

WINTER 2020

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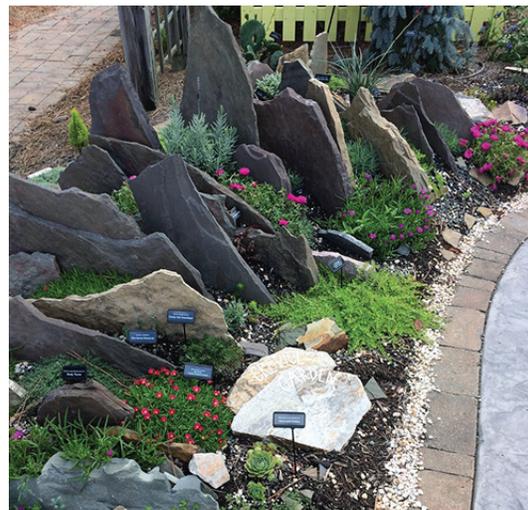
## Crevice gardens add interest and save water

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

### Union County Heritage Festival

Union County Extension Master Gardener<sup>SM</sup> volunteers partnered with 4-H to host the Heritage Festival and 4-H Expo on September 21, 2019.

The Heritage Festival is a free, fun, family-friendly event celebrating the natural, cultural, and historical heritage of Union County.

The festival provides inspiration and education to help citizens attain and sustain a healthy lifestyle, community, and environment.

The Heritage Festival included the Wild Turkey 5K Trail Run & Walk, a vendor fair, live entertainment, kids' art and science activities, and a raffle with some great prizes donated by local businesses.

Extension Master Gardener<sup>SM</sup> volunteers led tours of the teaching gardens, and local experts offered free talks and cooking demonstrations. Willie Earl Wilson, former Horticulture Extension agent, was a special guest.

The 4-H Expo showcased a culmination of 4-H projects—ranging from horse, livestock, visual arts, and kitchen science, to safety and talent—and included Safety Town activities.

The day brought beautiful fall weather with more than 80 people participating in the Wild Turkey 5K Trail Run & Walk and more than 1,600 people visiting the Heritage Festival and 4-H Expo, making the event a great success!

Check your county NC Cooperative Extension center for upcoming events and programs at [www.ces.ncsu.edu/](http://www.ces.ncsu.edu/).

—Debbie Dillion

## Smart Gardening: Sheet mulching

Sheet mulching is a smart gardening technique that provides multiple benefits to the garden and gardener. This technique saves labor while enriching the soil. Sheet mulching, also called *sheet composting* and *lasagna gardening*, involves layering of organic materials, in a similar ratio as for a compost pile, to prepare a new planting area. To establish a new planting area, remove any groundcover first. Use a garden spade or a broad fork to pierce the soil and lightly loosen it. Add a layer of cardboard or newspapers on top of the loosened soil and moisten with water until damp. Next, add a 2-inch layer of a carbon-rich material on top of the cardboard or newspaper layer. For example, straw or dry leaves work well. Then add a 2-inch layer of nitrogen-rich materials, such as grass clippings, kitchen scraps from fruits and vegetables, and other plant material. Alternate layers of carbon-rich and nitrogen-rich material until the mulch reaches 1½ to 3 feet in height. The gardener must employ patience with sheet mulching as biodegradation requires about six months. Sheet mulching is complete when the layers are indistinguishable and the material has a fresh, sweet aroma. Once cured, the sheet mulched area is ready for planting and is weed-free. Fall is a great time to use sheet mulching, especially if you are unable to add cover crops to your garden crop rotation. If you sheet mulch in November, you will be ready to plant in May, just in time for warm soil temperatures. When you smother weeds and add organic materials to your soil with sheet mulching, new plantings have a head start with added nutrients, improved soil tilth, and less competition. Smart gardening will save you time and aching muscles, and it is likely to improve your harvest.



Sheet mulching uses organic materials to create a new planting area. ©Nadine Ford, Collard Greens and Common Ground

—Mary Jac Brennan

## Food Production: Growing fruit trees

Growing fruit is an option for anyone in North Carolina, though the types of fruit you can grow may vary depending on your location. In the NC piedmont, we can produce a variety of fruits, such as apples, figs, pears, persimmons, peaches, and plums, to name a few. Growing fruit trees requires a time commitment, and here are a few steps for success.



Growing fruit is a timeless tradition. ©Gavin Andrew Stewart, CC BY 2.0, [creativecommons.org](http://creativecommons.org)

- Site selection is a crucial and often overlooked component. Consider available space and available sunlight. Is there anything that will interfere with tree planting and growth? This might include buildings, other trees, power lines, and other utilities, such as cable, internet, phone, gas, water, and sewer. Before digging, call North Carolina 811, which will contact the relevant companies to mark infrastructure that could be damaged (or cause you damage) during digging.
- Sunlight is critical for fruit production, and fruit trees require a minimum of 6 hours of direct sun per day. So ensure that neither other trees nor structures are casting shade on the proposed growing area.
- Always reference your soil sample report to identify what, if any, lime needs to be added to the soil. A soil pH of 6.0 to 6.5 is optimum for fruit tree growth. If you have questions about soil sampling, contact your NC Cooperative Extension county agent.

