

Turf Growing Under Shady Conditions

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Trees and shade create a naturally enjoyable environment in the landscape. However, it is difficult to grow turf under trees because not only the quantity but also the quality of the light changes in shadow from "near red" to "far red," range of wavelengths which affects photosynthesis adversely. In addition, blue component of sunlight is filtered in dense canopies leading to thinner leaves, leaf cuticles and plant stem along with lesser shoot density, rhizome and stolon. Turfgrasses under tree face hard competition for water and nutrients resulting lanky plants. Often turf grass growth is also affected due to allelopathic effects (inhibitory effect of silver maple upon Kentucky bluegrass and turf grasses under sweet gum and unpruned pin oak) and excessive organic matter from leaf litter. Turfgrasses can be grown successfully, if tree canopy is pruned from the lower third of the tree for efficient photosynthesis and carbohydrate production. Increased relative humidity and decreased air circulation in sheltered areas favour the development of turf grass diseases, like powdery mildew and also promote moss and algae problems.

Trees are the primary cause of shade, well advised tree management practices are important to minimize shade problems. Downfall of turf grasses growing under trees may occur by and by over a number of years. As trees grow, their canopies become wider, thicker and denser, and their roots increase in mass and spread. Planting of shallow-rooted trees, like willow, silver maple, cottonwood etc. should be avoided, if possible, in order to reduce nutrient and water deficits due to root competition and to avoid future hindrance to mowing. When establishing turf under shaded conditions, species and cultivars possessing good shade tolerance should be selected. The fine-leaf fescues (Hard fescue, Chewings fescue, creeping red fescue) as a group are generally better adapted to shaded conditions. Creeping red fescue is the most shade tolerant of these. Reduced shoot density, shortened roots, erect and elongated

development of stems and leaves lower plant vigour, environmental factors in the shadow are frequently favourable to the development of disease, increased susceptibility to disease, reduced wear tolerance

How to grow grass in the shade

Contact a certified arborist to selectively remove branches and to thin out the tree canopy to increase the amount of sunlight. No more than ¼ of the foliage-bearing branches should be removed at one time. Perform a soil test if you have never done one in the shady area or more than 3 years have passed since the last one. Apply lime and fertilizer according to the recommendations provided in the soil test results.

Turf-type tall fescues (needs a minimum of 4 hours of direct sunlight) and fine fescues, such as hard fescue, creeping red fescue, and sheep fescue are best suited for shady areas. Hard fescue is the best performer in the group. However, fine fescues do not handle foot traffic well, should be infrequently mowed, need at a bare minimum 2 hours of direct sunlight, and generally are planted on low maintenance sites. Fertilize shady turf once a year in the fall. Set mower height to a minimum of 3 inches and do not mow during the hottest, driest part of the summer.

Problems encountered when growing grass in the shade

Weeds like ground ivy will invade shady areas because the grass tends to thin out and conditions are more favourable for the weeds. Moss does not kill grass but begins to grow as the grass thins out. Extra effort is needed to grow grass in the shade. It may be necessary to overseed yearly in the fall. Consider growing a shade-tolerant groundcover in areas where the grass will not grow. However, do not plant invasive plants like English ivy, creeping euonymus, or vinca.

Advantage of Shade

Foliage doesn't burn, less weeds most are full sun plants, plants grow slower, less maintenance, protects new plants until established, less insect problems they are active in sun, dead leaves under trees winter protection

Disadvantage of Shade

Plants rarely bloom, concentrate on form, foliage, colour, texture, grow more slowly take time to fill in, plants suffer from root competition, area under trees messy from falling leaves, snails/slugs, mold/mildew, cannot grow perfect lawn

Management Practices for Growing turf grass in the shade

Fertility

Nitrogen is often the most limiting nutrient for turf grasses. This vital nutrient promotes color, density, recuperative ability, and plant health when applied at adequate rates. Shaded plants will grow taller in an effort to outcompete the source of shade. Meanwhile, nitrogen fertilization tends to encourage rapid vertical growth.

The combination of the two will result in a plant that puts all of its energy reserves into shoot growth at the expense of root growth. Furthermore, when the area is mown, excessive shoot growth will be removed, which adds another stress to the plant. While it may be tempting to add a little extra nitrogen to get your grass to grow under shade, applying normally recommended nitrogen rates will enhance a turf grass stand when light interception is limited.

Raise Mowing Height

Mowing height is a critical management practice for successful turf grass grown in shade. Plants are unique organisms for their ability to capture sunlight and convert this energy into food for the plant (photosynthesis). Simply raising the height of cut should enhance shade tolerance by allowing a greater leaf surface for solar absorption.

