How Plants Fight Back

By Heather N. Kolich
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Gardening is a healthy hobby. It gets us outside where, in addition to getting physical exercise, we can soak up the mental and physiological benefits of nature. Food gardeners also reap the nutritional benefits of just-picked produce and the satisfaction of self-sufficiency.

We need to remember, however, that all-natural isn’t necessarily harmless. My daughter once volunteered to pick wild blackberries so we could make jam. Along with the berries, she collected the pain of thorn pokes, ant bites, and sunburn.

Even for those of us who’d rather do taxes than eat a salad, plants are the basis of our food chain. Most of us have experienced the truism that if we plant it, something will show up that wants to eat it. Because plants can’t run away from hungry herbivores, they employ a variety of strategies to deter total digestion.

Mechanical defenses
Painful experiences are powerful deterrents for some animals. That’s why plants grow a variety of sharp accessories. In the natural form, some trees, shrubs, and herbaceous plants sport thorns, prickles, or spines. These modification of branches (thorns), epidermis (prickles), and leaves (spines) are efforts to stop or at least slow down animals that want to eat the plant.

Through selective breeding, horticulturalists have developed thornless key lime trees, nearly spineless hollies, and roses and blackberries without prickles. While this improvement makes harvesting and pruning easier on us, breeding for a desirable trait can breed out other desirable traits, such as fragrance or productivity. And when a modified plant escapes cultivation, its progeny can revert to the thorny form, as Bradford pear trees have done.

Trichomes are tiny hairs on plants that can create a barrier to leaf-eating insects. Some
trichomes are tipped with glands that combine the hairy mechanical defense with a chemical. The chemicals may produce fragrance or odor, actively prevent insect attack, or, in the case of stinging nettles (Urtica dioica), deliver a painful warning.

**Chemical defenses**

Odors, bitter taste, and toxins are other defenses plants use. Some plants, such as poison ivy (Toxicodendron radicans), carry a warning in their names, but not every toxin is harmful to every species. Urushiol, the toxin in poison ivy, poison oak (Toxicodendron toxicarium), and poison sumac (Toxicodendron vernix), causes skin irritation, itching, and blisters at the contact points in sensitive humans. It rarely affects animals, however, and the berries, leaves, and stems of poison ivy are a sought-after food source for many birds and woodland mammals.

All parts of milkweed plants (Asclepias sp.) contain resinoid, alkaloid, and/or glycoside toxins. If ingested, these compounds cause a succession of symptoms potentially terminating in coma and death. The larvae of Monarch butterflies, however, feed exclusively on common milkweed. Rather than succumbing to the toxins, the larvae isolate them inside certain tissues, effectively making themselves poisonous to predators.

Nandina shrubs, a popular landscape plant, are among some 2,000 plant species that harbor cyanide in their tissues. Heavy feeding on nandina berries caused a mass kill of cedar waxwing birds in South Georgia ten years ago.

While some plants are inherently poisonous, others are completely innocuous until an animal begins to eat them. Damage to leaves or stems stimulates the plant to produce a chemical that may taste bad or make the feasting beast sick. When my Labrador Retriever was a puppy exploring her backyard world, she sampled some azalea...
leaves. Fortunately, they just made her sick, but the negative association helped her learn not to nibble. Both she and the landscape plants peacefully co-existed for many years.

**Have Your Pumpkin, and Eat It, Too**

By Elizabeth Andress and Judy Harrison

Family and Consumer Sciences

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Harvest decorating is a sure sign that fall has arrived! Pumpkins can do double duty as harvest decorations and provide a powerhouse of good nutrition and savory flavor for meals and snacks. Use non-toxic paint or markers to decorate faces for Halloween, and then preserve the flesh to add fiber and valuable nutrients to your diet year-round.

**Preserve safely**

Freezing is the easiest way to preserve pumpkin and provide the best quality product. Select full-colored mature pumpkins with good texture. Scrub the outside with a produce brush under running water. Cut into cooking-sized sections and remove the seeds to be dried or roasted later. Cook until soft in boiling water, steamer, pressure cooker, or an oven. Remove pulp from rind and mash. Place in a container, cool quickly in a cold-water bath, and stir occasionally. Pack into rigid containers leaving one-half inch headspace and freeze. Alternatively, you can use freezer-quality storage bags. Find complete information about containers and headspace at the National Center for Food Preservation.

