

SUMMER 2017

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NC Extension Gardener Handbook

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

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Outsmart the Weeds in Vegetable Gardens

With warm weather and rapid weed growth, many vegetable gardeners are reaching for hoes and spading forks. Gardeners can save labor by understanding weed life cycles and eliminating conditions that encourage weed growth (such as bare soil with excess nutrients). To outsmart the weeds in your garden, include practices in three categories of weed management:

1. Exclude weed seeds and propagules. Avoid bringing weeds into your garden by using only finished compost that has reached 140°F for a week or more, by using seed-free straw (rather than hay) for mulch, and by cleaning tools and equipment.

2. Use cultural practices to keep the soil covered and favor crops over weeds. Practice crop rotation. Vary when you till and plant because tillage stimulates weed seeds to germinate. To prevent summer annual weeds, establish an early spring crop. To prevent winter annual weeds, establish a long-season summer crop.

Grow vigorous vegetable crops and manage them to outcompete weeds. Use ideal planting dates and transplants to help crops grow quickly and shade the soil. Test your garden soil and apply only the nutrients you need for healthy crops, as excess nutrients will encourage weed growth. Use drip irrigation or water at the base of your crops. Avoid watering between rows.

Include cover crops in rotations. Cover crops are sown between cropping cycles to enrich the soil and suppress weeds (go.ncsu.edu/FCGHealthySoil). Once cover crops are cut down, the shoots can



To prevent summer annual weeds from germinating, establish an early spring crop and avoid tilling in late spring. ©Alison Hancock, bigstockphoto.com, 68483539



Food crops, such as these melons, can be transplanted through the chopped shoots of a mature cover crop (without tilling). The shoots dry and form a mulch that continues to suppress weeds. ©M. Gregory

be used as mulch around crops. Here are some tips on using cover crops to suppress weeds:

- Plant summer cover crops (such as millet and cowpea) in May or June to outcompete summer annuals and prevent germination of winter annuals.
- Plant overwintering cover crops (such as rye and hairy vetch) in the fall to outcompete winter annuals and to prevent germination of summer annuals the following spring.
- Cover crops can also suppress creeping perennials like bermudagrass or nutsedge. Till the soil to fragment the weed, remove as much as possible, and follow with a thick seeding of the cover crop.

3. Use mechanical practices to block weed growth and kill weeds at critical times. Use mulches to deprive weeds of light. In vegetable beds, straw or cover crop residue can control annual broad-leaf weeds. In paths, landscape fabric topped with wood chips can suppress bermudagrass.

Use hand-weeding, hoeing, or shallow tillage sparingly. Attack weeds when they are small enough to be killed by hoeing or shallow tilling. Avoid deep tillage, which brings weed seeds to the surface and damages soil structure.

For more information on weed identification and management, visit go.ncsu.edu/FCGWeedMgmt. With thoughtful planning, you can outsmart the weeds in your vegetable garden.

—Megan Gregory

Extension Showcase

Gardening with children in Haywood County

Each school season, dozens of children from Haywood County have the opportunity to get outside in the garden and learn about plants, insects, and growing and caring for a garden.

There are three elementary school gardens and two community gardens throughout the county that are led by Extension Master Gardener Volunteers (EMGVs).

In the spring and fall, EMGVs join the children in the garden and teach them handy skills to help them understand where food comes from and how much fun it can be to grow their own food.

From planting seeds to pulling weeds, children get the opportunity to care for the garden from start to finish.

At the end of each season, EMGVs help the children pick and clean the vegetables, and the children get to sample the fruits of their labor.

It's a great opportunity to get involved in the community, and both volunteers and children alike enjoy their time in the garden.

For information about gardening opportunities in your county, contact your county Extension center.

—Sarah Scott

©Haywood County Extension Center



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Smart Gardening: Drip irrigation



Drip irrigation targets the root zone.
©Lenny Rogers

On average, vegetable gardens require 1 inch of rain per week for optimum growth. This translates to 623 gallons of water per 1,000 square feet. Vegetables may need more water in warmer years or in sandy soils. While our summers often deliver sufficient precipitation, the rain may not be spread throughout the season. To ensure that your plants get the water they need, consider installing a simple drip irrigation system.

Drip irrigation delivers water through thin plastic lines that have evenly spaced emitters, or holes where water comes out. Water goes directly to plant roots, reducing water losses to evaporation. Drip lines are available with different emitter spacings and flow rates. Critical components include a filter, backflow stopper, pressure reducer, a main line that carries water from the source to the garden bed, and drip lines that are attached to the main line. Fittings and adapters specific to the diameter of drip line are required to connect drip lines and main lines. The pressure reducer is needed for running a drip system from a well or municipal water. Water can also be collected with rain barrels for use in a drip irrigation system. For low-hassle watering, install a timer to regulate how long the system runs and the number of times it turns on in a day or week. Mulching and increasing soil organic matter are good strategies for conserving water. Drip lines can be placed under mulch. Increase soil organic matter by planting cover crops each year and adding compost. Combining drip irrigation, good soil organic matter, and mulch will increase your success in the vegetable garden in the driest of summers.

