

Growing Boxwoods in Alabama

Cultural Practices and Problems

Boxwoods can be grown throughout Alabama. Used effectively, they add beauty to both formal and informal landscape settings and, in many cases, are considered an essential component of the traditional Southern home landscape.

Several insect and disease problems can affect boxwoods, but if certain precautions are taken, most of these problems can be avoided. Good soil preparation, proper planting depth, adequate soil moisture, and a proper fertilization program will aid in producing vigorous, healthy plants with few problems.

Approximately 160 registered cultivars of boxwoods now exist. About 115 cultivars and species are commercially available. The most commonly available species are *Buxus sempervirens* (common or American boxwood) (Figure 1), *B. microphylla* (Littleleaf or Japanese boxwood),



Figure 1. Healthy common boxwood

and *B. sinica* var. *insularis*, formerly *B. microphylla* var. *koreana* (Korean boxwood). Choosing the best boxwood for your garden is very important. The following list provides information on the height and other features of several species and varieties of boxwoods (Table 1).

Cultural Practices

Choose a Good Location.

In Alabama, boxwoods grow best in semishade; morning sun with afternoon shade is best. Japanese boxwood (*B. microphylla* var. *japonica*) is more tolerant of full sun. All boxwoods do better with some

Table 1.

Common and Botanical Name	Height	Comments
Common (<i>Buxus sempervirens</i>)	5' to 10' or more	Grows as a shrub or small tree. Standard that has withstood the test of time. Billowy cloudlike form.
English (<i>B. sempervirens</i> 'Suffruticosa')	2' to 4'	Very slow growth, growing 1 to 2 inches per year.
Littleleaf (<i>B. microphylla</i>)	3' to 4'	Forms small mound. Leaves are medium green.
Japanese (<i>B. microphylla</i> var. <i>japonica</i>)	3' to 6'	Most rapidly growing boxwood; reaches mature size in 3 to 5 years.
Korean (<i>B. sinica</i> var. <i>insularis</i> formerly <i>B. microphylla</i> var. <i>koreana</i>)	2' to 3'	Loose, open-growing form. It's the most cold-hardy boxwood, but foliage may turn brown in winter. Fine leaf texture.

shade during the heat of the day since full sun can cause their leaves to be off color. This discoloration is intensified if the plants are not watered properly or if the roots are badly damaged by nematodes or other disease-causing organisms. Boxwoods should only be planted in well-drained soils. Avoid poorly drained sites and locations near downspouts and irrigation sprinkler heads where moisture can lead to root rot. Common and English boxwoods are very susceptible to root rot in wet soils.

Select Healthy Plants.

When purchasing boxwoods, select the best plants and get them off to a good start. Look for healthy plants with dark green foliage and vigorous stem structure. Examine the root system thoroughly before buying; container grown plants can be examined by slipping the root ball out of the container. Dark, rotted, or galled roots may be evidence of disease or nematode infection and should not be purchased. Healthy plants are more resistant to diseases, winter injury, and drought damage.

Plant at the Proper Time.

The best planting time for boxwoods is during the fall or late winter to early spring, when temperatures are above freezing. Successful plantings can be made year round, however, if proper care is given. Planting boxwoods too deeply is one of the most common mistakes. Boxwoods are shallow-rooted plants and should never be planted too deep. Set the plant so that the top of the root ball is slightly above the original soil level. Plants that are set too deep are more susceptible to dieback and root rot. See Extension publication ANR-958, "Care and Maintenance of Landscape Plants," for more information on planting shrubs in the landscape.

Before planting, have the soil tested and follow fertilizer and lime recommendations. Detailed instructions for obtaining soil samples are available at your county Extension office. The ideal soil pH for boxwoods is from 6.5 to 7.0.

