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

Content Editor and Team Leader
Lucy Bradley, Ph.D.
NC State University
Campus Box 7609
Raleigh, NC 27695-7609

Managing Editor
Matt Jones

Regional Editor, Coastal
Matt Stevens

Regional Editor, Piedmont
Leslie Peck

Regional Editor, Mountains
Hannah Bundy

Statewide Editor
Hanna Smith

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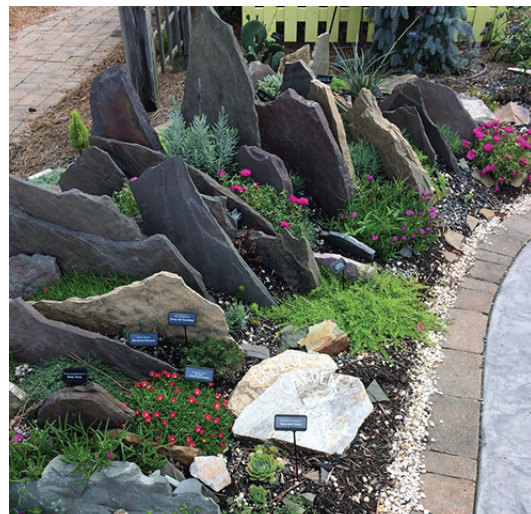
Crevice gardens add interest and save water

A crevice garden is a modified rock garden that mimics the gaps in natural rock formations to create crevices in which plants can grow. The stones in a crevice garden are stacked vertically on edge one behind the other instead of horizontally. The spacing creates crevices, and plants grow between the stones. Often the plants are alpine, desert, or miniature species, as xeric landscaping principles are used to reduce the need for irrigation. The soil is modified to include a mix of topsoil, grit (perlite or gravel), compost, and/or sand to promote water retention when water is limited and drainage when water is plentiful.

Crevice gardens work in many different areas, from small, irregular-shaped spaces—like where the crevice garden at Guilford County Extension Center's Demonstration Garden is placed—to larger areas like the crevice garden at the JC Raulston Arboretum. These gardens also provide an architecturally stunning addition to the landscape, with the different heights and textures of the stones mixed with plants that have different colors and textures. To begin, look at the site where the garden will be installed and outline a rough shape to determine the length and width



A crevice garden can be attractive in a small, irregular space.
©Hanna Smith, CC BY 2.0, Guilford County Extension Center



Crevice gardens often include alpine, desert, and miniature plant species. ©Karen Williams, CC BY 2.0

of the space so the stone size can be determined. Stone selection is an integral part of the design and will be a lasting feature in the garden, so choose wisely. Flat stones work best, and colors can include reds, grays, and even hues that sparkle. Don't forget to look at the edges as well because the peaks will add visual interest to the garden.

To install the garden, dig trenches and set the stones in the surrounding natural soil. Large pieces can be supported by small rocks. Then pack clay around the pieces to provide support. Next add soil to the crevices. A soil mix of one part garden soil, one part mushroom compost, and one part perlite, sand, or PermaTill® is a common mixture that is used to promote drainage. Tuck small plants into the crevices, and place larger plants around the edges or in large openings.

When selecting plants, note that most crevice gardens include plants that like full sun and thrive in well-drained soil and even drought. Also check for hardiness, texture, foliage, and bloom time and color, so that there is something interesting in the garden throughout the year. Succulents and herbs work great as do cold hardy cacti. The overall effect is striking, with architectural interest from the stones, interesting textures, and beautiful blooms in a low-maintenance garden.

Extension Showcase

4-H Mini Gardens

The Extension Master GardenerSM volunteers of Rutherford County teamed up with our 4-H Youth Development to offer the Mini Garden program to 11 students this year.

Extension Master GardenerSM Volunteer Ramona Howell and Isothermal Community College Instructor Angela Snyder taught participants how to plant and weed their gardens and how to scout for pests and diseases.

Students were scored on their garden's progress throughout the summer, and they submitted project books that shared stories about what they learned and the financial impact that their garden harvests had on their families' summer food budgets. Some students even sold produce at stands in their neighborhoods!

