



Extension Gardener

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Empowering
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Providing
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in this issue

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Gardening Across the Carolinas

North Carolina's 100 counties cover four USDA hardiness zones and span the coastal plain, sandhills, piedmont, foothills, and mountains. Although the exact borders of these areas are often vague, you probably know exactly which label applies to you and your garden. Although all the regions of North Carolina boast long growing seasons with ample time for producing many wonderful crops and plants, there are distinct regional differences in what can be grown and the methods used to grow them.

Soil challenges vary across the state from nutrient-poor, droughty sand in the east to heavy, poorly drained clay in the west. Climate and soil differences across the state impact which plants can be grown, making it important to choose varieties suited to your region, including lawn grasses. Cool-season grasses, including fescue and bluegrass, are grown in the mountains, foothills, and western piedmont. These grasses are best planted in the fall and should be fertilized in the fall and winter. Warm-season grasses like bermudagrass, zoysia, centipede, and St. Augustine are grown in the eastern half of the state. These varieties are planted and fertilized in spring and summer.

In addition to having different planting times, cool- and warm-season grasses are susceptible to different pests. The warm-season lawns of the eastern half of the state often struggle with ground pearl, nematodes, and large patch, while cool-season

lawns in the west may be plagued by white grubs and brown patch.

Many vegetable and fruit crops grow across the state, but crops grown in the east can be started earlier and experience a longer growing season than those in the west. While most tender crops must be harvested by mid-October in the west, gardens in eastern North Carolina can produce for a month or more, with later frost dates allowing more fall gardening time. Vegetable harvests in the eastern half of the state often experience a lull in the extreme heat of July and August, while crops in the slightly cooler western regions keep producing all summer.

Plant varieties must be adjusted for the part of the state in which they are being grown. For example, although blueberries can be grown all over North Carolina, mountain gardeners need hardy highbush varieties, while coastal plain gardeners will have better success with rabbiteye types. It definitely pays to research the best varieties for your region.

Christmas trees are another crop with distinct regional differences. Able to grow in the high elevations of western North Carolina, Fraser Fir is king, while pines are the Christmas tree crop of the east.

No matter where your home garden is located, issues exist. Consult your local Extension office to learn more about local gardening challenges and which plants will thrive in your regions.

— Donna Teasley



USDA Agricultural Research Service



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Extension Showcase

Extension Saves Homeowner \$1,645

Cooperative Extension offices answer thousands of horticulture-related phone calls on a wide variety of topics each year. An elderly widow in one North Carolina county received a bid of \$2,020 for tree work. After a phone call to a Cooperative Extension agent, she realized she did not need two of the services included in the bid. She followed Extension's advice to get more bids and found a local company to do the rest of the job for \$375. Her consultation with the Cooperative Extension agent resulted in a total savings of \$1,645. She said her Extension office was well worth her tax dollars if it could save everyone money.

Smart Gardening — *Choosing disease-resistant plants*

A great strategy for managing disease is to choose plants that are resistant to common pathogens. In some cases, this means choosing varieties that have been bred for resistance. In other cases, you may have to plant an entirely different species.

Plant breeders have developed many disease-resistant varieties for vegetable gardens. You may have noticed letter codes on the tomato seed you buy, such as VFNT. Each letter signifies bred-in resistance to a specific disease. In this example, F is for Fusarium wilt and N is for root knot nematodes. Other vegetable crops that may have built-in disease resistance include beans and peas, sweet corn, cucumber, melons, peppers, and squash. Even if you buy your seed from the local garden center, you may want to order a seed catalog from one of the specialty suppliers. Those catalogs often contain useful reference information on disease resistance, as well as variety characteristics, seeding rates, cultural information, and more.

Keep in mind that disease resistance is not the same as immunity. It's just one method to improve your odds. You still need to use all those smart gardening practices such as good

fertility, crop rotation, sanitation, and water management.

A challenging situation arises when a shrub dies due to a soil-borne disease. One of several root-rot fungi or nematodes (tiny worms that feed on roots) can affect Japanese hollies, boxwoods, azaleas, camellias, and other shrubs. In these cases, the best option is usually to replant some other species. For example, yaupon and burford hollies have some resistance or tolerance to black root rot and root knot nematodes, whereas Japanese hollies, such as Compacta and Helli, are more susceptible.

The downside is that replacing one or a few plants in a hedgerow or a foundation planting can ruin the uniform appearance. In that case, you may want to consider replacing all of the plants. Before you do, be sure the problem has been accurately identified. Your county Extension center can advise you on sampling options and fees to correctly diagnose the problem.

With some basic knowledge of common plant diseases, gardeners can make better decisions about what to plant. The payoff is longer-lasting, more productive plants.

