NC STATE

Extension Gardener

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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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Creating Wildlife Habitat

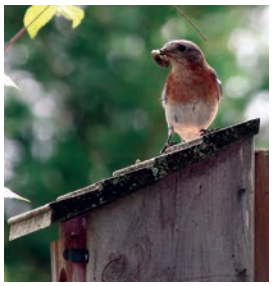
If you love plants, birds, and other wildlife, you probably have already created a wildlife habitat in your yard whether you realize it or not. For wildlife to be happy in your yard, they need food, water, cover, and a place to raise their young. Give them these four things, and they will come.

How can you provide these things? Let's start with food. Many insects need nectar from flowers as a food source. Providing an array of plants that flower throughout the year makes the backyard a haven for the gardener, as well as for many insects that are needed for pollination. If the right flowers are used, hummingbirds will visit. Flowers produce fruits, berries, and seeds that provide food for animals and birds.

Water is next on the list. Most of us don't have a big enough yard to create a large water feature—complete with a waterfall or fountain, but most of us can provide water in the form of a birdbath or a saucer on the ground. With birdbaths and saucers, remember to dump them and add fresh water every two to three days. Keep the water fresh, and the birds will visit more often.

Goldfinch (top) and butterflies
©Sharon Denning

Creating cover can be as simple as building a brush pile so wildlife will have a place to hide. Insects such as solitary bees and most butterflies and moths need a place to take shelter from the wind. Thick evergreen shrubs can provide the shelter they seek. Other animals may take shelter under these shrubs as well, while birds will prefer to shelter in trees. Trees of different sizes are needed for different kinds of birds.



Every creature needs a place to rear their young. Some birds build nests in the branches of trees, while others prefer the shelter of a birdhouse. Insects also need a place to raise their young. With insects, mom and dad might not stick around, but the young still need something to eat. For butterflies, these food plants are called host plants. Some species have a very short list of plants they can use as host plants, while others may have a long list of plants to choose from.

In most cases, if you have been living in a house for more than a couple of years, the yard is probably teeming with life, from birds to bees and the squirrels in the trees to the opossums, snakes, and other insects. For more information on building a backyard wildlife habitat, visit **ncsu.edu/goingnative**.

—Shawn Banks

Bluebird (top) and female cardinal
©Sharon Denning

NC STATE

Piedmont Extension Gardener

Extension Showcase

Extension Master Gardener Volunteer Program

As the growing season begins to wind down, many gardeners reflect on their garden projects and realize that their outcomes could have been better. Sure, there are always issues out of our control. But there are also lots of things that we could have done to produce better results.

How does one learn to be a better gardener? There are many paths to take: the Internet, books, television shows, and other ways of learning.

What about the Extension Master Gardener Volunteer (EMGV) program? There is probably an EMGV group in your county, and anyone in the group would be happy to explain the process to you.

Extension Master Gardener Volunteers are trained gardeners who receive in-depth horticultural training in return for volunteering with the Extension center in their county. Classes start at different times in each county.

A phone call to your county Extension center will give you all the information you need to start your journey towards becoming an Extension Master Gardener Volunteer.

Keep in mind that you would be meeting a dynamic group of folks who have the same interests as you. The volunteer opportunities are varied and plentiful, and you'll find yourself eager to show off your newfound knowledge. For more information see **ncemgv.org**.

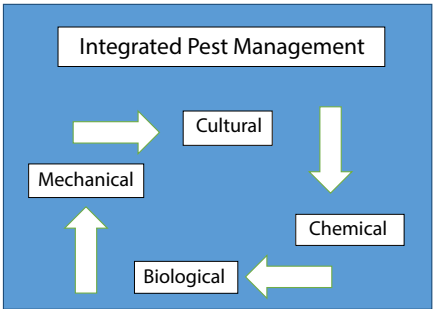
—Donna Teasley

Smart Gardening: Integrated pest management (IPM)

According to the Environmental Protection Agency, integrated pest management (IPM) is a sustainable method of controlling pests in the food supply chain, and it's a method that protects the food we eat. An important tenet of IPM is finding ways to limit pest damage using the most economical means with the least hazard to the environment, humans, and animals.

Think this sounds like organic production? The approach is very similar with one big difference. In organic production of fruits, vegetables, and grains, only pesticides derived from natural sources can be used. IPM, however, allows use of synthetic chemical pesticides.

A typical integrated pest management plan has several steps and is a combination of common-sense practices. Determining the threshold of damage to your plants that you can tolerate is the first step. Which is more important to you: the appearance of your produce or limiting pesticide exposure for the foods you eat or sell to others?



Next, monitor and identify any pests so that the correct plan for control can be devised. Learn each pest's life cycle and how that cycle interacts with the environment. Not all insects or weeds need to be controlled. Keep in mind that when using insecticides, beneficial insects are often destroyed while controlling the pests. Cultural methods of pest control are the safest. Selecting pest-resistant varieties is the best start. Be certain that the seeds or transplants you purchase are pest-free. Also remember to rotate crops to avoid buildup of pests or pathogens in an area.

