

Resources

Books

Herbaceous Perennial Plants, Allan M. Armitage, Varsity Press, Inc. Athens, Georgia, 1989.

Landscape Plants of the Southeast, R. Gordon Halfacre, Anne R. Showercroft, Sparks Press, Inc., Raleigh, North Carolina, 1997.

Manual of Woody Landscape Plants, Michael A. Dirr, Stipes Publishing L.L.C., Champaign, Illinois, 1998.

Native Shrubs and Woody Vines of the Southeast, Leonard E. Foote and Samuel B. Jones, Jr., Timber Press, Portland, Oregon, 1994.

The Organic Gardener's Handbook of Natural Insect and Disease Control, Barbara W. Ellis and Fern Marshall Bradley, Rodale Press, Emmaus, Pennsylvania, 1996.

Pest Management Manual for Georgia Homeowners, The Georgia Center for Urban Agriculture, UGA College of Agricultural & Environmental Sciences, 2001.

Bulletins and Fact Sheets

A Compilation of Low Maintenance Plants for Georgia Landscapes, Will Corley, Jim Midcap, Mel Garber, Fact Sheet H-91-009, UGA College of Agricultural & Environmental Sciences, Cooperative Extension Service, August, 1999.

Control of Common Pests of Landscape Plants, Beverly Sparks, Will Hudson, Bulletin 1073, UGA College of Agricultural & Environmental Sciences, Cooperative Extension Service, November 1994.

Flowering Annuals for Georgia Gardens, Paul Thomas, Bulletin 954, UGA College of Agricultural & Environmental Sciences, Cooperative Extension Service, March 1995.

Flowering Perennials for Georgia Gardens, Paul Thomas, Bulletin 944, UGA College of Agricultural & Environmental Sciences, Cooperative Extension Service, September 1999.

Ground Covers, James T. Midcap, Gary T. Wade, and Melvin P. Garber, Leaflet 121, September 1999.

Native Plants for Georgia Gardens, Mel Garber, Neal Weatherly Jr., Kim Coder, Darrel Morrison, UGA College of Agricultural & Environmental Sciences, Cooperative Extension Service, April 1989.

Plant Trees Right!, Kim D. Coder, UGA Warnell School of Forest Resources, July 1992.

Pruning Ornamental Plants in the Landscape, Gary L. Wade and James T. Midcap, Bulletin 961, UGA College of Agricultural & Environmental Sciences, Cooperative Extension Service, November 1995.

Soil Preparation and Planting Procedures for Ornamental Plants in the Landscape, Gary Wade, Bulletin 932, UGA College of Agricultural & Environmental Sciences, Cooperative Extension Service, July 1999.

Xeriscape, A Guide to Developing a Water-Wise Landscape, Gary L. Wade, James T. Midcap, Kim D. Coder, Gil Landry, Anthony W. Tyson, Neal Weatherly, Jr., Bulletin 1073, UGA College of Agricultural & Environmental Sciences, Cooperative Extension Service, February 2000.

Web Sites

UGA Cooperative Extension Service publications available at www.ces.uga.edu/ces/pubs.html

Georgia Green Industry Association: www.ggia.org

Insect identification: www.griffin.peachnet.edu/caes/lpmhome/homepage.shtml

Disease identification: www.ces.uga.edu//Agriculture/plantpath/plantdis.html
www.griffin.peachnet.edu/caes/lpmhome/homepage.html

Garden to protect Water Quality

Care of Ornamentals A Homeowner's Guide

As rain and irrigation water wash over the land, they carry soil, fertilizer and pesticides from our yards into storm drains and surface water. The collective effect is the pollution of Georgia's waterways, especially in urban areas where the population density and the paved surface are greatest. The Garden to Protect Water Quality series provides homeowners practices to improve soil structure, to minimize chemical inputs, and to reduce erosion and runoff while maintaining the beauty of their landscapes.

