



Louisiana Lawns

Fact Sheet

Managing Lawns in the Shade

Trees and tall shrubs are a staple of the southern landscape. They offer beauty and the comfort of shade, but they also place a stress on the turfgrass sward associated with that shade. Having a lawn under shade trees is not always a compatible mix. Even so, you may be able to choose shade-tolerant grasses and manage them to get the best turf cover for that level of shade.

Shade Problems

Our warm-season turfgrasses in Louisiana (bermuda, zoysia, centipede, St. Augustine and carpet) excel in full sun. Most tolerate at least five hours of direct sun or an entire day of lightly filtered sunlight. With less sun than that, growth and development problems occur.

Shade-grown turf is described as spindly, sparse, succulent and delicate. What you don't see is that its root system is less developed, there is less overall growth and food storage, it is more susceptible to disease and it is more easily damaged by environmental stresses like drought and cold.

The shade itself may be one of two kinds of shade: structural or tree canopy. Structural shade is a lowering of light because of interception by a building, deck, etc. It reduces the light intensity, and plants must depend on the diffuse or reflected sky light for energy.

Tree canopy shade is a reduced light intensity compounded by a filtering of the transmitted light. This weaker light is also less able to power the photosynthetic food-making process because of its lower light quality. With less food stores, the turf plant lacks good growth, development and stress resistance. Shaded turf plants grow more succulently. That, plus the extra relative humidity and reduced air movement encourage more disease pressure. Shaded lawns tend to stay wet longer from dew, irrigation or rain. Foliage diseases such as gray leafspot and *Helminthosporium* melting-out can be a big factor in shade-related turf loss.

Where there is tree shade, there are also tree roots. A tree's root system will strongly compete with the turf for soil nutrients and moisture. This is especially true of the more shallow-rooted species like ash, beech, sycamore, willow, elm, mulberry, poplar and maple and of most trees that are grown in clayey, wet or compacted soils. Most of these root systems will be in the upper 24-inch-deep zone, so the feeder roots will grow up into where the grass roots grow.

Non-dormant tree canopies also may act as umbrellas, diverting much of the rainwater to their outer edges known as the drip line. Thus tree canopy shade is often a complex, expanding and dynamic issue with no simple cure other than to remove the tree. Further compounding this problem can be a cluster of trees or a tall shrub understory that introduces a second level of light reduction and filtration. This condition is usually as bad as is shade from the most opaque canopy species.

Strategies in Shade

First decide if you really must have a turfgrass cover in that problem area or if another ground cover will do. Consider designating turf-free areas under the canopies of trees. Turf outside of the tree's canopy area will have ample sunlight and thrive. Competition for growth resources within a major portion of the tree's inner root zone will be eliminated. Remember to establish turf boundaries according to the ultimate size of the mature tree or plan to enlarge the turf-free zone as the young tree grows. A turf-free zone around young and newly planted trees is particularly important, and will eliminate damage done by string trimmers and mowers.

Mulch with inert materials, wood chips, bark or pine straw within the turf-free zone surrounding trees. The larger the mulched area, the better for the tree. Apply 2 to 4 inches of mulch, but not more than 6 inches. Avoid piling mulches directly against tree trunks. This creates a 'tree volcano' and moist conditions that can lead to trunk rot or insect invasion of the tree trunk. Use only herbicides registered for use around trees (glyphosate) to kill any dense patches of grass before mulching. If grass growth is already suppressed by shade, then mulching alone will most likely eliminate it.

Mulch creates favorable soil conditions much like a tree would have in its forest environment. It moderates soil temperatures, improves water infiltration and retention, halts soil compaction and enriches the soil with nutrients as it decomposes. Studies have shown that the growth rate of a mulched tree can be double or even triple that of an unmulched tree, particularly if that tree is surrounded by turfgrass.

Plant shade-tolerant shrubs and ground covers in mulched areas if more "green" is desired under tree canopies. Although these plants also compete with the tree, their root systems are much less dense and aggressive than that of turfgrass. They also are better adapted to living within the shade of trees. Ideally, these plantings should be done while a tree is young; however, if you must plant around mature trees, be careful not to cut large roots or disturb many of the finer, feeder roots in the top 6 inches of the soil. Tilling the planting area is not recommended; it will sever a large portion of those finer roots. Instead, dig individual planting holes using hand tools.

If shade is not excessive and turfgrass is desired, choose a turf species and cultivar that is shade tolerant and resistant to foliar diseases. St. Augustine is the most shade tolerant warm-season grass followed closely by Zoysia matrella, Emerald or some of the Z. japonica cultivars. Avoid Floratam and Meyer (Z52) cultivars; they are less shade tolerant. Centipede and carpet grasses will tolerate moderate shade, but bermudagrasses will not do much in most shade.

Whenever establishing turf in a stressful area, it is always best to plant sod solidly. If plugs are expected to run and knit together, there must be adequate light for growth. The sod you will buy was grown in full sun, so don't be surprised when some thickness is lost. If sod won't survive in the heavy shade, then go back to the planning board.



mulch under old tree



shade tolerant ground cover



planting a mulch area

On established turf in shade, proper culture is critical to survival. We must cultivate extra foliage to intercept what light does infiltrate. Always try to mow whenever 50 percent of the top grows back. Putting it another way, never remove more than 1/3 of the foliage during mowing to avoid the shock of scalping. Choose the tallest recommended height of cut for shade turf.