Drying and roasting pumpkin seeds are two different processes. To dry, carefully wash pumpkin seeds to remove the clinging, fibrous pumpkin tissue. Pumpkin seeds can be dried in a dehydrator at 115-120°F for 1 to 2 hours, or in an oven on warm for 3 to 4 hours. Stir them frequently to avoid scorching. Use the dried pumpkin seeds, toss with oil and/or salt, and then roast in a preheated oven at 250°F for 10 to 15 minutes.

Pressure canning is the only method recommended for canning “cubed” pumpkin. Select top quality pumpkins with a hard rind and stringless, mature pulp. Small pumpkins (sugar or pie) make better products. Wash pumpkin and remove seeds. Cut into 1-inch slices and peel. Cut flesh into 1-inch cubes. Add to a saucepot of boiling water and boil for two minutes. Do not mash or puree the cubes. Spoon hot cubes into warm, prepared jars, leaving 1-inch headspace. Add enough cooking liquid to cover the cubes while still leaving 1-inch of empty headspace from top. Remove air bubbles. Wipe jar rims with a clean, dampened paper towel, apply and adjust lids. Process in a recommended stovetop pressure canner according to USDA recommendations found in the University of Georgia’s So Easy to Preserve book or at nchfp.uga.edu/how/can_04/pumpkin_winter_squash.html. Process times are different for pint and quart jars, and the pressure setting

Pumpkins can provide more than decoration; they’re also a tasty source of fiber and nutrients.
will depend on the type of pressure canner you use and your altitude.

**Home-canned products to avoid**
Some preserved pumpkin and winter squash products should not be made at home. There are no tested-safe home canning procedures for mashed or pureed pumpkins, mashed or pureed winter squash, or pumpkin butters we can recommend. If you make something up yourself and guess wrong, the result could be botulism (a rare, but serious, illness caused by foodborne bacteria).

Think safety when planning to preserve pumpkin. Pumpkin is a low acid vegetable and requires special attention when preserving for later use to avoid food safety issues. Even though pumpkin butters are popular, there is no properly-tested, safe home canning method for room temperature storage. By choosing good quality pumpkins and using safe preservation methods, you’ll have a tasty source of fiber and valuable nutrients long past the harvest season.

**Plant Perennials in Fall**
By Heather N. Kolich
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Fall is an ideal time to add perennial trees and shrubs to your landscape. Because the root systems of perennials continue to grow even when the rest of the plant is dormant, fall planting gives the root system the opportunity to establish in their new environment without having to undergo the heat and drought stress of summer or sacrifice energy to foliage and fruit growth.

Each fall, Forsyth County Extension hosts a special plant sale featuring native ornamentals and a mix of homeowner friendly fruit- and nut-bearing trees, shrubs, brambles, and vines. Plant species and cultivars were carefully chosen for ease of care and excellent performance in North Georgia. These plants will add beauty, flowers, and fragrance to your landscape; restore biodiversity to our local ecosystem; and provide food sources for pollinators, wildlife, and our human families!

**How does the Extension Fall Plant Sale work?** The Forsyth County Extension Fall Plant Sale is a pre-order, one-stop pick-up sale. Plants are provided by Georgia wholesale growers, and proceeds from the sale help fund Forsyth County Extension community education programs.

Download the order form from our website and return it to the Extension office with your selections and payment (cash or check) by October 14, 2019. Then pick up your order at our office on Friday October 25 or Saturday October 26.

**What plants are offered?** For your foodscaping projects, we have some excellent small fruits and fruit or nut producing trees. Planting several different species can keep you in fresh, home-grown food across several seasons.

**Small Fruits** grow on bushes, brambles, and vines, and require full sun. This year, we’re offering nine cultivars of rabbiteye blueberries (spring harvest), four varieties of thornless blackberries (summer harvest), two types of raspberries (everbearing), three fig varieties, and several self-fertile bunch grapes and muscadines (late summer-fall harvest).
Tree Fruits offered this year include seven apple varieties that ripen from August to November, two pear cultivars, and two Asian persimmons (one is a dwarf). These fruits require full sun and cross-pollination.

Native Fruit and Nut Trees restore biodiversity to developed areas and support pollinators. As natural elements in the local ecosystem, they’re troubled by few pests. As understory trees, they tolerate partial shade conditions and are smaller than non-native cultivated fruit trees, making them excellent choices for residential lots. They’re also great for attracting native wildlife and for food plots. The following native plants are available for ordering:

American hazelnuts are winter-flowering, large shrubs that produce edible, fall-ripening nuts.

American persimmons are drought tolerant trees that produce orange, fall-ripening fruits after giving a brilliant display of scarlet fall foliage.

