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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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Summer-flowering trees and shrubs

Any gardener can produce a colorful landscape of trees and shrubs in the spring. Even the fall isn't much of an effort because as leaves start to turn, the landscape can light up with brilliant yellow, red, and orange foliage. The winter landscape can also showcase seasonal berries, variegated foliage, colorful stems, and peeling barks without a gardener giving it too much thought. But it seems that the summer landscape proves to be the undoing of many gardeners. Other than relying on summer-flowering annuals and perennials, many gardeners don't know how to bring color into the landscape.

A few decades ago, the plant inventory for summer color was definitely lacking, and the most that gardeners could hope for was the occasional crape myrtle or rose of Sharon. There were plants out there, but they weren't necessarily readily available to the average home gardener. But times have changed! An explosion of summer-flowering trees and shrubs has been welcomed by those who are tired of a drab summer landscape.

Today the list of summer-flowering trees and shrubs is endless, and there is something for everyone. Let's look at hydrangeas. Forget about the giant blue-flowering shrub that towered over the landscape with massive blooms in early



Invincibelle™ Spirit II Mountain Hydrangea, a *Hydrangea arborescens* cultivar bred by Dr. Tom Raney at NC State, is a strong rebloomer, flowering midsummer to frost.
©Mountain Crop Improvement Lab, NC State



Magnolia grandiflora 'Little Gem'
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summer. Now there are dozens of new cultivars. Many are compact offerings such as Cityline® Rio and Jet Stream™. Many more are rebloomers that offer flowers on and off all summer, including Invincibelle™, Twist N Shout®, Tuff Stuff™, and Bloomstruck®.

The genus *Viburnum* includes shrubs that have been around forever. While they have beautiful flowers in the spring and early summer, their fall foliage is just as spectacular. There are also dwarf selections now available. The summer-blooming butterfly bush is a great butterfly attractor. But because of its size and re-seeding characteristics, it is not planted by some gardeners. New sterile and dwarf cultivars, such as the Lo & Behold® series bred by Dr. Denny Werner at NC State and the Pugster® series, make the butterfly bush a great summer show-off.

Blue-flowering *Caryopteris* cultivars such as Petit Bleu™ and 'Silver Mist' offer great summer color. Spirea, clethera, dwarf gardenia, abelia, and Knock Out® roses are all good choices for summer bloom. Even the new dwarf magnolia 'Little Gem', which is small enough for a container but blooms again and again throughout the summer, can offer summer interest.

It takes a little research to ferret out these summer-flowering offerings, but just knowing that there are choices for a great summer landscape is enough to get those creative juices flowing.

—Donna Teasley

Extension Showcase

Growing minds

Every spring, the Onslow County Master Gardener Volunteers host "Growing Minds," an event for third-graders.

The event is held in the Onslow County Farmers Market building and our Discovery Gardens.

During each session, 60 third-graders learn about topics related to gardening and natural resources.

A recent session focused on how water treatment plants work as well as the importance of pollinators in our gardens.

We intend to expand our offerings of this free field trip to include dates in the fall so that more students can participate.

The NC Cooperative Extension center in Onslow County offers gardening information, classes, and workshops to the public.

Visit our website at onslow.ces.ncsu.edu and like us on Facebook to learn more.

Contact Emilee Morrison, Horticulture Agent, at (910) 455-5873 or emroz@ncsu.edu with any questions.

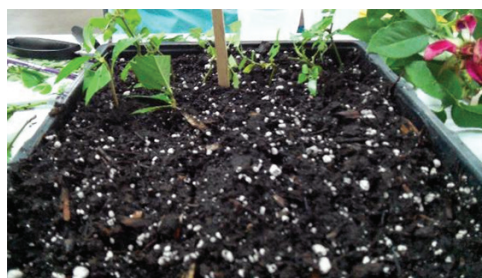
—Emilee Morrison

Third-graders learn about gardening and natural resources at a "Growing Minds" event. ©Onslow County Master Gardener Volunteers



extensiongardener.ncsu.edu

Smart Gardening: Taking cuttings



Cuttings should be placed in a warm area with indirect sunlight. ©Chris Alberti, CC BY-2.0

trays in clear plastic bags to maintain high humidity and reduce water loss. Wet the rooting media before setting the cuttings.

Ensure a clean cut and avoid crushing stems by using a sanitized pair of sharp scissors or pruners. Take your cuttings on the newest growth of the plant (4 to 6 inches from the tip) with several leaves. The cut should be made right above a node (the swollen area where leaves are attached). Remove all except the topmost set of leaves. If desired, dip the end of the cutting into the rooting hormone. Place the cutting into the medium at a slight angle. Place the tray in the bag in a warm area (70 to 75°F) with indirect sunlight. Mist the cuttings as needed to keep them hydrated and the media evenly moist. After three to four weeks, give each cutting a gentle tug, and you should feel a light resistance if rooting was successful. Let them continue to grow until you see new growth forming and then transplant into larger containers with regular potting mix. Once each plant is established, it is ready to be moved to your garden. Learn more about propagation at go.ncsu.edu/eg-handbook-propagation.