— Paul McKenzie

Food Production — *Successful container gardening*

Do you lack yard space or garden implements? Don't let that stop you from having a productive herb or vegetable garden. Container gardening requires resources you probably already have, such as leftover pots, potting soil, a porch, and a windowsill. It's a fun hobby for youth or adults, and what better reward is there than homegrown culinary herbs and vegetables?

Although most vegetables do best in full sun, some can tolerate shade for three to five hours per day. Container garden candidates for shady sites in spring include spinach, lettuce, kale, mustard greens, and carrots. Don't forget snap peas and lima beans in those sunny locations. For spring herbs, try seeding cilantro or transplanting basil, mint, oregano, or marjoram. The latter three prefer full sun, while cilantro and basil will tolerate partially shaded conditions.



To start a container garden, select pots that are 8 to 10 inches deep. Clean each container with a 5 percent bleach solution (12 tablespoons of bleach per gallon of water) before filling with a quality potting soil. Due to their larger size, peas and beans will need 2-gallon containers, while lettuce, carrots, and herbs will do well in 2-quart containers. Space peas, beans, and carrot seeds 2 to 3 inches apart. Herbs and lettuce will do well 4 to 5 inches apart. Once seeds emerge, apply a slow-release fertilizer, or water each week with liquid fertilizer.

Containers that are porous, dark, or small will lose moisture more quickly than others. Check moisture every few days by gently scraping the top 2 to 3 inches of soil. If the soil is moist, there is no need to water. Like landscape plants, container plants will benefit from mulch to retain soil moisture. Apply mulch to the surface of the potting soil, but avoid piling it around the base of stems.

— Aimee Rankin

Pest Alert — Bagworms

Bagworms are one of North Carolina's most pesky insects. Bagworms damage a variety of ornamentals but are most often found on Leyland cypress, arborvitae, and other conifers. Getting rid of them requires understanding their life cycle. Timing is everything. Many gardeners treat bagworms at the wrong time, resulting in frustration, loss of money, and waste of insecticides.

Bagworms are identified by their cone-shaped bag made of silk and host-plant debris. Some people mistakenly think these are host-plant cones. Unfortunately, by the time most folks notice the bags in mid to late summer, the worms have barricaded themselves inside, and the time to apply an insecticide has passed.

During winter and spring, bags left behind by last year's bagworms will be full of eggs. If



Lacy L. Hyche, Auburn University, Bugwood.org

you see only a few bags, which can contain 500 to 1,000 eggs, remove them by hand and destroy them. Be careful if they are located in the upper branches. If hand removal is not practical and you intend to use an insecticide, start monitoring affected plants and their close neighbors in May. Look for tiny worms, one-eighth inch or longer, hanging by a thread of silk.

While worms are small and exposed, less toxic insecticides containing *Bacillus thuringiensis* (*Bt*), spinosad, or azadirachtin can be effectively used to control bagworms. If you use products containing bifenthrin, be careful. Even though it kills bagworms, bifenthrin will also kill beneficial insects. For more information on bagworms, contact your Cooperative Extension agent or visit the following website: www.ces.ncsu.edu/depts/ent/notes/O&T/trees/ort081e/ort081e.htm.

— Danelle McKnight

Environmental Stewardship — Integrated pest management

Integrated Pest Management (IPM) offers an effective and environmentally sensitive approach to pest control that uses a combination of practices. Identifying pests and managing their levels, instead of trying to eliminate them, saves money, presents the lowest risk to people and property, protects the environment, and maintains beneficial insect populations, including bees and natural predators.

The goal of an IPM program is to manage crops, lawns, indoor spaces, or gardens to prevent pests from becoming a threat. In a garden, this can mean creating habitat for beneficial insects, rotating between different crops, and selecting pest-resistant varieties. In a lawn, IPM includes planting the right grass for your area and taking care of it properly. Management tactics include mechanical or physical controls, cultural controls, biological controls, and chemical controls.

To begin an IPM program, first monitor and identify pests accurately. Questions you should ask include: Is the pest present or absent?

How prevalent is it? Is the pest population increasing, decreasing, or remaining constant? Are beneficial insects present? What is the pest's life cycle and biology? Can the pest be prevented?

Determine your tolerance for pest damage before reaching for control methods. Your action threshold is the point at which pest populations or environmental conditions indicate pest control must be taken. For farmers, for example, that point is reached when the cost of damage by the pest is more than the cost of control.

When preventative methods are no longer effective or available and monitoring, identification, and action thresholds indicate that pest control is required, IPM programs choose less risky pest controls first. These include highly targeted chemicals, such as pheromones to disrupt pest mating, or mechanical control, such as trapping or weeding. If these don't work, additional pest control methods will be necessary, including targeted spraying of pesticides.