Elderberry is a large shrub for moist sites. Spring clusters of lemon-scented white flowers ripen to edible berries in late summer.

Chickasaw plums produce fragrant early spring flowers that become cherry-sized yellow to red plums in May. They prefer full sun and tolerate dry, poor soil. Maturing at 5-6’ high and 10’ wide, this thorny bush is an excellent choice for hedge plantings.

Southern crabapples are small trees offering hundreds of fragrant, pale-pink spring flowers, followed by large, green, sour apples in the fall that are perfect for jelly.

Native Ornamental Trees and Shrubs are fragrant, flowering choices for small spaces.

Eastern Redbuds are small (20’-30’) trees for shade to part-shade. Abundant flower clusters appear along branches in early spring.

White Fringetrees are small (12’-20’), multi-stemmed, and slow-growing. This sun-to-part-shade tree produces abundant fluffy, white blooms in spring.

Sweetbay Magnolia is a long-lived, semi-evergreen, tree with a spreading, upright form, aromatic leaves, and fragrant white flowers.

Beautyberry bushes are drought-tolerant, deciduous shrubs that produce a stunning display of purple berry clusters in the fall.

Virginia Sweetspire grows 3-5 feet tall in sun to partial shade. It produces flows of fragrant
white flowers in May-June, then brilliant foliage in the fall.

Fragrant leaves and twigs give Spicebush its name. Yellow summer flowers ripen to small red berries that feed songbirds. It’s also a host plant for spicebush swallowtail butterflies.

Forsyth County Extension is taking orders for these wonderful plants through October 14, 2019. Pick up an order form at our office or download it from our website at https://extension.uga.edu/county-offices/forsyth.html. Plants will be available for pick up at our office on Friday, October 25, 8 a.m. to 6 p.m., and Saturday, October 26, 8 a.m. to noon. Please call 770-887-2418 for more information.

**Georgia’s Year-round Harvest**

Did you know that you can find fresh, Georgia grown produce all year long? No matter what the season, Georgia farmers are growing. See what’s fresh when with this Harvest Calendar from Georgia Farm Bureau.

**Learning with Extension – Events and Opportunities**

**Extension Fall Plant Sale**

*Taking orders through October 14, 2019*

Fall is the ideal time to plant perennials. The root system continues to grow even while the plant is dormant. When spring comes around, plants are well established in their new environment and better able to survive the heat and stress of summer.

Our carefully selected offerings include flowering native plants, fruit plants, and even some native fruit- and nut-bearing plants. Don’t miss this opportunity to add beautiful, fruitful plants to your landscape and create a healthy, biodiverse environment that provides food for pollinators, birds, and your family, too!

Find plant descriptions and order form here.

**Instant Success!**

*October 15, 2019, 6-8 p.m.*

Forsyth County Extension Center

5110 Piney Grove Road, Cumming

Join UGA Family and Consumer Sciences Agent Barbara Worley for this popular class in safely using your electronic programmable pressure cooker. You’ll also pick up great tips and delicious recipes.

To register, call 770-887-2418 or email uge1117@uga.edu.
The Deadly Garden
October 17, 2019, 7-8:30 p.m.
Forsyth County Extension Center
5110 Piney Grove Road, Cumming

Join UGA Agriculture and Natural Resources Extension Agent Heather Kolich for this fun look at the dark side of gardening. Register early to receive a copy of “Poisonous Plants of the Southeastern United States” when you attend.

Cost: Please bring a shelf-stable food item for our food drive to help at-risk populations in Forsyth County.


Register: Call 770-887-2418 or email uge1117@uga.edu to save your seat!

Celebrate Bat Week!
October 24-31, 2019
Learn more here.

UGA Heifer Evaluation and Reproductive Development (HERD) Program accepting applications for 2019-2020 beef herd improvement enrollment
Now-November 1, 2019

Are you interested in:
- Improving replacement heifers?
- Consolidating calving season?
- Improving calving ease?
- Learning more about breeding and feeding your herd?

The University of Georgia HERD program will help you succeed with all of that. Through this annual program, beef producers consign heifers to UGA, where they are maintained and bred in a uniform environment. This uniform and consistent management provides educational demonstration of individual performance differences. Recording, analyzing, and understanding these differences helps producers select better replacement animals to improve herd health and uniformity.

Consigners may choose whether to bring heifers home at the end of the program, or to offer them for sale in the annual HERD auction in May. The auction is open to all buyers.