If your plants serve as a five-star restaurant for local insect pests, or if you have problems keeping your landscape alive during the summer drought, then read on.

What plants are beneficial?

Beneficial plants are those adapted to the region and the planting site. It is very important to assess the planting site (sun vs. shade, wet vs. dry, and soil conditions) BEFORE going to the nursery to buy plants. Next, you should develop a plan for your landscape.

Landscape ornamental plants are generally divided into annuals, biennials, herbaceous perennials, and woody ornamentals.

Annuals complete their life cycles (sprout, flower and die) in a single growing season. Therefore, they must be planted again the following growing season.

Biennials complete their life cycles in two growing seasons. They grow vegetatively the first season and flower the second season. After flowering, they die and must be replanted.

Herbaceous perennials live from year to year and have varying blooming times. These plants often die back to ground level at the end of the growing season.

Woody ornamentals are typically perennial plants that produce woody, above-ground stems and branches. They include trees, shrubs, and vines.

- Select plants that are adapted to Georgia's conditions. These include native and non-native plants. UGA scientists have compiled lists of plants that are suited to Georgia landscapes. A listing of these publications and web sites containing this information can be found under Resources in this pamphlet.

- Select plants adapted to the site. Plant labels often contain site requirements. Placing a plant where it can thrive will promote health. Doing otherwise will weaken the plant and make it susceptible to insect pests and diseases.

- Consider drought-tolerant plants for areas that will not receive regular supplemental watering. A listing of drought-tolerant plants, shrubs, trees and grasses can be found in the booklet, Xeriscape, A Guide to Developing a Water-Wise Landscape found under Resources in this pamphlet.

- Select plants that attract beneficial insects. Typically, a landscape with a diversity of flowers, shrubs and trees attracts beneficial insects.

- Select plants that are pest resistant. A current listing can be found in the Landscape Management Manual for Georgia Homeowners listed under Resources in this brochure.

- Consider the resources (time, money and energy) of the person caring for the landscape when selecting plants. For example, large annual beds must be replanted every year and require frequent watering.

- Consult your County Extension agent, your Georgia Landscape Certified Professional or Retail Nurseryman, or the resources listed in this brochure



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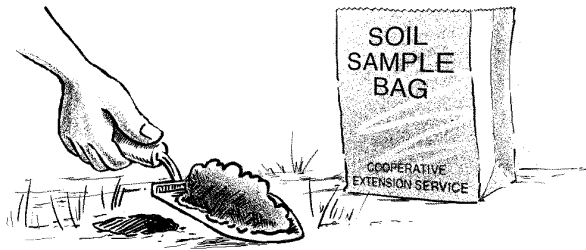
How can I improve Georgia soils?

A poorly drained or compacted soil may injure plant roots. These soils do not readily absorb water and, thus, may contribute to run-off during periods of rainfall or irrigation. Georgia soils typically lack sufficient organic matter to produce healthy plants. Therefore, organic matter must be amended into the soil before installing plants.

Check the drainage of your soil by digging a hole approximately 15 inches deep by 15 inches in diameter and filling it with water. If water is left standing in the hole after 1 hour, this may be a poorly drained site. Consider installing underground drainage lines or planting in raised beds if drainage is a serious problem. Grade the site with a 1 to 2 percent slope (1 to 2 foot of drop per 100 linear feet) to prevent collection of surface water.

Before planting, check the organic content and fertility of soils. Some helpful points are:

- Obtain soil samples 2 to 3 weeks before planting ornamentals to determine soil pH and potassium and phosphorous content. Contact your local County Cooperative Extension Service Office for information on sampling procedures and how to get your samples analyzed. This service is available for a minimal fee. Amend your soil according to soil test recommendations.