—Victoria Neff

Food Production: Missing fruit

With spring in full swing, summer is right around the corner. And summer means sweet, juicy fruit. However, sometimes there is no fruit to be found. What can prevent a tree from bearing fruit? There are several reasons for a lack of fruit, including tree age, nutrition, weather, and pollination. For starters, most fruit trees won't bear fruit until three to five years after planting. Trees need this time to develop the framework needed to support fruit. You may even need to remove fruit during the first couple of years until the tree is ready to support fruiting. A lack of nutrients can lead to decreased fruit bearing, but excessive fertilizer can also result in missing fruit. Before fertilizing, take a soil sample and use the report to determine requirements. Excessive fertilizer will push leaf and stem growth at the expense of fruit.

Other key reasons for a lack of fruit are weather and pollination. As with this past spring, it's not uncommon to have warm spells followed by cold snaps that damage newly opened flowers and reduce yields. Temperatures at or below 28°F can damage flowers. Weather also plays a role in pollination. Just as bad weather makes us want to stay inside, pollinators rarely want to be out in cold, rainy conditions. Bad weather at key times of the blooming period will decrease yield. Another aspect of pollination is knowing whether your fruit tree needs to be cross-pollinated by another variety. Peaches, tart cherries, and many plums are self-fruitful and don't need a partner to bear fruit. Other fruits, such as apples and pears, rely on a second variety to ensure pollination and fruit set. Learn more about growing tree fruit at go.ncsu.edu/eg-handbook-tree-fruit.

—Selena McKoy



Freeze-damaged pear fruit. ©Lucy Bradley, CC0

Pest Alert: Fire blight

Fire blight can be a devastating disease on trees and shrubs within the Rosaceae (Rose) family. Apple, quince, pear, and serviceberry are the most common members of this family susceptible to infection by bacterium *Erwinia amylovora*, the causative agent of fire blight. Fire blight attacks the blossoms, leaves, shoots, branches, fruits, and roots of plants. One of the first noticeable symptoms is during spring when blossoms become wilted and turn black. During the growing season, you will see the growing tips of shoots and twigs begin to wilt and form what looks like a shepherd's crook. Eventually, an entire limb will give the appearance that it's been burned with a blow torch; hence the common name given to this disease.

The bark at the base of infected branches becomes water-soaked, sunken, and eventually dries out. Cracks will also develop along the edges of the canker. Fruit remaining on infected branches will ooze a milky substance and eventually shrivel, mummify, and remain attached to the branch. During hot and humid conditions, branches will begin to ooze this milky substance as well. The ooze contains the disease bacteria. The bacteria overwinter in cankers on infected trees. The bacteria are then transported by rain, wind, and insects to other parts of the plant. The disease enters the tree through natural openings, wounds, and flowers. The bacteria can survive through the winter in sunken cankers on infected branches. To help control the disease, prune out diseased limbs at least 6 to 8 inches below the site of infection. Also, make sure to sterilize your pruners after each cut with a 1:10 Clorox solution (1 part Clorox to 10 parts water). If you know fire blight is present, limit the application of nitrogen fertilizer as this encourages the succulent growth that is most susceptible to infection. There are also chemical copper and bactericides available.

—Colby Griffin



Fire blight makes leaves look as though they've been torched. ©Ward Upham, Kansas State University, Bugwood.org, CC BY-30 US

Lawns: Twolined spittlebugs

It's summer, which means the insects are out in numbers. When mowing the lawn, you may notice small black insects that fly out of the grass and land on the mower. About a third of an inch long, these insects have black wings that are held over the body like an A-frame, two red or reddish-orange strips across the wings, and red eyes. These insects are called "twolined spittlebugs" (*Prosapia bicincta*). The adults may not present a problem, but the immature nymphs will suck the life right out of the turf. The nymphs can be found deep in the turf near the crown of each plant. Their piercing-sucking mouth parts are used to penetrate and suck the juices out of plant tissues. The nymphs use some of those juices to create a mass of frothy liquid to hide and protect themselves from predators and desiccation (drying out). While damage from individuals is minimal, many feeding nymphs can be a problem. When there are lots of adults flying over the turf, it is nearly certain that there are many more nymphs feeding. To check for nymphs, look for the spittle mass down near the crown of the plant deep in the turf.

Chemicals containing one of the active ingredients acephate, bifenthrin, deltamethrin, or carbaryl are effective at controlling the nymphs. According to NC State's TurfFiles website, liquid formulations are more effective at controlling this insect than granular formulations. There are at least two generations of this insect each year, so be vigilant and keep watch to be certain they don't re-infest the lawn. For more information, visit www.turffiles.ncsu.edu/insects/twolined-spittlebug-in-turf/.

—Shawn Banks



Twolined spittlebug. ©Charles T. Bryson, USDA Agricultural Research Service, Bugwood.org, CC BY-30 US

Tips & Tasks

Sun protection

Sunlight is an essential component of photosynthesis and therefore necessary for plant growth.

However, overexposure to the sun can cause premature aging of the skin, wrinkles, cataracts, and skin cancer in humans due to ultraviolet (UV) radiation.