Water Properly. Boxwoods are very sensitive to drought and nutritional stress. Water thoroughly after planting and ensure adequate soil moisture year round. If irrigation is necessary, water thoroughly but infrequently (about every 7 to 10 days, depending on weather conditions and soil type). Don't irrigate when rainfall is adequate, which is about 1 inch per week. Avoid overwatering since it can lead to fungal root rot. Carefully monitor your watering schedule and modify as needed to ensure adequate moisture and to prevent overwatering. Drip irrigation is the preferred irrigation method. Overhead irrigation, which wets the foliage, can lead to disease problems, especially if applied in late afternoon or evening.

Mulch. After planting, apply a 1-inch layer of organic mulch around the base of the plants. Mulching helps conserve moisture, prevents erosion, aids in weed control, and helps moderate soil temperatures as well as improves the appearance in the landscape. Pine bark or pine needles are frequently used as mulching materials. Avoid excessive mulch (more than 2 inches), which can decrease root aeration and promote root development in the mulch layer. These stray roots are more susceptible to drought and cold injury.

Maintain a Regular Fertility Program. Boxwoods respond well to fertilization. Unfertilized soils in Alabama often do not contain the nutrients needed for optimum

growth. Indications of a lack of fertilizer include bronze-colored leaves and uneven or little growth in the spring. Plants with low soil pH may not respond to fertilization since the pH can limit the availability of nutrients to the plant. Low vigor plants are more susceptible to *Macrophoma* leaf spot and dieback. Getting a soil test will take the guesswork out of a fertility program. Detailed instruction sheets are available at your county Extension office. Soil tests should be done every 2 to 3 years and liming materials added as needed to maintain a pH of 6.5 to 7.0.

In early spring, before new growth, apply the recommended rates of fertilizer uniformly around the base of the plants, just beyond the drip line. Do not allow fertilizer to accumulate in the branch crotches or on the foliage. Fertilizer should not come in direct contact with exposed roots. Boxwoods have a shallow root system and excessive or improper fertilization can kill roots, leading to yellow or brown leaves and branch dieback.

Prune Properly. Thinning is the preferred method of pruning and can be done in the winter or early spring when temperatures are above freezing. Thinning reduces the number of branches on the outer edge of the plant. Proper thinning will leave the interior branches slightly visible and encourage leaf development along the entire length of the branches. Thinning helps to allow adequate light and air circulation, which are good for plant health. It is achieved by cutting branches to their point of origin within the canopy. Foliage will be less dense initially but will have a thicker canopy over time. Prune to remove diseased,

injured, dying, or dead branches. Avoid heavy pruning in the late summer and fall since it can encourage tender new growth that will be killed by freezing temperatures. When pruning, remove all leaf and other debris that has collected in the branches and crown of the plant.

Shearing boxwoods is commonly done to create a more formal look, but this practice results in significant stress on the plant. This can encourage disease because it promotes dense growth at the outer edges of the branches. This growth prevents light and air circulation and slows drying of the leaves. Avoid renewal pruning, especially of *B. sempervirens* and *B. s. 'Suffruticosa'* because they will often not recover.

Reduce Winter Injury.

Sudden temperature changes during winter can cause bronzing or discoloration of leaves as well as frost cracking of exposed stems and branches. Since water loss from these damaged stems is slow during the winter months, the damage may not be noticeable until spring. This injury is most devastating when a severe cold freeze follows a period of mild temperatures. Damage is usually more pronounced on plants located in sunny, exposed areas with west or southwest exposures. Minimize damage by avoiding these locations. Drought conditions during the fall and winter often contribute to foliage injury and discoloration. This injury can be reduced by mulching and by maintaining uniform soil moisture during the entire year. Do not fertilize in late summer or fall with a fertilizer containing large amounts of nitrogen, particularly in a quick release form.

Boxwood Problems Diseases

Macrophoma Leaf Spot.