The program was intended to encourage children to grow their own gardens, to understand all of the inputs and tasks involved in gardening, as well as to cook at home with their produce.

Nine out of the 11 students who participated tried a new vegetable and helped prepare or cook that vegetable for a meal. The crowd favorites were the 'Black Cherry' tomatoes and the 'Zephyr' squash, which many families had never grown before but would grow again in the future.

—Hannah Bundy

Micros in the winter *(continued)*

To harvest, use clean scissors to cut the microgreens and gently scoop the harvested handfuls into a clean receptacle. Store in the refrigerator in a plastic bag or clamshell until you are ready to enjoy them.

Elina Snyder

Smart Gardening: Winter soil building



Winter cover crops protect and enrich garden soil.
©Hannah Bundy, Rutherford County

Winter is the time when we generally think of rest and recovery for ourselves as well as our gardens. Most home gardeners leave their garden soils bare over the winter and wait for the start of spring for planting. This does nothing to improve the soil quality over time and may lead to erosion. Instead, mulch the garden with a layer of plain cardboard covered by compost or fine-textured mulch to prevent winter weeds from germinating, and add organic matter. Over the winter these materials will be broken down by soil microbes and invertebrates.

Another option is growing a green mulch by planting cover crops during the winter season. These are crops that you do not intend to harvest for consumption.

Over the winter the plants will protect your soil from harsh freezing temperatures and can be killed off and worked into the soil at the end of winter. By spring planting, the plant material will be broken down, adding organic matter and nutrients to the soil. Cover crops are selected based on the multiple benefits that they provide. If you know your garden plan for spring includes anything in the brassica (broccoli) family, then plant something that fixes nitrogen, such as Austrian winter peas. Cover crops can interrupt disease cycles if they are not in the same families as your other vegetable crops. Some gardeners even plant long-season plants (such as garlic) that require chilling hours rather than leaving their gardens bare. There are plenty of options that will benefit you and your soil over the winter rather than leaving it barren. For more information, see the **"Organic Gardening"** chapter of the *North Carolina Extension Gardener Handbook*.

—Hannah Bundy

Food Production: Micros in the winter

Does winter have you craving fresh veggies? Are you looking for a way to use your seed starting area before you start garden transplants? If you answered "yes," then consider growing microgreens indoors this winter.

Microgreens are baby greens harvested when the first true leaves emerge. They can be used as garnishes in soups, sandwiches, or other dishes. Many edible plants make excellent microgreens, including plants whose greens are not often consumed, such as carrots. Lettuces do not make good microgreens because they are too delicate. Common choices are broccoli, dill, basil, beets, and mustards. The flavors are often similar to the mature plant but tend to be more subtle, and the greens are more nutritious.

To grow your own, put soilless media from ½-inch to 1-inch deep into a sterile tray with drainage holes. Broadcast seeds across the entire tray or plant in rows and gently press into the media. Cover with a thin layer of media and keep them watered. Some harder seeds, like beets, will germinate more easily if they are soaked in water before sowing. Different plants used for microgreens vary in time from planting to harvest, but typically the process takes 7 to 21 days. It is easiest to sow only one cultivar in a tray. But if you would like variety, consider planting cultivars that germinate and reach harvest stage in the same amount of time. Pre-blended seed mixes are also available for purchase. Use a heat mat underneath the tray for more even germination. Consider using a grow light if you do not have a south-facing window with good natural light in winter.



Microgreens can satisfy a craving for fresh veggies all year long.
Elina Snyder, Wilkes County

Pest Alert: Spotted lanternfly

Spotted lanternfly, *Lycorma delicatula*, is an invasive planthopper native to Asia. It was first detected in the United States in Pennsylvania in 2014. Although this insect has not yet been found in North Carolina, the NC Department of Agriculture & Consumer Services has started a widespread campaign to educate citizens about this impending invasive pest. It is hoped that early detection and reporting can help reduce the spread of the lanternfly. This insect has a broad host range and poses a major threat to the North Carolina grape and orchard industries.

