soils, salt). The database automatically recommends alternatives to invasive plants and also suggests native alternatives. **Identify a Plant** is a new feature that allows you to enter known information (like leaf arrangement, flower color, leaf shape) to identify a plant. In addition to showing plants that are likely matches, the database tells you which plants are often confused with the one identified. Another new feature provides quick plant lists, such as fire-resistant plants, beneficial coastal plants, and plants for wet sites. Plant descriptions include photos, audio and phonetic pronunciations of botanical names, video profiles, and other details (such as attributes, cultural requirements, and landscape value). Such information can help you decide if a plant is the best choice for your location and if it can provide the desired function.

—Hanna Smith

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Plant Watch: Virginia sweetspire

Fall is a spectacular time for native perennials. *Itea virginica*, Virginia sweetspire, has showy racemes of white flowers that bloom in late spring and make way for glossy green leaves that turn vibrant red and orange in the fall. The flowers are produced on last year's growth or old wood. Depending on the cultivar, the flowers may be upright or cascading. Little Henry® is a popular dwarf cultivar of this plant with an attractive arching form. It can handle a variety of soil conditions and planting sites, including low and wet sites. Not only is this plant native, it is deer-resistant, a source of nectar for pollinators, drought-tolerant, and produces an attractive display for three-fourths of the year. Little Henry® is 3 to 5 feet tall and has a spreading growth habit in an urban landscape setting. It can grow taller in a more natural, shaded setting. For more information, visit the NC Extension Gardener Plant Toolbox: plants.ces.ncsu.edu/plants/itea-virginica/.



Virginia sweetspire displays vibrant fall foliage.
©Distant Hill Gardens, CC BY-NC-ND 2.0

—Lauren Hill

Incredible Edibles: Make room for muscadines



'Supreme' muscadine. ©Jeana Myers, Wake County Extension Center

The muscadine grape, *Vitis rotundifolia*, originated in the Southeast, thrives in our heat, and defies diseases and insects that decimate their *Vitis vinifera* relatives. Muscadines can be dried, eaten fresh, made into desserts, or fermented into sweet wines. Most muscadines are dark-skinned, but there are bronze cultivars, some of which are called "scuppernongs" because they were first found along the Scuppernong River in North Carolina. You can choose a cultivar based on fruit color, size, sugar content, skin thickness, cold hardiness, ripening time, and whether the flowers are self-fertile or require a second vine for pollination. 'Supreme' (female) and 'Nesbitt' (self-fertile) are the two purple varieties rated in the top five fresh-eating cultivars in North Carolina, and 'Summit,' (female), 'Tara' (self-fertile), and 'Triumph' (self-fertile) are the three bronze varieties in the top five. They need full sun and good drainage but are otherwise an easy plant for every garden. For more information, visit grapes.ces.ncsu.edu/muscadine_grape_production/.

—Jeana Myers

Sustainability: Using mulch in the vegetable garden

Using mulch in your vegetable garden will help to conserve moisture, reduce weeds, discourage disease, and improve soil health. If your goal is organic gardening, mulch will help reduce inputs such as fertilizer and pesticides. And like landscape mulch, it may also improve the garden's appearance. Any kind of mulch can be used in the vegetable garden, but the ideal one is a weed-free hay straw. Apply in a 2-to-3-inch layer over bare soil. Avoid using landscape fabrics or plastics as they are not necessary in most home beds. Mulch can be applied before or after planting. Mulch should be applied once or twice a year and can be tilled in as a soil amendment at the end of any season. Mulch may also help overwinter temperate vegetable plants like lettuce and kale. Snuggle up the mulch around the crowns of vegetable plants when freezing temperatures are expected. Keep in mind some additional tips: look for weed-free mulch, consider an organic source to prevent any carryover of herbicides into the vegetable garden, avoid letting the mulch pile against the stems of plants, and remove established weeds prior to application.



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—Katy Shook