Both common and English boxwoods are susceptible to leaf spot. Symptoms may vary from spotting to browning at tips or edges. Later, many raised black dots, the fruiting bodies (pycnidia) of the fungus (*Macrophoma candollei*), can easily be seen on dead and dying leaves (Figure 2). The fungus is a secondary colonizer

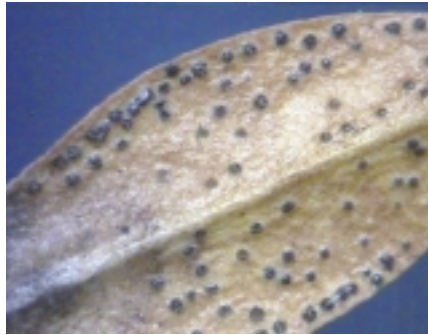


Figure 2. Macrophoma leaf spot

of leaves and indicates that the plant is under stress from some other factor. The disease rarely affects healthy, vigorous, growing plants. Correcting other disease (root rot) or cultural problems will help prevent Macrophoma leaf spot. This involves following the recommended cultural practices for maintaining healthy boxwoods. These include providing water during dry conditions, avoiding overwatering, providing proper nutrition, and thinning shrubs to improve light and air circulation.

Volutella Leaf and Stem Blight. The fungus *Pseudonectria rouselliana* (Imperfect stage *Volutella buxi*) causes this disease, which is most common on nonvigorous plants but can also occur on healthy plants. Symptoms include cream to light pink fruiting bodies of the fungus on leaves and twigs. The leaves turn from normal dark green to

bronze and then tan (Figure 3). Infected leaves turn upward and lie close to the stem instead of spreading out like leaves on healthy stems. To prevent and control stem blight, practice



Figure 3. Volutella stem and leaf blight (Photo courtesy of University of Georgia, Extension Plant Pathology)

good sanitation by removing diseased branches as soon as they are noticed to prevent disease spread. Prune out dead branches at least 4 inches below the diseased tissue. Remove and discard all dead leaves and debris that have lodged in the crotches of limbs. Thin boxwoods as described above to improve light penetration and air circulation. Protect plants from unnecessary wounds and winter injury. In severe cases, fungicides can be used to protect new foliage, but they will not cure diseased branches.

Phytophthora Root Rot.

The first symptom of this disease is an overall loss of plant luster. Leaves change from dark to light green as the plant declines. Symptoms may be present on one branch or on the entire plant (Figure 4). Upon plant death, the leaves become light straw colored. Affected roots are usually dark brown and show signs of rotting. The outer layer of rotted roots easily sloughs off leaving only the center portion. In advanced cases of root rot, the bark on the main stems at the soil line may slough off revealing dark, discolored wood for 2 to 3 inches above the soil line (Figure 5).



Figure 4. Phytophthora root rot



Figure 5. Phytophthora root rot. Discolored wood on lower stem.

Poorly drained soils, incorrect irrigation scheduling, and deep planting can promote saturated soil conditions that are favorable for root and crown rots caused by the fungi *Phytophthora cinnamomi* and *P. parasitica*. If root rot occurs, correct the abnormal planting depth or the high level of soil moisture. When you lose plants from Phytophthora root rot, replace them with varieties that are not susceptible to the disease. Alternatively, amend the soil to improve drainage by adding porous materials, such as composted pine bark, and plant in raised beds to ensure proper drainage. Mefenoxam, fosetyl-al, or etridiazole can be applied following the label directions to

control and reduce the spread of Phytophthora root rot in landscape plantings. However, after disease symptoms are apparent, fungicides are of limited effectiveness. Additional information on Phytophthora root rot of woody plants is available in Extension publication ANR-571, "Phytophthora Root Rot on Woody Ornamentals." If poor drainage is not corrected, fungicides will have little effectiveness in preventing disease.

Nematodes. Several kinds of nematodes including root knot (*Meloidogyne* spp.), lesion (*Pratylenchus vulnus*), boxwood spiral (*Helicotylenchus buxophilus*), and ring nematodes (*Criconeema* spp. and *Criconemoides* spp.) attack the roots of boxwoods. Root symptoms vary from knots and galls to brushy, stubby, or dark decaying root systems. Nematode-affected plants are usually stunted and in gradual decline. They are usually the first plants to wilt during a drought period.

