Selecting the Right Turf and Management for Shaded Environments

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There are solutions to the tree shade issue but we won’t turn to such barbaric measures!
Woody Vegetation Control

- Cut stump application
- Basal stem application
Proper pruning enhances the beauty of almost any landscape tree and shrub and is an essential maintenance practice in home landscaping. On the other hand, improper pruning can destroy the natural beauty of a tree or shrub and reduce its landscape potential by weakening and thus disposing plants to various maladies.

Pruning, like any other skill, requires knowledge and practice to achieve success. Remember that pruning is often the removal of certain plant parts that are no longer effective or of use to the plant. It is done to redirect additional energy for the development of the flowers, fruits, foliage, and limbs that remain. Pruning essentially involves removing plant parts to improve health, landscape effect, or value of the plant. Once the objectives are determined and a few basic principles are understood, pruning is simply a matter of common sense.
Drummond's Aster
Tree shade problem sites
Tree shade problem sites

- Tree competition for sunlight
- Root competition for soil moisture, nutrients and root zone space
- Less air movement, more turf disease in shade
- Reducing turfgrass use in shade solves problems
Managing Turfgrass in the Shade in Oklahoma

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Introduction
Light is a basic requirement for turfgrass growth and is often limiting in the landscape due to shade provided by trees, shrubs, buildings, homes or other structures. Photosynthetically active radiation (PAR) refers to the spectral range of solar radiation from 400 nm to 700 nm (nanometers). Plants contain chlorophyll, which absorbs light in the PAR range for photosynthesis. All turfgrasses will grow best in full-sun conditions provided their management requirements are satisfied. In shaded areas, the specific wavelengths of light available to a turfgrass plant are altered and the amount of light available can reduce the plant’s ability to efficiently perform photosynthesis. Consequently, it becomes increasingly difficult to trim trees to the point where sufficient light is provided to the turfgrass area. Turfgrasses need light for adequate survival and performance, and even the most “shade tolerant” grass will not thrive in heavily shaded areas (Figure 1).

Plant Selection
While warm-season grasses are generally more heat and drought tolerant than cool-season grasses, cool-season grasses are generally more shade tolerant than warm-season grasses (Tables 1-3). Bermudagrasses (Cynodon spp.) are the most commonly planted lawn grasses in Oklahoma. Ber-
Turf Management in Shade

• Be prepared with other planting options
<table>
<thead>
<tr>
<th></th>
<th>Bermudagrass</th>
<th>Zoysiagrass</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Good</strong></td>
<td></td>
<td>Cavalier, Crowne, Diamond, El Toro,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Emerald, Empire, Palisades, Zorro</td>
</tr>
<tr>
<td><strong>Fair</strong></td>
<td>Celebration, TifGrand (Tifton No. 4, ST-5)</td>
<td>Meyer</td>
</tr>
<tr>
<td><strong>Poor</strong></td>
<td>Riviera, Princess 77, Patriot</td>
<td></td>
</tr>
<tr>
<td><strong>Very Poor</strong></td>
<td>Common, U-3, Tifway (419), Tifsport, Tifgreen,</td>
<td>NuMex Sahara, Yukon, Midlawn</td>
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<td></td>
<td>NuMex Sahara, Yukon, Midlawn</td>
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</tbody>
</table>

1 Rankings are relative among selected bermudagrass and zoysiagrass cultivars only.
Tall fescue in a light to medium shade
Turf type vs forage type tall fescue

Left: KY 31, non-turf type
Right: turf-type

light to medium shade
Tall fescue
St. Augustinegrass

- Raleigh
- TamStar
- Texas Common

Full sun to medium shade
Zoysiagrass

- Seeded
  - Compadre
  - Zenith
- Vegetative
  - Meyer
  - El Toro
  - Palisade
  - Cavalier

Full sun or light shade
Bermudagrass

Full sun
Bermudagrasses

• Seeded
  • Riviera
  • Yukon
  • Sahara

• Vegetative commons
  • U-3

• Vegetative hybrids
  • Latitude 36
  • NorthBridge
  • Tifway
  • Astro
  • TifTuf
Turfgrass failure in shade
Tree shade problem sites
Sedges
Perennial sedges

- Yellow nutsedge (left)
- Purple nutsedge (right)
Mix of Native Sedges
Mix of Native Sedges
Annual bluegrass
Alternatives to turfgrass in shade

• Liriope or monkeygrass
Variegated Liriope
Optimize growing conditions for the lawn where feasible

- **Soil testing and diagnostics** – as needed
- **Fixing damaged areas** – seeding, sodding or plugging
- **Fertilization** – match amount and timing to grass present and performance expectations
- **Irrigation** – are you going to irrigate or go “dry land”
- **Mowing** – right height and frequency of mowing
- **Weed control** – tolerating some weeds, hand removal, pre-emergent and post-emergent herbicides
• Abiotic conditions
  • compaction
  • wear stress
Herbicides
Chemical Weed Control

- **pre-emergent** - control applied so weed is killed when it germinates. Apply before weed germinates.