The lanternfly has one generation per year and is able to overwinter in the egg stage. Egg masses look like blobs of silly putty. Females lay eggs on smooth surfaces, including metal. Spotted lanternflies are excellent hitchhikers because egg masses can be transported on train cars, lawn equipment, and shipping containers. Other indications of a spotted lanternfly infestation are large areas of sooty mold growing on honeydew excreted by this insect. Although the host range is broad, spotted lanternfly does favor another invasive species, tree-of-heaven (*Ailanthus altissima*), which is commonly seen in disturbed sites and along roadsides. Tree-of-heaven is recognized by its large, pinnately compound leaves and prominent clusters of samaras (winged seeds). Visit NC State Extension's spotted lantern fly resource page for more information: gardening.ces.ncsu.edu/spotted-lantern-fly-resource-page/.



An adult spotted lanternfly (top). The egg mass (bottom) looks like silly putty. ©Pennsylvania Dept. of Agriculture, Bugwood.org, CC BY-3.0

—Sara Freeman

Lawns: Winter annual weeds

Do you remember the weeds that were growing in the lawn last spring? Probably not, but henbit, chickweed, and hairy bittercress are just a few of the unwanted, early spring surprises that are waiting for gardeners. These weeds are called *winter annuals*, which means they germinate in the fall and grow throughout the winter until they flower and disperse seeds in the spring. Here in western North Carolina, winter annual weeds are already up and growing. They aren't noticeable yet, but by March they will be large and unsightly weeds in area lawns. After dispersing seeds, these annual weeds die. But their seeds lie on the ground waiting for the fall, when they germinate and start the cycle all over again.

Breaking this cycle is the key to controlling winter annuals. Weeds must be treated before they start to set seeds in the early spring. As soon as you start seeing annual weeds in late fall, spray the lawn with an herbicide that is listed for them. Then spray again in January and February when the temperature is at least 55°F. Look for herbicides containing dicamba, MCPP, and 2,4-D, but check the label for proper application method, timing, and target weed and lawn species.

Timing is critical in lawn weed control. Applying pesticides at the right time can take care of pesky weed problems and leave the lawn weed-free. If you aren't sure of what kind of weed you have, check the **NC Extension Gardener Plant Toolbox**, or your county Extension agent can help you with identification if you get samples to an agent while the weeds are still alive. Driving weeds samples around in the car for several days makes identification difficult! For more information on managing weeds in lawns, see the "Lawns" chapter of the **NC Extension Gardener Handbook**.

—Donna Teasley

Tips & Tasks

Winterize your trees

Take these easy steps to prevent ice storm damage to trees.

A little effort now can prevent significant damage and expense while improving the health and structure of the tree.

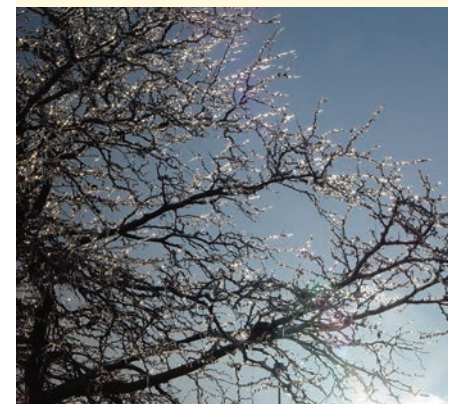
- Protect the trunk of trees from damage.
- Excavate root collars if they are buried in soil or mulch.
- Remove dead and declining twigs and branches.
- Properly prune branches to prevent breakage from ice or snow.
- Spread a 2- to 3-inch layer of composted organic mulch over an area at least as large as the branch spread to protect roots from mower damage and cold.
- If the soil is compacted or poorly drained, aerate, while minimizing damage to tree roots.
- Fertilize as recommended on your soil test report.

Trees make a significant contribution to your home's value.

With a minimal amount of preventive care, you can protect that investment.