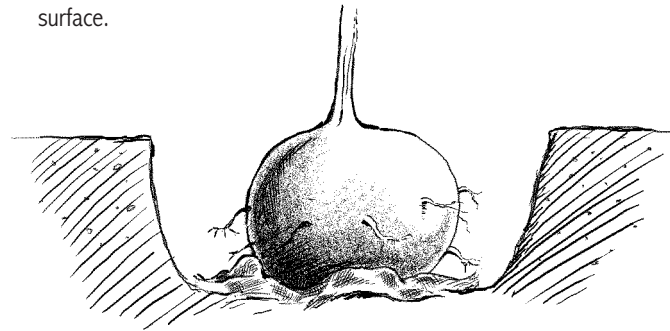


- When possible, group similar plants (annuals, perennials, vegetables, shrubs and trees) in beds. Prepare beds by rototilling the soil and then adding amendments, if necessary, to a depth of 12 to 18 inches. Deeply-prepared soil promotes a vigorous root system, helps plants tolerate extreme heat and drought, and decreases the potential for run-off because infiltration is improved. Place slow-release fertilizer in the planting hole to prevent it from running off the landscape.
- In the absence of a soil test, add a complete fertilizer such as 16-4-8 or 12-4-8 at the rate of 0.5 pounds per 100 square feet. If this area has not been fertilized before, use a complete fertilizer such as 10-10-10 or 8-8-8. Use dolomitic lime to elevate soil pH, if necessary, for optimal plant growth. Amend clay soils with 2 inches of coarse material (pine bark) plus 2 inches of fine compost to improve soil texture and structure. Use only decomposed organic material as soil amendments.
- Plant trees and shrubs in a bed when possible, otherwise plant them individually in a planting hole. Research shows that it is best to incorporate organic matter uniformly throughout the projected root zone rather than placing it in the hole.

What is the best way to install plants?

To promote optimal health, install plants according to label directions. Use recommended planting dates, spacings, etc. See Resource list for additional publications. Group plants according to water needs. This will reduce water usage, time necessary to maintain plants and the potential for run-off.

- When holding plants for later planting, keep them in the shade and water them thoroughly.
- Water plants thoroughly before planting to saturate the root ball.
- Place the plant in the hole so the top of the root ball is level with the soil surface.



- Remove any wire or cord from around the stem of balled and burlapped plants. Pull back or remove the burlap from the root ball if possible.
- Water thoroughly immediately after planting to settle the soil and eliminate air pockets that can dry out roots.
- Apply 3 to 5 inches of mulch to the soil surface to conserve moisture, prevent weeds, and to prevent extremes in soil temperature. This practice reduces the need for herbicides, a major pollutant of surface water.
- Water as necessary during the establishment period. Keep the root zone uniformly moist.
- Allow trees and shrubs approximately one year to become established before applying fertilizer unless it is slow-release.

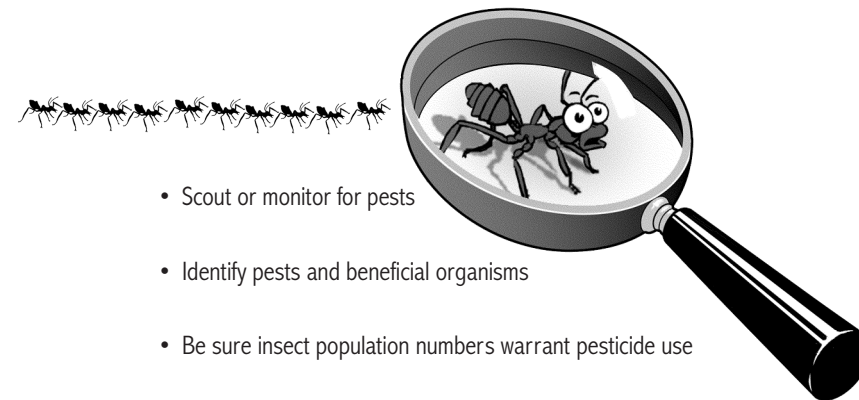
How can I maintain my landscape?

