

Cover Your Dirt

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How can we cover our dirt?

- Turfgrass
- Native grasses
- Wildflowers
- Groundcovers
- Planting beds
- Mulches

Sustainable Development



 Capable of being maintained at a steady level without exhausting natural resources or causing severe ecological damage.



The Sustainable Lawn



A lawn managed using appropriate cultural, chemical and biological inputs judiciously and making efficient use of non-renewable natural resources to improve quality of life and enhance the environment.

The Sustainable Lawn

Why?



Environmental Issues / Public Concerns

Several environmental issues and public concerns regarding lawn care are the potential for nutrient and pesticide contamination of surface and ground water; the transport of sediment and sediment-absorbed chemicals from turf to water; the use of water for irrigation; and an accumulation of operational wastes including batteries, cleansers, oil and tires.

The Sustainable Lawn



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The Sustainable Lawn

How?





Select turfgrass species and varieties that are adapted to the local weather and soils.



Establish and maintain turfgrasses in full sun or light, open shade and in fertile, well-drained soils.

Effect of Tree Canopy on Light Quality



An estimated 25% or more of managed turfgrasses experience shade stress – J. B. Beard, 1973



Consider mixing organic matter (e.g., compost) into the soil before planting or after core aerifying.

RAlexander& Assoc.

The Soil Profile

A Horizon

The A horizon generally contains more organic matter than the other horizons.

A 1% increase in organic matter can increase the water holding capacity of 1 ac.-ft. of soil by ~6,000 gallons. KalamazooKalamazooOshtemoOshtemoTop SlopeSummitTop SlopeSummit



Numbers and Live Weight of Microorganisms in Soil.*

Organism	Number in one pound	Lbs. of organisms per 1,000 sq. ft.
Bacteria	910 billion	12
Fungi	450 million	35
Actinomycetes	20 billion	17
Protozoa	670 million	8
Total	> 930 billion	> 70

Adapted from: Soil Conditions and Plant Growth, Sir E.J. Russell, Longman's, Green & Company, London, Eighth ed. 1950. Cited in: E.C. Roberts, 1989, The Biology of Soils, Golf Course Management Magazine, Apr.

Numbers of Macroorganisms in Soil.*

Organism	Numbers per 1,000 sq. ft.
Insects- earwigs, crickets	1.8 million
Myriapods- millipedes, centipedes	0.05 million
Arachnids- spiders, mites	0.1 million
Oligochaetes- earthworms	0.2 million
Nematodes- microscopic roundworms	0.2 million
Total	2.35 million

Adapted from: Soil Conditions and Plant Growth, Sir E.J. Russell, Longman's, Green & Company, London, Eighth ed. 1950. Cited in: E.C. Roberts, 1989, The Biology of Soils, Golf Course Management Magazine, Apr.



Fertilize according to soil test recommendations and the nutrient requirements of the turfgrass.

Soil Sampling Depth: Six Inches

Sampling Locations: Random, 2 to 3 / 1,000 Sq. Ft.

Maintain

Turfgrasses in the Landscape



Relative Level of Soil Phosphorus and Potassium Reported in Pounds Per Acre.

<u>Rating</u>	<u>Phosphorus</u> (P)	<u>Potassium</u> (K)
LOW (L)	0 - 18	0 - 90
MEDIUM (M)	19 - 30	91 - 160
HIGH (H)	31 - 120	161 - 320
VERY HIGH (VH)	121+	321+



Common Turfgrasses in Tennessee

Cool-season

- Tall fescue
- Fine fescues
- Kentucky bluegrass
- Perennial ryegrass
- Annual ryegrass

Warm-season

- Bermudagrass
- Zoysia
- Centipedegrass

Cool-season Turfgrasses



Turfgrasses in the Landscape

Select

Warm-season Turfgrasses



J F M A M J J A S O N D Month

Grasses for TN Landscapes

Turf Climates in the U.S.

Adaptation: Cool vs. Warm Season



- Arid/Humid (Cool and Warm)
- Elevational effects



Tall Fescue (Festuca arundinacea)





Turfgrass Growth Habit Bunch



- Annual ryegrass
- Chewings fescue
- Hard fescue
- Perennial ryegrass
- Tall fescue

Turfgrass Growth Habit Sod-forming: Stolons



- Bermudagrass
- Centipedegrass
- St. Augustinegrass
- Zoysia

Turfgrass Growth Habit Sod-forming: Rhizomes



- Bermudagrass
- Kentucky bluegrass

• Zoysia

Select

Drought Tolerance Cool-season Turfgrasses





High Temperature Hardiness Cool-season Turfgrasses



Establishing Turf Using Seed, Sod, Plugs or Sprigs



Master Gardener 05

Establish

The 3F Planting Bed

(Fertile, Firm and Free of Troublesome Weeds)



- Topsoil
- Compost
- Limestone
- Starter fertilizer

Establish



LIMING TIPS

Apply lime uniformly, according to soil test recommendations

Pelletized lime is usually much easier to broadcast

Do not apply lime without the benefit of a soil test




Starter Fertilizer



• 3-23-23

Establish

Care After Planting

• Water

• Mowing

Fertilization

Pest control

Establish



Plant at the proper time of year.