— Brenda Larson

Tips & Tasks

Spring Chores

The weather is warming, the sun is shining, and spring is right around the corner. As gardens take these signals from nature to come to life, it's also a sign to the gardener that work needs to be done.

- All heavy pruning should be done prior to bud break in the spring. Light shaping may be done any time of the year.
- If you are planning on planting new ornamentals or vegetables, take time to conduct a soil test and amend the soil properly prior to planting. Though often overlooked, this is the most important step you can take. Gardens planted in properly prepared soil will provide years of joy, while gardens planted haphazardly can cause years of worry and work.
- If diseases and insects have been a problem in the past, apply a horticultural oil spray to your ornamentals prior to bud break to eliminate pests that may pose a problem in the new growing season.

These are all essential steps to get your garden off to a great start. Remember, start right and finish strong!

— Scott Welborn

Did You Know?

The North Carolina Department of Agriculture & Consumer Services performs free soil tests for all state residents. Sample kits are available at your county Cooperative Extension office. For more information, visit: www.ncagr.gov/agronomi



JC Raulston Arboretum

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You can now receive timely information from *Extension Gardener* throughout the year by following us on our blog or on Twitter and being our friend on Facebook. We have statewide sites where you can find information relevant to all North Carolina gardeners. We've also developed regional sites with information specific to the region of the state where you live. Visit our blog at <http://ncextensiongardener.blogspot.com>, where you'll find links to the regional blogs. Follow us on Twitter at @NCExt-Gardener, and be our friend on Facebook at NC Extension Gardener. From the statewide Twitter and Facebook sites, you can find links to the regional pages. Join us on the Web!

— Kelly Groves

Showstopper — Carolina jessamine

Born in the South, Carolina jessamine is a terrific native vine for Carolina landscapes. Admired for its sweetly scented, canary-yellow flowers, this vine really puts on a show from February to April. The golden, trumpet-shaped, 1½-inch-long blooms are borne in small but prolific clusters throughout its narrow, glossy, evergreen foliage. Carolina jessamine can be trained to climb up arbors or trellises and is often found in wooded areas growing on tree trunks. This moderately vigorous vine generally takes three to four growing seasons to cover an average-sized arbor, and it can climb to 20 feet. Occasionally, older jessamine vines become top heavy or sparse near the bottom. This can be remedied by pruning the vines back hard soon after they finish flowering. Carolina jessamine is the state flower of South Carolina and is winter hardy from zones 7 to 9.

— John Vining

Edibles — Potatoes

Potatoes are one of the most consumed vegetables in the U.S. They taste great, but they can be boring to look at. If you are tired of the same old white brown-skinned or light yellow-fleshed potatoes, then consider adding more color to your potato palette by growing different kinds. Potato varieties with skin and flesh colors in shades of blue, gold, pink, purple, red, and yellow are available. Plant potatoes between February 1 and April 15 in North Carolina. For each one-inch seed piece, prepare a loose planting hill. Make sure each seed contains at least one eye. Plant five inches deep and ten inches apart when soil is at least 400F, water well, and watch for Colorado potato beetles, which can be handpicked and destroyed. Potatoes will be ready to dig and enjoy in 100 to 120 days from planting.

— Danny Lauderdale

Sustainability — Herbicide injury to vegetables

Some gardeners have recently experienced damage to their vegetable plants from residual herbicides in manure, straw, or hay. The herbicides of concern contain picloram, aminopyralid, or clopyralid as an active ingredient. These herbicides are used on pastures, hay, some other crops, and lawns to kill broadleaf weeds. They're useful for their intended purpose but are unusually persistent in hay and manure.

These herbicides can enter gardens when a gardener amends the soil with fresh or composted manure from an animal that has eaten grass or hay treated with one of these herbicides. Alternatively, someone

may use treated hay or straw as mulch or may try to grow vegetables on land where one of the herbicides has been applied. Treated grass clippings from non-residential properties could cause problems as well. Symptoms of injury to vegetables and other broadleaf plants include curling of plant leaves and stems—and death in highly sensitive crops such as beans and tomatoes.

If you're using fresh or composted manure as a soil amendment, ask what was applied to the hay or pasture grass that the animals have eaten. Likewise, if you're a gardener using hay or straw as mulch, ask the supplier what herbicides were used on

the crop. Do not use hay or manure from animals that have eaten hay that was treated with herbicides containing picloram, aminopyralid, and clopyralid. Trade names for these products include Confront, Curtail, ForeFront, Grazon, GrazonNext, Lontrel, Milestone, Millennium Ultra 2, Redeem, Surmount, and Stinger.

More information can be found in the publication "Herbicide Carryover in Hay, Manure, Compost, and Grass Clippings" available online at http://www.ces.ncsu.edu/fletcher/programs/ncorganic/special-pubs/herbicide_carryover.pdf.

— Mary Helen Ferguson



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