The amount of damage depends on the strength of the light, length of exposure, and whether the skin is protected.

Gardeners spend a lot of time outdoors, so don't forget to protect yourself when you are managing water, weeds, and other tasks in and around the garden.

To protect yourself from UV radiation, remember to implement the "five Ss" of sun safety and never burn.

- Slip on UV protective clothing.
- Slop on SPF 30+ broad spectrum UVA sunscreen.
- Slap on a broad-brimmed hat.
- Slide on quality sunglasses.
- Shade yourself from the sun whenever possible.

It's important to examine your body monthly because skin cancers detected early can almost always be cured.

Look for spots on the skin that have changed in shape, size, or color. If you find that you are experiencing any of these skin changes, see a healthcare professional immediately.

Remember, an ounce of prevention is worth a pound of cure!

—Brad Hardison

Helping You Grow

Gardening portal

The NC State Extension Gardening Portal (gardening.ces.ncsu.edu/) is a great resource for any home gardener looking for information on topics ranging from soils, landscape design, propagation and pruning, to plant selection and integrated pest management. The portal houses links to various publications and resources that any gardener can find valuable.

Tabs on the right-hand side of the page drop down to reveal links to subpages that either go directly to another website or to another webpage where there are several links to resources about the topic.

While it's a great website where information on several topics can be found, it can get a little overwhelming to sort through because of the sheer amount of good information housed on the site. Lucy Bradley, Extension Urban Horticulture Specialist, has created a short video with some quick tips for navigating the gardening portal (gardening.ces.ncsu.edu/2019/03/quick-tips-for-navigating-the-gardening-portal/).

NC State Extension is always looking for the best ways to get research-based information to the citizens of North Carolina, and this portal is just one of the many ways we are trying to make information accessible so that you can be successful in your gardening endeavors.

—Hanna Smith

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Plant Watch: Dwarf crested iris

A surprising native plant has proven to be a raging success in my garden—*Iris cristata*, otherwise known as dwarf crested iris. This lovely herbaceous perennial is a fast-growing groundcover that can handle full sun to part shade. Cheerful violet to blue flowers appear in midspring in the mountains. The plant rarely grows above 6 inches tall, but can spread quickly to provide a thick mass of attractive light-green leaves that persist for three seasons. At home in my small woodland garden bed, *Iris cristata* truly shines as it does in the large colonies found in natural areas in our nearby forests and protected areas. A favorite spring spot is the Baxter Creek area in the Great Smokies National Park, where the trail is flanked on both sides by foot-wide patches of blooming dwarf crested iris. Consider adding this easy-to-grow native to your backyard! —Meghan Baker



Dwarf crested iris (*Iris cristata*).
©Meghan Baker

Incredible Edibles: Tomatillos



©Jay and Melissa Malouin, CC BY-SA-2.0

The tomatillo or husk tomato (*Physalis ixocarpa*) looks very similar to a tomato plant except each fruit is enclosed in a papery wrapping that is removed before eating. Tomatillos are used primarily in fresh Mexican and Guatemalan dishes such as green sauces and salsas. Because tomatillos are a warm-season crop, the best growing conditions are day temperatures of 80 to 90°F and night temperatures of around 60 to 70°F. The plants prefer well-drained soil, and their bushy habit requires as much as 3 feet between plants. They do not like to be supported by a trellis or a cage. For best flavor, harvest when the fruit fills the husk but is still green and firm. Stored in a cool, well-ventilated place in a single layer, they can last for months if the husk is left attached.

—Hanna Smith

Sustainability: Straw bale gardening

If you like to grow vegetables or flowers and have limited space or poor soils, you may want to try straw bale gardening. Begin by selecting bales derived from wheat, oat, or rye straw. Do not use hay or pine straw. Select bales that are free of weeds and fire ants—you don't want to introduce any new pests to your landscape. Select a site that receives full sun and is close to a water source. Leave the strings on and place the bales on their sides with the cut side of the straw facing upwards. Condition the bale by using the following method: **Days 1, 2, and 3:** Water bales thoroughly. **Day 4:** Add 1 cup of dolomitic lime and ½ cup of 46-0-0 or 34-0-0 and water in. **Days 5 and 6:** Add a half cup of 46-0-0 or 34-0-0 and water in. **Days 7, 8, and 9:** Add a fourth cup of 46-0-0 or 34-0-0 and water in. **Day 10:** Add 1 cup of 10-10-10 or 8-8-8 and water in. **Day 11:** Plant bales. To plant the bales, use a pruning saw or serrated knife to create a 6-inch by 6-inch hole in the bale. Place a transplant in the hole and fill the hole with potting soil or compost. One bale will grow two determinate tomatoes, four pepper plants, two squash, two melons, two cucumbers, six to eight lettuce plants, six to eight broccoli plants, or six to eight strawberry plants. Straw bales will need water more frequently than soil. Check the moisture daily and water plants as needed. Fertilize every two weeks with a complete fertilizer by adding 1 tablespoon of complete fertilizer around each plant. At the end of the season, recycle your straw bales by removing the strings and composting.

—Brad Hardison



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