Reduce Traffic

Foot traffic, whether from pets or people, can cause excessive stress for shaded turf, eventually leading to decline. Mowing is also a form of traffic that should be reduced when possible. In fact, under many

shade trees, the wheels of riding lawn mowers are a main cause of turf decline. Combine increased mowing heights with string trimming, or use mulch under the drip-line of trees that require a tight turning pattern.

Irrigation

Irrigation is often difficult to manage because of the many variables that come with irrigation scheduling. In general, areas under shade are less vigorous, cooler, and have reduced evapotranspiration rates compared to full-sunlight environments. All of this adds up to a reduced water requirement. However, at times, turf areas under shade may require additional water due to tree root competition. Wilting turf is an indication watering is needed.

Plant growth regulators can improve the quality slow leaf elongation, which increases energy for root growth and storage. Primo (Trinexapac Ethyl) is an effective plant growth regulator documented to improve shade tolerance of turf. Diseases are often increased in shaded areas due to decreased air flow and increased surface moisture. Monitor these areas and use fungicides, if needed, according to label directions.

Grasses suitable for Use in Shade

In Australia, many varieties with high shade tolerant are warm season grasses such as Buffalo grass (up to 70% shade) and Zoysia (up to 40% shade).

- ❖ **Prestige Buffalo:** Prestige Buffalo is known for its ability to tolerate shady conditions. It can thrive in areas that receive as little as three to four hours of sunlight each day, which makes it an ideal choice for locations that are partly shaded, such as beneath trees or near buildings. In addition, it has good drought-tolerance and is resistant to wear and tear. As a result, it is an ideal choice for lawns that are subject to heavy foot traffic.
- ❖ **Sapphire Soft Leaf Buffalo:** This grass that is its ability to thrive in shady areas. This grass is perfect for home owners who want to maintain a lush, green lawn in low-light areas. It has also highly resistant to drought and heat, making it a low maintenance option for busy families.

- ❖ **Empire Zoysia:** This is a versatile grass with a soft texture and attractive green color that can be used in a variety of settings. It is tolerant of both sun and shade, making it ideal for use in both low-wear and high-wear areas. In low-traffic areas, it can tolerate up to 50% shade, while in moderate to high-traffic areas it can survive in up to 30% shade. In addition, Empire Zoysia is resistant to a variety of pests and diseases, and requires infrequent watering or mowing.
- ❖ **Nara Native Zoysia:** Another ideal Zoysia choice is Nara Native Zoysia which has 40% to 50% shade tolerance – higher than Couch and Kikuyu. It is a true all-rounder that performs under tough conditions without sacrificing on looks and feel. While it may go dormant in low light conditions, it does maintain good colour.
- ❖ **St. Augustine Grass:** It is a warm-season lawn grass that does well in shaded areas. However, it won't thrive if it gets zero sunlight. This type of grass grows well in full sunlight, so when exposed to 4-5 hours of direct sunlight, they can fully resist the low light conditions after.
- ❖ **Fescue:** - This is a group of cool season varieties that grow in shady areas. It contains two major sub-species: tall fescue and fine fescue. Turf-type tall fescue can grow in drought conditions as well as low fertility regions. The fine fescues are fine, shorter fescue grass that can be

divided into four categories: creeping red, hard fescue, chewings fescue and sheep fescue. Fescue grass requires 4 to 6 hours of filtered or dappled sunlight and a proper lawn care for a healthy growth. It will give the grass a better chance of surviving low sunlight conditions.

- ❖ **Bluegrass:** Rough Bluegrass is the particular type of bluegrass that works well with shady areas. It's also adapted for wet and cool areas. It requires about 4 hours of dappled sunlight daily to be able to fully grow.
- ❖ **Rye grass:** Perennial Ryegrass is the shade tolerant grass. It's also a cool season grass. It can thrive for several growing seasons if it gets at least 4 to 5 hours of full sun daily.
- ❖ **Weeping grass:** Griffin Weeping grass is highly shade-tolerant and the best out of all grass species when it comes to its ability for healthy development without sunlight.

Tips to grow grass in shade

Prune the tree to thin the canopy, it will allow sunlight to reach the grass beneath. Lawn aeration creates holes in the soil to allow air, water and fertilizer to reach grass roots. It's better to aerate warm-season grass in late spring or early summer and cool-season grass in early fall. After aerating the area, spread a thin layer of compost to give shady grass a boost to grow. Grass in shady areas needs less fertilizer than grass exposed to full sun.

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