Now the fun part: picking which tree to grow. Pick the one you or your family will enjoy growing and eating. For more information on fruit trees, see the **"Tree Fruits and Nuts" chapter** of the **NC Extension Gardener Handbook** and the **NC State Extension comprehensive resources for fruit trees**.

—Bryan Hartman

## **Pest Alert:** Brown marmorated stink bug

The brown marmorated stink bug (BMSB, *Halyomorpha halys*) is an invasive insect native to eastern Asia that entered the U.S. around the mid-1990s. The BMSB is known to feed on over 100 host plants, including tree fruits, vegetables, and row crops. These insects are not harmful to people; they do not bite, sting, or bore into structures. Once the BMSB emerges in the spring, it goes through three life stages: egg, nymph, and adult. As temperatures decrease in fall and day length shortens, the BMSB enters diapause. During this time, they begin to conserve energy and look for a place to spend the winter.



The adult BMSB is a good candidate for hand removal. @Steve Schoof, NC State University

Stink bugs have a hard exoskeleton making it difficult to control this pest chemically. Plants can tolerate some damage from pests, and using nonchemical methods may be a better option for managing the BMSB. Because BMSBs are attracted to lights, turning off unnecessary lights or lights around the entrance of your home can deter them from entering. Additionally, exclude them from entering the home by checking for cracks around doors and windows, air conditioners, exhaust fans, and other openings. Seal any cracks. If the BMSB has become a pest in your late summer or fall garden, you can exclude them by using a lightweight row cover over your vegetables during their peak feeding times. It is important to note that row covers left on for extended periods of time do need to be removed periodically to allow for pollination to occur. Adult BMSBs are good candidates for hand removal, which includes the removal of its egg masses from the undersides of leaves and placing the insects into a bucket containing an inch of soapy water. When you remove BMSB's from plants, they are likely to emit a foul odor. So protect your hands by wearing gloves.

—Amy E. Ballard

## **Lawns:** Give that cool-season lawn what it needs

Growing a beautiful lawn in the South can be a frustrating task, especially with cool-season grasses (such as tall fescue, kentucky bluegrass, and ryegrass). Summer heat and drought can be a major stressor on cool-season grasses. However, a lush lawn is definitely possible. How do we accomplish this? With careful and sufficient nutrient applications in the active growing season.

Calculated and timely fertilization during the active growing season can improve the lawn the rest of the year. Fertilizing correctly helps the plant produce deep, healthy roots and dense foliage that can use deeper water reserves and cool the plant in extreme heat. As the soil becomes saturated and cooler in the fall, these grasses have their best opportunity to develop a deep and effective root mass. Also, these plants are at their greatest point of growth for the year, so their nutrient uptake is maximized.

For a gradual release of nutrients to the grass as it is growing, make three applications of fertilizer annually. Work with your county Extension agent to get a soil test and develop a plan to improve the fertility of your soil based on the test results. I recommend remembering three dates for fertilizing cool-season grasses: Labor Day, Thanksgiving, and Valentine's Day. First, apply a starter fertilizer at reseeding/sowing. A second application of a nitrogen-rich fertilizer is made near Thanksgiving. Finally, an application of nitrogen-only fertilizer should be made in the month of February.

Be careful not to make the final application too late in the spring, which can cause an increase in disease pressure. Use your soil test results to determine the type and amount of fertilizer to apply. The rate of fertilizing a lawn is based on the nitrogen needs of turfgrass and should not exceed 1 pound of nitrogen per 1,000 square feet. For more information, visit the "**Lawns**" chapter in the **NC Extension Gardener Handbook**.

—Dustin Adcock

## **Tips & Tasks**

### **Garden journaling**

Whether you've been gardening for a year or decades, every season brings new lessons about your site and soil, plants that do (and don't) prosper, adapting to a changing climate, and more.

But will you remember the lessons of 2019 come spring 2020—the spot that's too shady for sun-loving plants, which vegetable varieties were most productive, and when to put row cover over your greens to protect them from cabbageworms?

As this growing season ends, now is the time to update your garden journal. These records will help you make future decisions about crop rotation, variety selection, soil amendments and fertilizers, timing your plantings, and cultural practices to prevent pest and disease problems.

Here are a few things to include:

- A map of beds and plantings is essential for crop rotation planning.
- Include notes on crop varieties, such as yield, eating quality, disease resistance, and—for lettuce and brassicas—heat tolerance (resistance to bolting).
- Record soil test results and fertilizers applied.
- Describe weather conditions, gardening tasks, and pest and disease problems to help plan your work in future years.

You can download a journal template at [go.ncsu.edu/GardenJournal](http://go.ncsu.edu/GardenJournal). For more suggestions on garden journaling, see **Appendix A** of the **NC Extension Gardener Handbook**.

—Megan Gregory

## 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.  
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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](http://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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