When practicing crop rotation, choose plants from a different family for that spot the next year. For example, research the plant families to be certain that tomatoes can follow corn—but not eggplant or peppers. Last, if necessary, choose the most effective, least hazardous control possible. Begin with trapping or handpicking pests, with chemicals as a last resort.

—Pam Jones

Food Production: Planning a fall vegetable garden

Many people only think of vegetable gardening in the spring and summer, but fall can be just as productive. Here are a few tips you can use to make sure you have the best fall garden and a great garden in the future. Before planting, it is always best to take a soil sample. Soil sample boxes can be picked up at your local Extension center, and analysis is free if samples are mailed before December 1. The NC Department of Agriculture & Consumer Services charges $4 per sample for the analysis December 1 through March.

Remove all of the previous crop's plant debris, and dispose of it properly. If you find diseased plant material in the garden, do not put it in the compost bin. Dispose of it off-site to prevent spreading the disease. If you don't want a fall garden, plant a hardy cover crop—such as oats, red clover, cereal rye, or daikon radish—to improve the soil. Allow cover crops to grow through the winter, then till them under as they begin to flower in spring.

©Charlotte Glen

Lettuce, turnips, broccoli, Brussel sprouts, cabbage, and collards are great crops for a fall garden. As none of these crops require pollination, floating row covers can be used as protective barriers to exclude insects. Closely monitor temperatures beneath row covers, as many cool-season crops can be damaged by excessive heat. Season extension can also be accomplished by using low tunnels to trap heat that would otherwise radiate from the soil. This will increase temperatures and extend the harvest season of your fall veggies.

—Danelle Cutting

Piedmont Extension Gardener

NC STATE

Pest Alert: Wasp safety

Paper wasp and nest *©Joseph Berger, Bugwood.org*

Wasps are social insects that are attracted to sweet drinks and meat and are at their peak in late summer, just as families are enjoying comfortable evening weather outdoors: grilling, camping, doing yardwork, and gardening in preparation for fall. Hornets and yellow jackets will lay about 1,500 eggs throughout the season, while paper wasp queens will lay several hundred.

Yellow jackets, paper wasps, and European hornets occasionally interfere with outdoor activities when they nest in lawns, trees, and under the eaves of houses. Wasp nests have also been encountered under grills, at the base of shrubs, and in other sheltered spaces (such as under equipment or garden supplies).

While paper wasps tend to be less aggressive than yellow jackets and hornets, any wasp is capable of targeting a passerby and stinging multiple times—causing localized allergic reactions for most but potentially life threatening reactions to sensitive individuals.

Colonies survive well into fall but die out by winter. If control measures are needed before winter for health and safety reasons, treatment should be done at night when all workers have returned to the nest and are calm and resting. Typically wasp and hornet sprays that shoot 10 to 12 feet into an aboveground or below-ground nest are most successful, killing the colony within 24 hours. Be sure to remove what remains of the nest, including the brood cells so that emerging pupae do not recolonize the nest.

Despite the potential hazards, wasps are actually beneficial insects. They prey on many types of pests, particularly caterpillars, so they can be tremendous assets to gardeners.

— Aimee Marshall

Lawns: Preparing your lawn for winter

After a long and hot summer, fall is finally here. With prolonged periods of scorching heat and no steady rains, our lawns are looking forward to a long and regenerative winter. But before you put your grass to sleep for its winter hibernation, be sure and provide all of the resources that it needs to maximize its stores and be ready for the coming spring.

In horticulture, we often refer to the soil as a "black box." A black box is something that we cannot see into, but we know it has hidden contents that affect the surrounding area. The soil hides millions of soil organisms, nutrients, and ancient bedrocks that have been weathered over millions of years to form the medium that your lawn's roots call home.

One way we can peer into this secret world is through soil testing. Soil testing offers an inexpensive way to begin to understand what is really in your soil's black box and how you can amend it to encourage the healthy development of plants. Providing vital nutrients to your plants at the proper levels can make the difference between a beautiful lawn and a beautiful collection of low-growing weeds. Contact your county Extension center to learn more about soil testing.

A healthy lawn is a wonderful thing to come home to, and fall is the perfect time to reseed cool-season grasses. Fescue is the most recommended turf variety for the NC piedmont. By over-seeding between September and October, you will be able to sprout and revitalize your lawn before the hard frosts roll in.

—Ben Grandon

Tips & Tasks

Fall is a gardener's time for planning, planting, and preparing for spring. Planting now gives roots extra time to establish before next summer's heat begins.