If you suspect nematodes, have a soil nematode analysis conducted. Collect moist soil and place it in a plastic freezer bag with a few of the smaller roots. Information sheets and sampling cartons are available at your county Extension office. See Extension publication ANR-114, "Collecting Soil and Root Samples for Nematode Analysis," for more details on sampling and handling of samples.

No nematicides are cleared for use on landscape boxwoods. Following good cultural practices outlined in this publication (watering, fertilizing, and mulching) can prolong the life of the plants. Boxwoods should not be grown where the soil is heavily infested with nematodes. Nematode tolerant shrubs, such as dwarf yaupon holly (*Ilex vomitoria* 'Nana') and dwarf Burford

holly (*I. cornuta* 'Burfordii Nana'), can be used to replace boxwoods damaged by nematodes.

Insects

Leaf Miners. Boxwood leaf miners (*Monarthropalpus flavus*) are the most damaging insect pests of boxwoods. They are the larvae (immature form) of a small, orange mosquitolike fly. These small flies, which are less than 1/8 inch long, can be seen swarming around boxwoods in the spring. The females lay eggs through the upper surface of the leaves. The eggs hatch into larvae that feed inside the leaf, creating a mine. The leaf miners overwinter within the leaf as larvae. Adults emerge the following spring just as growth starts on the boxwoods. The damage caused by leaf miners can be easily recognized by the irregular-shaped swellings or blisters on the lower side of the leaf (Figure 6). Infested leaves are often off color (yellow-orange or brown) and may drop earlier than healthy leaves drop.



Figure 6. Boxwood leaf miner damage and larvae

When damage becomes excessive, leaf miners can be controlled with an application of insecticides, which are most effective immediately after the adults emerge and before the eggs are laid. The insecticides acephate, imidacloprid, and dimethoate are effective control measures when used in strict accordance with labeled instructions.

Mites. Boxwood mites (*Eurytetranychus buxi*) are common pests of boxwood foliage. They cause tiny, scratch-like marks on the upper leaf surface (Figure 7). New foliage is most susceptible to attack. Mites can be a serious problem on *B.*



Figure 7. Boxwood mite damage

sempervirens grown in sunny locations. Determine the presence of mites by holding a white piece of paper under a branch and lightly striking the branch. The mites will fall onto the paper and can be seen moving around. If more than 15 mites are seen after each time the branch is struck, control measures are warranted. Horticultural oil sprays (summer rate) are not damaging to beneficial insects and will kill both

eggs and mites. Mites can also be removed by regularly using a strong spray of water. Insecticidal soap, dimethoate, and acephate + hexakis are labeled for homeowner use against mites. An additional application 7 to 10 days later may be needed when mites are present. As with all pesticides, read and follow all label instructions and precautions.

Other Insect Pests. Feeding by boxwood psylla (*Psylla buxi*) results in cupping of leaves and stunted twig growth. Both adults and nymphs feed by piercing leaf surfaces and sucking plant sap. Plants tend to outgrow the injury by midsummer. Injury from low populations is not serious enough to warrant control measures. In heavy infestations, use acephate or carbaryl, which are labeled for control.

A number of scale insects, including oystershell scale (*Lepidosaphes ulmi*), can be occasional problems on boxwoods. Your county Extension agent can identify the insect and recommend the appropriate control measures.

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Use pesticides **only** according to the directions on the label. Follow all directions, precautions, and restrictions that are listed. Do not use pesticides on plants that are not listed on the label.

The pesticide rates in this publication are recommended **only** if they are registered with the Environmental Protection Agency and the Alabama Department of Agriculture and Industries. If a registration is changed or cancelled, the rate listed here is no longer recommended. Before you apply any pesticide, check with your county Extension agent for the latest information.

Trade names are used **only** to give specific information. The Alabama Cooperative Extension System does not endorse or guarantee any product and does not recommend one product instead of another that might be similar.

For more information, call your county Extension office. Look in your telephone directory under your county's name to find the number.

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