—Steve Pettis

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Helping You Grow

Tree identification tools

Many gardeners can distinguish among major groups of trees, but identifying genus and species can be challenging. Botanists use morphological features—including leaf shape and arrangement, leaf hairs, presence or absence of thorns, and especially fruit and flower structures—to distinguish among species. For precise identification, species are sorted by such character traits using a systematic tool called a *dichotomous key*. Dichotomous keys present two sets of characteristics in a couplet. Users select one of the two choices that more accurately describes the specimen. Each choice will lead the user to a new couplet. This process is repeated until the final choice leads to a specific plant species. Due to the huge number of potential species, most keys focus on a set of plants in a geographical area. The *Flora of North America* is 30 volumes—enough for several bookshelves! However, technology has made using keys easier than ever. The **NC State University Herbarium** and its partners have developed several online keys helpful to gardeners. **Trees of North Carolina** is an easy-to-use online key for native trees from across the state. **Winter Twig Keys** will help you identify trees using the buds, leaf scars, and other features visible in winter, with a focus on common trees in the eastern NC piedmont. These tools can enhance your botanical skills and help you become more familiar with common native species on your property.

—Matt Jones

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Plant Watch: Alabama croton

Alabama croton (*Croton alabamensis*) is a southeastern native that is rare in the wild and also difficult to find in plant nurseries. But it's worth the quest. It is a loose, open, semi-deciduous shrub, reaching around 6 feet in height with a spreading, mounding habit. The foliage is bright-green above and silvery below, with the older leaves turning a showy pumpkin-orange in the fall. The foliage is also quite fragrant, described as resembling apples or bananas. The small, yellow-green flowers are similar to those of poinsettia (minus the large colorful bracts), and both plants belong to the spurge family (Euphorbiaceae). Other shared characteristics include milky sap and relative immunity from deer damage. Alabama croton tolerates some degree of neglect and dryness, but semi-shade with moist but well-drained organic soils are optimal conditions. Your biggest challenge in cultivating this plant will be keeping more aggressive shrubs and vines from overgrowing it.



The underside of Alabama croton foliage is silver.
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—Tom Glasgow

Incredible Edibles: Kale—easy to grow and nutritious



Kale has plenty of vitamin C and other nutrients.
©Jess, CC BY-NC 2.0, creative commons.org

Kale is one of the healthiest vegetables you can eat—one serving is both low in calories and packed with vitamins and minerals, including 200 percent of your daily vitamin C requirement. Kale can be grown in the home garden in rows, planted in containers, or even used as an accent plant in the landscape. Once growing well, there are few insect problems after a frost occurs. Flea beetles are the exception. These insects overwinter as adults in plant debris. In early spring, they often become active. If there are extended warm spells in the winter, they may also come to kale and other crucifers to feed. If you like the sweetest leaves, harvest after the first frost. To encourage plants to continue to grow, harvest the larger leaves, allowing the center leaves to continue to produce. For more information on growing, purchasing and cooking kale, visit content.ces.ncsu.edu/kale.

—Shannon Newton

Sustainability: Wildlife friendly landscapes

We can enhance natural features in our yards to create wildlife friendly habitats. Such habitats should include the four major resources that wildlife require to survive: cover (such as clusters of trees and shrubs for wildlife to escape from prey), water from ponds or water gardens, places to raise young (including nesting sites and birdhouses), and year-round food sources. To enhance the variety of habitats and food sources for wildlife, include diverse plant species. Increase forage for pollinators by including at least three or more species blooming in each growing season. Incorporate plants that produce soft mast or hard mast (fruits and seeds) such as *Viburnum nudum* and *Rudbeckia fulgida*. Because species have different habitat preferences, a yard with diverse canopy heights (low-growing ground covers, herbaceous perennials, shrubs or small trees, and large trees) will provide shelter and nesting sites for the greatest variety of birds and other wildlife.

For tips on planning wildlife habitats, see the **NC Extension Gardener Handbook**. The **Extension Gardener Plant Toolbox 'Find a Plant' feature** also includes options that

can sort plant species by the type of wildlife they attract.

—Hanna Smith



Cover and water help wildlife thrive.
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