- Reseed, over-seed, and start new cool-season lawns. Fertilize existing cool-season lawns in September, November, and again in February.
- Dig, divide, and replant peonies, daylilies, hostas, and other hardy perennials.
- Think spring in the vegetable garden. Till in compost and lime if called for by your soil test report to get these additives working over the winter. Plant a cover crop, such as crimson clover, to improve soil when tilled in next spring.
- Plant spring-flowering bulbs. Voles won't bother daffodils. Try planting tulips in strawberry baskets or surround the bulbs with hardware cloth.
- Set out pansies, snapdragons, violas, and other hardy annuals for flowering in winter and early spring.
- After leaf fall, remove and replace old mulch in rose beds with a fresh layer to reduce disease and insect problems next year.
- Plant or transplant trees and shrubs now. Dig a hole no deeper than the plant's root ball and two to three times as wide. Backfill, tamp gently, mulch lightly, and wait until spring to fertilize.
- Grow lettuce and spinach in a cold frame or beneath a row cover to harvest all winter.

— Christine Stecker

NC STATE

Extension Gardener

Helping You Grow

Photography

Photography is a vital tool for gardeners. Having a good picture of an unknown plant, weed, or insect to share with your Extension agent, or to compare to a good identification book, can help you obtain accurate answers quickly.

Photography can also bring a lot of pleasure. One of the important basic skills is understanding how to do macrophotography, which is simply getting an up-close picture (great for insects, weeds and flowers).

You might think that having a powerful zoom lens would be the ticket, but in many cases you would do much better by using your feet.

Use those feet to move closer to your subject! Most modern cameras and even smartphone cameras allow you to hold the lens only 1 or 2 inches from the subject (with some, you need to click on a tulip shaped icon to put it in macro mode).

Also be certain you aren't shading the subject with your hand or the camera. Unless doing so would scare off your subject, get a better picture by moving closer!

—Paul McKenzie

Bee on monarda ©Shawn Banks

New from NC State: *'Welch's Pink" American beautyberry*

Pink colors in the fall landscape are rare. Pink fruit was almost unheard of until now with the JC Raulston introduction of *Callicarpa americana* 'Welch's Pink'. Think cotton candy or gobs of bubblegum along green stems. You may be familiar with the native *Callicarpa americana* with purple or sometimes white berries. 'Welch's Pink' grows smaller, approximately 6 feet tall in Zones 5 – 9. It has small pink flowers throughout the summer that attract bees and butterflies, followed by pastel pink fruits from September until the birds eat them. Pink American beautyberry will grow in shade to sun and tolerates both dry and wet soils. Fruiting is best in a bright location, but afternoon shade reduces berry fading. 'Welch's Pink' is easy to grow in most landscapes, making it a welcome addition to wildlife gardens, native gardens, and anywhere late-season color is desired.

— Cyndi Lauderdale

©Bob Hauver, JC Raulston Arboretum

Incredible Edibles: Green bunch onions

Whether you're short on space, time, or patience, green bunch onions, also known as scallions, make an ideal fast growing alternative to their full-sized onion counterparts. To grow green onions at home, select a full sun site with fertile, well-drained soil, preferably high in organic matter.

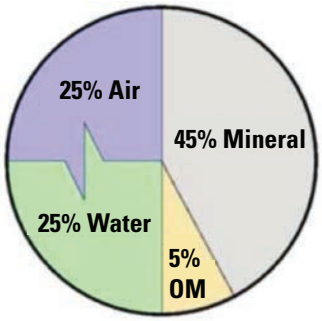
Green onions can be grown from seed planted directly in the garden. For a fall crop, seeds can be planted in August and September and should be spaced 1 to 2 inches apart. Onions are heavy feeders and prefer soil pH to range from 6.0 to 6.5. Have the soil tested before planting to determine nutrient and lime needs. Pests are seldom a problem, but it is important to keep the area well weeded. Harvest when the tops reach 6 to 8 inches tall.

—Katy Shook

Sustainability: Improving soil with organic matter

Before talking about how to improve soil, we first have to define what soil is. The Soil Science Society of America's definition of soil is "A mixture of minerals, organic matter, water, and air, which forms on the land surface. Can support the growth of plants." An ideal soil is roughly half solids and half pore space. Pores contain a mix of water and air, the proportion of which changes with rain events and dry periods.

Solid particles include sand, silt, clay, and organic matter. The best way to improve soil is to add organic matter such as compost. Two terms associated with soil improvement are tilth and humus. *Tilth* refers to the soil's suitability to support root growth. Soil with good tilth is friable (easily crumbled), allowing deep root penetration. Compacted soil results in poor root growth.



©onpasture.com

Humus is the dark, rich, crumbly organic material produced when twigs, leaves, and other animal and vegetable matter decompose. Humus is very beneficial to soils. It contains compounds that act as soil glue, improving tilth and creating aggregates. And it binds plant nutrients, so they remain available to plants and don't leach away. Finally, humus has a high water-holding capacity, helping protect plants from drought.

To amend soil, add a 2-inch layer of compost (humus). Work this into the soil to a depth of about 8 inches.

—Diana Rashash