Plants should be fertilized, watered, pruned, and mulched only as needed and not on a timetable or calendar. **DO NOT** aspire to the common belief, “If a little is good, more must be better.” Over application of any fertilizer, even organic fertilizers like manure, can result in rain or irrigation water carrying excess nutrients as nonpoint source pollutants into lakes and streams in your watershed. Slow-release or natural organic fertilizers are preferred over conventional chemical fertilizers because they release nutrients over an extended period of time, are absorbed more efficiently, and do not have to be applied as frequently.

- Time fertilizer applications after the establishment period; fertilize annuals and perennials when they are actively growing. Trees and shrubs make best use of fertilizer just before or as new growth begins in the spring. Water beds after fertilizer applications.
- Do not fertilize during periods of drought. Generally, plants grown in the shade require less fertilizer than those grown in the sun.
- Irrigate ornamental plants when they turn a grey-green color or wilt. Annuals need more water than perennials, and perennials require more water than shrubs and trees. In fact, well-established shrubs and trees can go long periods without additional irrigation.
- Water prior to sunrise and after dew develops so you do not prolong the period of moisture on plants. Extended periods of moisture on plants increases the potential for disease.
- Use drip irrigation and soaker hoses to water. They are more efficient than overhead sprinklers for ornamentals.
- A hand-held hose with attached water breaker is recommended as an efficient method of targeting irrigation water to selected plants in the landscape.
- Avoid frequent, light watering which encourages shallow roots making the plants susceptible to drought.

How can I effectively manage pests?

Landscape pests have historically been controlled with chemical pesticides. However, pesticides applied to landscapes may become nonpoint source pollutants if they are washed off the site by rain or irrigation water. Measures can be taken to reduce or properly use chemical pesticides while managing pests in the landscape. This is done by implementing an Integrated Pest Management (IPM) program that combines the following steps:



- Scout or monitor for pests
- Identify pests and beneficial organisms
- Be sure insect population numbers warrant pesticide use
- Select and correctly use appropriate control tactics

Pests that may damage landscape ornamentals fall into one of three categories – weeds, insects, or diseases. Each requires its own methods and approaches for management.

Weeds compete with landscape ornamentals for space, sunlight, soil moisture, and nutrients. Maintain a 3 to 5 inch layer of mulch around ornamental plants to suppress most weeds. Some ground covers even compete with weeds (see The University of Georgia Cooperative Extension Service publication, Ground Covers [Leaflet 121]). Hand-pull or hoe weeds while they are seedlings to avoid labor-intensive manual methods of weed removal and the need for chemicals.

Insect pests are common, recurring problems on landscape ornamentals. However, most people don't realize that generally, only 3% of insects are pests. Many beneficial insects pollinate flowers and act as predators of insect pests. Become familiar with the insect pests that commonly occur on ornamentals, the time of year in which they occur, and the type of damage they cause. This helps in diagnosing potential insect pest problems. Check your plants frequently for insect damage and insects. When necessary, you may manually remove some pests, prune out heavily infested parts of a plant, use insecticidal soaps and horticultural oils, or apply an appropriate insecticide (see the publication, Control of Common Pests of Landscape Plants CES Bulletin 1073, for more information).

Plant diseases are caused by viruses, fungi, bacteria, or nematodes. Plants are infected by exposure to contaminated soils, by air-borne spores, or by insects spreading disease agents from plant to plant. Inspect your landscape ornamental plants at least once a week for diseases. Remove and destroy heavily-diseased plants, prune out and destroy diseased parts of plants, or apply an appropriate pesticide to control the disease or its carrier (e.g., aphids). Some tips in avoiding plant diseases include spacing and pruning plants to maintain good air circulation, pulling mulch 2 to 3 inches away from the stems of plants to prevent the spread of disease, and timing overhead irrigation to avoid extending the length of time that free moisture is present on plant's leaves.

If applications of chemical pesticides are required to control a weed, insect pest, or disease infestation, make the applications according to label directions. If you have questions about pest identification or pest control procedures, contact your local County Cooperative Extension Service Office.