	Recommended Height of Cut in Shade (inches)
St. Augustine	3 – 3 1/2
Zoysia	1 1/2 – 2 1/2
Carpet	2 1/2
Centipede	2

Turf in shade needs adequate and balanced soil fertility. It competes with trees and shrubs for soil nutrients. Follow the recommended fertility practice for that grass species using a slow-release fertilizer. High rates of fertility will actually reduce growth and rooting; low light is the limiting factor, not low fertility.

Shade varies with the season. Early spring fertilization is particularly important for shaded turf because it is just starting up and the tree foliage density is at a minimum for the growing season. Give the lawn a head start.

Early fall fertilization is also critical. In the fall, we try to slow turf growth and boost plant levels of potassium for extra freeze protection. Choose a fertilizer analysis that is very low in nitrogen (N) and high in potash (K_2O) to winterize the sod.

We should distinguish between fertilizing the trees and the turf under those trees. Mature trees rarely need fertilizer. They are often fertilized by broadcasting a fertilizer like 13-13-13 under the canopy and extending a few feet beyond the drip line. If this area contains turfgrass or shrubs, you will be fertilizing them as well and that may not be appropriate. Some lawn fertilizer will leach down to tree roots. If this is not enough or the tree is doing poorly, fertilize the tree separately from the underlying lawn grass. Be sure the tree really needs more fertilizer, and provide the proper blend based on a soil fertility test.

Tree fertilizer may be placed under the soil surface as a granular, liquid or tree spike. Spikes are expensive, and liquids require a special injector. Granules of 13-13-13 or other blends can be placed in holes starting several feet from the trunk and extending to several feet beyond the drip line. Hardwoods require about 2 pounds (2 pints) of triple 13 per 100 square feet, and conifers require half that. Space holes 2 to 3 feet apart.

Holes can be made in several ways. You can use a soil probe, soil auger with drill, large planting dibble or a shovel. The soil aerification effect of boring holes will be a bonus in itself, but avoid hitting any large roots.

Irrigate the shade turf and trees in different ways. Trees may seldom require irrigation, but when they do, be sure to water deeply to promote deep rooting. Also irrigate the sod deeply, but to a depth of 4 to 5 inches. This zone will more often need irrigation because the tree has a deeper and stronger moisture draw. As such, sod under trees often needs irrigation when sun turf does not. A



planting a mulch area



shade planting



shade planting

well-planned irrigation system can allow for this zonal preference. Allow the turf to dry down between waterings to develop a deeper and more efficient root system. Where the turf grows up to the tree trunk, sprinklers should be set to avoid wetting the base of the tree.

During hot, dry spells of two weeks or more, a slow overnight drip from a soaker system can be ideal for the trees. If dry, breezy conditions persist, repeat the drip every 10 days or as needed.

With more ideal disease conditions developing in the shade, the succulent turfgrass foliage is more prone to disease damage. Selecting a more disease-resistant cultivar would be a good idea. During damp periods, you must scout the area often, looking for leaf spots. At first sign of disease, apply an approved turf fungicide. Be sure adequate potassium fertility is provided to develop a tougher turf plant.

Weed control in shade may not be an issue. Many weeds won't grow in shade, and those that do may be welcome because they add to the ground cover. If applying a weed-and-feed or straight herbicide under a tree canopy, be sure it is labeled for that use. Many products contain atrazine, etc. and warn against use under canopy drip lines.

Mosses are very competitive in this environment. They do well in shady, low fertility, wet, acid or compacted soils that have thin turf. Moss can be controlled with copper or iron sulfates applying 5 ounces per 1,000 square feet in 3-4 gallons of water. After moss dies, rake if needed and apply 5-10 pounds of ag lime per 1,000 square feet to remove the acid and high levels of copper. Reports of control materials have also included Dawn dish soap (2-4 ounces per gallon), chlorothalonil or mancozeb fungicides, ammonium sulfate, glyphosate or hydrated lime (2-3 pounds per 1,000 square feet in 3 gallons of water) applied directly to the moss.

If you choose to exceed the recommended turf boundaries and maximize turf areas around mature trees, you may consider pruning out low-hanging limbs to reduce shade. This will allow more side light to reach the turf below the tree canopy. Take care not to strip too many lower limbs from a tree, because those limbs lend support to the tree trunk. A basic rule is to remove branches on only the bottom third of the trunk. This should be opened to about 8 or 9 feet up. You may also have an arborist thin the opaque canopy to allow more light through.

If reducing root competition, consider the health of the tree (and the expense of removing a tree you've just killed). Avoid removing more than 1/3 of the roots in any one year, and provide the tree with extra care such as supplemental fertilizing and watering.

Avoid any unnecessary stress on shaded turf. This will include traffic or accumulating fallen leaves. Collect the leaves or mulch-mow the leaves back into the sod only if accumulations are not excessive.

Remember, our grasses do not excel in the shade. We must do what we can to help them tolerate stress relating to shade.

For more on tree care and tree health, visit www.treelink.org and www.treesaregood.org.

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Pub. 2909 10/04 online only

Issued in furtherance of Cooperative Extension work, Acts of Congress of May 8 and June 30, 1914, in cooperation with the United States Department of Agriculture. The Louisiana Cooperative Extension Service provides equal opportunities in programs and employment.



moss in the shade



moss under a tree