- **post-emergent** - control applied to existing weeds. Apply when weed is immature for best control.
Herbicide

For the control of grass weeds in landscape areas, roadsides, nurseries, greenhouses, flower beds, groundcovers, interiorscapes, parks, sports fields, golf courses, commercial and residential areas.

Active Ingredient:
Fluazifop-P-butyl
Butyl (R)-2-[4-[[5-(trifluoromethyl)-2-pyridinyl]oxy]phenoxy]propanoate* ........ 24.5%

Other Ingredients 75.5%

Total: 100.0%

*Fusilade II Turf and Ornamental Herbicide is an emulsifiable concentrate containing 2 pounds (+) isomer (fluazifop-P-butyl) per gallon.
Contains petroleum distillate.

KEEP OUT OF REACH OF CHILDREN
CAUTION
See additional precautionary statements and directions for use inside booklet.
Summer Annual Grassy Weeds

- Crabgrass
- Goosegrass
Common Winter Annual Grassy Weeds

annual bluegrass
(Poa annua)

downy brome, cheat, rescuegrass
Pre-emergent Herbicides Used in Landscape Beds, Nursery Production and Turfgrass Management

• Labeled in turf, ornamentals, ground beds under trees include but not limited to the products:
  • Surflan (oryzalin)
  • Barricade (prodiamine)
  • Pendulum (pendimethalin)
  • Ronstar (oxadiazon)
  • Gallery (isoxaben)
Insecticides
Insect Control

- Principle problems include:
  - White grubs
  - Fall armyworms

Damage from moles

Fall Armyworm Identification

- Eighth abdominal segment with four dark spots
- Broad, pale band along top of body, contrasted by dark striping at the sides
- Head with dark net-like pattern and upside-down, white "Y" marking
Fungicides
Brown Patch

- Most prevalent on tall fescue
- Disease severity increases with reduced air movement, high temps (80+), high humidity, heavy dew, summer fertilization, heavy shade
Fairy Ring
Fix damaged areas
Steps in establishment

- Remove objectionable species
- No pre-emergent herbicides within 100 days prior to establishment (its use-rate dependent also)
- Tillage, grading, fine raking
- P and K additions if soil testing determined
- Proper seeding rate or laying of sod
- 1 lb of N at time of seeding with P and K
- Mulching?
- Irrigation to keep site moist but not saturated. (several irrigations per day are often needed!)
A tall fescue seedling about 2 days after germination
A tall fescue seedling about 3 days after germination
2018 NTEP Tall fescue trial – 130 entries
Tall fescue 26 days after seeding (DAS)
A turf-type tall fescue  KY31 tall fescue
Aerification
Aerification

- provides proper aeration and soil water movement through soil
- remove 1/2” to 1” dia. cores at least 2” deep
  - warm-season grasses prior to greenup or during active growth if irrigation is present
  - cool-season grasses early fall
Irrigation
Soil Physical Problems

Poor surface and subsurface drainage

Installation of drain pipe to improve drainage
Fertilization
Soil Testing
The Right First Step
Soil Testing

• $10.00 basic soil test for soil pH, N, P and K
• Tells you if liming is necessary
• Determines if phosphorus and potassium needed
• Determines nitrogen present which is helpful
• Helps you build the right fertilization program
• Correct fertilization is the basis of resiliency because “a healthy plant is a more stress tolerant plant” — stress tolerance is the basis of resiliency!
• Drought resistance improves with a more extensive root system — your lawn’s root system is more extensive under proper soil fertility
How to take a Soil Test
Sample from 0 to 3 or 0 to 6 inches deep?
Remove turf near soil surface
Collect and Mix Multiple Samples
A minimum of 10 samples per Site
Soil sampling

• Need about a pint of soil
• Take to OSU county extension office
• Expect results in 10 to 14 days
• Use results to adjust fertilizer programs or adjust pH of soil if necessary
OSU Turfgrass Fact Sheets

• [http://pods.dasnr.okstate.edu/docushare/dsweb/View/Collection-397](http://pods.dasnr.okstate.edu/docushare/dsweb/View/Collection-397)

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