

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



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



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

Extension Showcase

Spectacular garden tour

For more than 10 years, Extension Master Gardener Volunteers (EMGVs) in Davidson County have planned summer garden tours for the public as major yearly fundraisers.

There are varieties of gardens offered—from large to small, manicured to natural, and home-owner designed and maintained to professionally groomed.

Through the years, the annual event has grown from less than 50 attendees to over 650 attendees. The tour is in different locations in the county each year.

The 2017 tour will be in the High Rock Lake area and is scheduled for the first weekend in June—when late-spring and summer annuals will be in full bloom.

The gardens are selected according to criteria such as geographic clusters, size, type, and variety, and through recommendations by EMGVs and the public.

The garden tour is a fundraiser, but public education is its major goal. Docents are at each location. Though attendees are free to walk the gardens on their own, the docents guide and answer questions as appropriate.

Attendees also receive information about each garden and its plants. The garden owners are on-hand to answer questions.

For tour information, consult the Davidson County EMGV page on Facebook, visit davidson.ces.ncsu.edu, or call (336) 210-5365 or (336) 250-3014.

—Davidson County Extension Master Gardener Volunteers

Smart Gardening: Watering gardens

Most vegetables need 1 inch of water a week for maximum production. Carrying water containers is hard and inefficient. Overhead sprinklers are easier but may introduce harmful bacteria on vegetables, causing food safety issues. A better solution is drip irrigation. It allows water to go straight to the roots while keeping foliage dry. This helps reduce diseases in the garden, too.

Supplies needed for an 8-foot by 4-foot raised bed drip irrigation system include a regular water hose, a recycled water hose, drip tape, one elbow-shaped pipe, two T-shaped pipes, eight pipe clamps, a pressure reducer, and a timer. Ideally, the regular water hose would connect to a water spigot. Or a water barrel could be set up on blocks and gravity used to disperse water. The end of the hose attaches to a section of the recycled water hose that has been cut three times to fit the bed's width. The next two sections of recycled hose are attached to a T-shaped pipe, and the last is connected to the elbow-shaped pipe and secured by pipe clamps. The drip tape is secured to the T-shaped pipes and elbow-shaped pipe by a pipe clamp as well. Cut the drip tube the length of the bed and place on the T- and elbow-shaped pipes. Cut a plastic tube and place it under the pipe clamps to protect the drip tape from tears. Cut a half-inch off the end of the drip tube and roll the end of the drip tube forward several times at half-inch intervals. Slide the half-inch extra piece over the end to secure the drip tape. This eliminates the need for another clamp at the end of the drip tape. A timer can be attached and set to dispense water on a schedule. It is better to water during the early morning hours to reduce evaporation. It also helps the foliage to dry more quickly, which decreases fungal issues. A pressure reducer may be needed.

—Joanna Radford



Drip irrigation targets the roots.
©Joanna Radford

Food Production: Heat-loving eggplant



Black plastic can raise the soil temperature for eggplant. ©Kathryn Holmes

Many people enjoy growing the colorful, classic-shaped, purple eggplant. Eggplants, however, are also available in white, green, and orange to dark-purple and in many shapes and sizes. Eggplant is a warm-season vegetable that does not grow well in cool weather. Even the seeds need warm soil and air to germinate approximately eight weeks before transplanting. Harden off transplants, and make sure all danger of a late frost has passed before transplanting to the garden as eggplants are very susceptible to frost. For the two month-growing period, optimum daytime temperatures are between 70° to 85°F and at nighttime a minimum of 70°F. Temperature is critical because fruit set is reduced at 60°F. At temperatures over 95°F, fruit set stops and flowers drop. A south-facing garden spot in full sun is ideal. Black plastic or landscape fabric may be used to increase soil temperature.

Transplant eggplant when 6 to 8 inches high, and plant 2 to 4 feet apart in fertile, well-drained soils. Eggplant will grow in a broad range of soils, but best growth is observed in highly organic soils. Moderate amounts of moisture and fertilizer are required by eggplants, so avoid overwatering and high-nitrogen fertilizers. Tall plants can be suckered and staked like tomatoes. Specialty mini eggplants are well-suited for containers. Some common insect pests include cutworms, aphids, Colorado potato beetles, and flea beetles. Row covers will help protect plants, and scouting is important to prevent major damage. Verticillium wilt, the most serious disease, is managed by crop rotation, so never follow tomatoes, peppers, or strawberries with eggplants. With careful weather timing, two crops can be harvested from one planting of short-season eggplant varieties.