Preferred Seeding Dates:

• Seed cool-season lawngrasses in late August, September or early October.

J F M A M J J Aug Sept Oct N D

Establish

Master Gardener 05

Preferred Seeding Dates:

• Seed warm-season lawngrasses in May, June or early July.

J F M A May June July A S O N D

Establish

Master Gardener 05



Use the recommended amount of seeds, sprigs or plugs.

Seeding Rates Pounds / 1,000 Square Feet

- Chewings fescue 3 to 5
- Creeping bentgrass 1 to 2
- Kentucky bluegrass 2 to 3
- Perennial ryegrass 4 to 6
- Red fescue 3 to 5
- Tall fescue 5 to 7



Mulch after seeding to conserve moisture and limit soil erosion.

Straw Mulch

¹/₂ of the soil surface should be covered with mulch

Fertilizing

Maintain

Turfgrasses in the Landscap

Fertility Organic or Inorganic

Definitions

Organic

Containing carbon

Inorganic

A material that is not derived from plant or animal-based materials

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Fertilizer or Amendment

Fertilizer

- Guaranteed Analysis Regulatory agency
- Minimum nutrient content displayed on the label

Amendment

- No guaranteed analysis of nutrient content
- No state testing

Synthetic Organic Nitrogen Sources

- Urea
- Methylene urea (MU)
- Urea formaldehyde (UF)



Nutrient Sources in Organic Fertilizers

- Animal wastes poultry litter, manures (guano), processing (blood meal, bone meal, fish wastes, feather meal), ...
- Industry wastes biosolids, processing (leather scraps, dye residues), ash, ...
 - Plant wastes mushroom debris, soybean extracts, corn gluten, yucca, kelp, molasses, ...

Fertiliz





19-4-8







Amendments



Promotional claims and application recommendations



Temperate, moisture controlled finished composted product.

- SINGLE SOURCE BEEF MANURE.
- ORDERLESS, SAFE TO USE ANYWHERE.
- COMPOSTED AEAROBICALLY, AND WEED SEEDS ARE DESTROYED.

FERTILIZING TIPS

Develop a plan based on soil test results and the fertility requirement of the turfgrass you are managing

Consider using a product containing extendedrelease nitrogen

Uniformly apply an appropriate amount of fertilizer



Tall Fescue Fertilization Low soil P or K levels



Month

Maintain

Turfgrasses in the Landscape

Example Bermudagrass Lawn Fertilization Program Medium to High soil P or K levels



Month





Mow often at an appropriate cutting height.

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Recommended Cutting Height Cool-season Turfgrasses



Maintain



Change the direction in which the lawn is mowed.

MOWING TIPS

Mow often at an appropriate cutting height
Change direction each time you mow
Sharpen or replace blades at least once each year



Core Aerification





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Turfgrasses in the Landscape

Soil Compaction















Cool-season Turfs



Topdressing



Topdressing Turf After
 Core Aerification with ¼ to ½-inch of Mature
 Compost can Improve the
 Biological Activity and
 Increase the Organic Matter
 Content of the Soil







Dethatch as needed.





Learn to identify and manage turfgrass pests.

Pre-emergence Herbicides

F

Μ

М

Summer Annual Weed Grasses

Smooth Crabgrass

Goosegrass

Post-emergence Herbicides

F

Μ

A

Μ

Prostrate Spurge

S

()

A

Common Purslane

N

Summer Annual Broadleaf Weeds

J

J



D

Post-emergence Herbicides

Μ

Purple Deadnettle

S

Ground Ivy



М

Integrated Pest



An Integrated Pest Management program can reduce the amount of pesticides applied and help protect beneficial organisms in the sustainable home lawn.



Grasses for TN Landscapes
Native Grasses for Tennessee

Big bluestem

Broomsedge

Eastern Gamagrass

Indiangrass

Little bluestem

□ Switchgrass

Groundcovers

- Use where grasses will not grow well
- Use in areas not subject to heavy traffic
- More compatible near trees than grasses