—Elina Snyder

Food Production: Versatile lettuce

Growing lettuce in North Carolina can be a very profitable endeavor. There are different types of lettuce, including head lettuces such as butterhead and romaine and leaf lettuce mixes as well. Most lettuce will need to be grown in the spring and fall before or after the temperatures get too hot, as lettuce prefers temperatures in the 60s°F. Lettuce can also be sensitive to frost damage if it hasn't been hardened off in freezing temperatures, so row covers in colder conditions are important for keeping frost damage at lower rates. Irrigation in lettuce plots is very important to prevent crop failure or stunted growth because lettuce has a very high water requirement for optimal growth.



Add nutrients to the planting bed well before planting lettuce. ©Donna Teasley

When preparing a bed for lettuce, if the results of a soil test identify any deficiencies, include nitrogen, phosphorous, and potassium ahead of time by raking it into the bed. This is the best way to ensure nutrients will be available to plants. Soil pH should be in the range of 6.0 to 6.7 for best results, and pH can be determined by having a soil test completed before planting. After planting, for more fertilizer amendments, side-dressing can be done as well. Lettuce can either be seeded or transplanted, depending on the variety. Most head lettuces are transplanted after being hardened off, and leaf lettuces are directly seeded. Some of the most common pests include aphids, armyworms, and loopers. Using proactive scouting and determining pest thresholds can help you employ an IPM plan effectively to minimize pest pressure. After harvesting, lettuce must be cooled. Head lettuce can hold for two to three weeks at 32°F with 95 percent humidity. Lettuce can be enjoyed in many ways depending on the type of lettuce that is grown. It is incredibly versatile.

—Hannah Bundy

Pest Alert: Periodical cicada

By now you may hear the raucous chorus of the periodical cicada. As predicted in 2000, Brood VI of the 17-year periodical cicada is in the process of emerging here in western North Carolina.

After spending 17 years underground, the immature cicada emerges from the soil, climbs a nearby tree or plant, and sheds its last skin into adulthood. With bright red eyes, thin wings, and a remarkably loud mating call (by the male), adult cicadas live for about one month and are mainly focused on mating. After mating, the females cut a slit in small tree branches to lay eggs. Upon hatching, nymphs drop into the soil to start the 17-year cycle again.

Cicada damage comes from the many branch tips that will die from the egg-laying process, leaving brown flags on trees. More problematic is the damage to newly planted or specimen trees, such as a fruit tree or Japanese maple.

But, cheer up. The cicadas won't be back for another 17 years. And by then, they might be someone else's problem. To learn more and report sightings, visit magicicada.org.



Periodical cicada (*Magicicada septendecim*).
©Jon Yuschock, Bugwood.org, CC-NC-3.0

—Alison Arnold

Lawns: Fertilizing and mowing practices

Here in western North Carolina, we like our cool-season lawns lush and green, and above all, free of weeds. Many folks think that weed control can be managed only by herbicide use. While I am a believer in the use of herbicides whenever necessary, good lawn management greatly reduces the need for herbicides.

The first thing to remember is that weeds only grow where grass isn't growing. Proper timing of fertilizer applications and correct mowing techniques go a long way toward keeping the lawn thick and healthy. Limiting fertilizer use to those three key times, Valentine's Day, Labor Day, and Thanksgiving, while also applying the proper amounts, will insure that your lawn gets the proper nutrients in a timely manner, allowing for optimum growth. Also remember that cool-season grasses should be planted in the fall.

Another thing that will insure a healthy, weed-free lawn is correct mowing. Fescue lawns need to maintain a height of 3 inches to 3.5 inches. This does several things. Grass at this height shades the soil so that weed seeds cannot germinate while also helping to keep grass roots cool. Short turfgrass causes thinning of grass and can also allow sunburn damage on grass crowns. The depth of a grass root is directly related to the height of the grass itself. The deeper the roots are, the more drought-tolerant the lawn will be. Never cut more than a third of a grass blade off at one mowing. Let grass clippings fall back on the lawn to add nutrients and organic matter back into the soil. If you would like to learn more about how to have a great lawn, visit content.ces.ncsu.edu/carolina-lawns.

—Donna Teasley

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**Tips & Tasks****Lawns**

- Mowing heights are important for all grasses. Tall fescue should be cut to 3 inches high. Zoysia, centipede, and bermudagrass lawns are mowed to 1 inch high.
- Fertilize warm-season grasses such as bermudagrass, centipede, and zoysia.