—Kathryn Holmes

Pest Alert: The squash bug problem

“What is killing my squash?” is one of the most frequently asked questions in summer. Many gardeners have trouble with squash bugs, as they are frustrating, hard-to-control pests.

In the past, many gardeners used a broad spectrum insecticide. But because insecticide is costly, not environmentally friendly, and can kill beneficial insects, gardeners are exploring other options. Most farmers and gardeners now use an integrated pest management (IPM) strategy.

This includes removing debris from around the plants, crop rotation, early planting and planting trap crops, using beneficial insects, and targeted chemical applications. Taking steps to prevent infestations and early intervention will help reduce squash bug populations in the summer.

An article in the *Journal of Integrated Pest Management* explains the life cycle of squash bugs and includes some pest management strategies (academic.oup.com/jipm/article/doi/10.1093/jipm/pmv024/2658001/Squash-Bug-Hemiptera-Coreidae-Biology-and). The article is geared toward growers, but the information is useful for gardeners as well. For chemical recommendations, contact your county Extension center. Always read the label of any pesticide before using it.

—Hannah Smith



Squash bug (*Anasa tristis*)
©Helen Doughty, Virginia Polytechnic & State University, Bugwood.org, CC-NC-3.0

Lawns: There’s more to mowing than cutting grass

Mowing technique plays a much larger role in the success of a nice lawn than the average person might imagine. Employing just a few practices while mowing can be the start to having the lush, low-maintenance lawn that we desire.

The majority of the NC piedmont region’s turf is planted in tall fescue. A cutting height of 3.5 to 4 inches is recommended for tall fescue. This height helps to shade the roots, conserve water, and reduce weed competition. All grasses respond best when we remove no more than a third of the leaf canopy at mowing.

The blades of the mower should remain sharp to make clean cuts. Also, the clippings should not be bagged but left on the lawn to return some nutrients back to the soil as they decompose. A mulching blade does a great job of making finer clippings to speed this decomposition process.

The pattern or direction that a lawn is mowed in can affect its health long-term. Switching up the direction helps to evenly spread clippings and nutrients as well as distribute any soil compaction that may occur. Timing your mowing for late in the day can reduce the potential for disease and water loss. Wet grass can get infected with bacteria and fungi when cut, especially in humid weather. Waiting for the grass to dry and timing so the grass has the cooler night temperatures to recover will prevent some of the spread of common turf diseases. For more information, contact your local county Extension center.

—Dustin Adcock

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Tips & Tasks

Prepare for tick season

As ticks become more active in warm weather, the risk of contracting a tick-borne disease increases. Although Lyme disease is the most common tick-borne disease, several other types of tick-borne infections occur, including ehrlichiosis, anaplasmosis, and Rocky Mountain spotted fever. They can cause serious illness and, in some cases, can be fatal.

Maintain heightened vigilance in the coming months. Take preventive steps to protect yourself from ticks and, if you are bitten, to monitor for signs of Lyme disease or other tick-borne infections. Prevention is important to decrease your risk of acquiring tick-borne diseases:

- Recognize tick habitats. Ticks crawl up and are active year round.
- Dress appropriately (shoes, socks, long pants, clothing with built-in tick repellent).
- Use repellents.
- Do tick checks regularly, and remove ticks promptly. For most tick-borne diseases, you have at least 24 hours to find and remove a tick before it transmits an infection)
- Save any ticks you remove. They can be identified if you develop symptoms.
- Know the early signs of tick-borne infections, including rash, fatigue, chills, fever, headache, joint aches, stiff neck, backache, and swollen glands.

For more information and photos, read the publication “Ticks and Tick-Borne Diseases in North Carolina” from NC State University: ces.ncsu.edu/depts/ent/notes/Urban/ticks.htm.

—Debbie Dillon

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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