Ornamentals

- Prune hybrid rhododendron after they finish flowering.
- Trim any hedges that have outgrown their shape.
- Prune narrowleaf evergreens like juniper and arborvitae in late June.
- Landscape plants should receive a second application of fertilizer in July.
- Once flowers of florist hydrangea and weigela fade, the shrubs can be trimmed back.

Edibles

- Continue to routinely monitor for insect and disease problems by checking vegetable plants. Hand-remove problem insects and destroy.
- For continual supplies of beans and sweet corn, plan on planting every two to three weeks up until midsummer.
- Vegetables will need a uniform moisture supply through their growing season. It may be necessary to supplement rainfall amounts with additional irrigation. Mulching can also aid in limiting soil moisture loss.
- Harvest vegetables and herbs in the coolest part of the day—early morning. Process them as soon as possible to preserve freshness.

—George Place

Helping You Grow

NC Extension Gardener Handbook

go.ncsu.edu/eg-handbook

Used as a textbook in the Extension Master Gardener Volunteer course, the *North Carolina Extension Gardener Handbook* is a national-award-winning, authoritative resource on gardens and landscapes in the Southeast.

The wealth of information will benefit new and experienced gardeners alike and covers an array of topics—from soils and composting to managing diseases, pests, and weeds.

Advice on garden design, preparation, and maintenance encompasses all types of plantings, including lawns, ornamentals, fruits, trees, and containers.

High-quality color photographs and graphics, case studies, and frequently asked questions augment the information.

Written by a team of the state's leading agriculture and life sciences researchers and educators, this is an essential book for serious gardeners in North Carolina and the Southeast.

The information contained in this book is available in an open access format at go.ncsu.edu/eg-handbook.

A printed copy will soon be published by NC State Extension (ces.ncsu.edu) and distributed by the University of North Carolina Press (uncpress.org).

—Lucy Bradley

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Plant Watch: Ninebark—a native alternative to barberry



Physocarpus opulifolius
'Little Devil'
©Paige Patterson

Many landscapes include cultivars of barberry for its purple, maroon, and gold foliage colors. Barberry is being spread by birds into natural areas such as national forests, pastures, and unmanaged urban areas. You may not notice the plants at first because the colored foliage characteristic is not passed on when barberry is grown from seed. It must be vegetatively propagated to maintain foliage color. Cultivars of the native ninebark (*Physocarpus opulifolius*) offer great alternatives for USDA Zones 2 through 8. Ninebark is tolerant of wet and dry soil conditions. Plant in full sun for best foliage color and in afternoon shade in Zones 7b through 8.

—Paige Patterson

Cultivar	Height (ft)	Width (ft)	Foliage Color
'Summer Wine'	5 to 6	5 to 6	deep burgundy
'Coppertina'	8 to 10	6 to 8	copper tinted
'Center Glow'	7 to 8	8 to 9	red wine, lime accents
'Diablo'	8 to 10	8 to 10	reddish purple
'Little Devil'	3 to 4	3 to 4	deep burgundy

Incredible Edibles: Okra offers taste *and* beauty

Abelmoschus esculentus, also known as okra, is best known for its wonderful taste. But okra can also be grown for its beauty. Okra pods can be green, purple, or red. The leaves, flowers, and seeds are all edible. Many chefs are creating innovative ways to use okra. The younger or newer okra greens can be cooked for consumption similar to beet or dandelion greens. Seeds can be ground and used as a naturally caffeine-free coffee substitute. The beautiful creamy-yellow flowers should not go to waste. The flower is similar to that of hibiscus. Gardeners can mix okra flowers with okra fruits for gorgeous floral arrangements.

—Cyndi Lauderdale, Skylar Pinno, Madison Barnes



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Sustainability: Managing the forest in your yard

The trees on your lot are less demanding than a bed of roses, but trees will definitely benefit from time and attention. Tending your trees will allow you to continue enjoying their many benefits (including shade and bird habitat) for many years to come. A good starting point is to make a thorough assessment. If you live on a wooded lot, for example, there is a good chance that the

trees would benefit from thinning. As with the seedlings in your garden, this is a process of removing weaker trees so the stronger ones have more room to grow. Be on the lookout for non-native invasive plants, such as English ivy, Chinese privet, paulownia, and ailanthus, and make plans to eliminate them. It's also wise to make at least a cursory inspection of each tree's health. Look for mushrooms on the trunk, dead limbs, rotting wood, and leaning trunks. If you notice any of these conditions, or others that raise a question, consider hiring a certified arborist to conduct an assessment. In fact, for trees close to the house, a routine assessment is wise because hazardous defects in the trunk and root system can be hidden from view. If space allows, consider enhancing your urban forest by adding native understory trees and shrubs that will benefit birds and pollinator insects. Good candidates include redbuds, fringetree, dogwoods, native azaleas, native viburnums, serviceberry, and New Jersey tea. Visit ncsu.edu/goingnative for more details.

—Paul McKenzie



Enhancing your urban forest will improve the habitat for birds, such as this summer tanager.
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