HOME LAWN CARE

Using Weeds, Insects and Diseases as Indicators of Turf Problems

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FACILITIES SERVICES

Turfgrasses grow best in full sun and deep, fertile and well-drained soils.

Primary Cultural Practices (PCP)

1. **Mowing**
2. **Fertility**
3. **Irrigation**
4. **Cultivation**
5. **Pest Management**

Primary Cultural Practices

Mowing

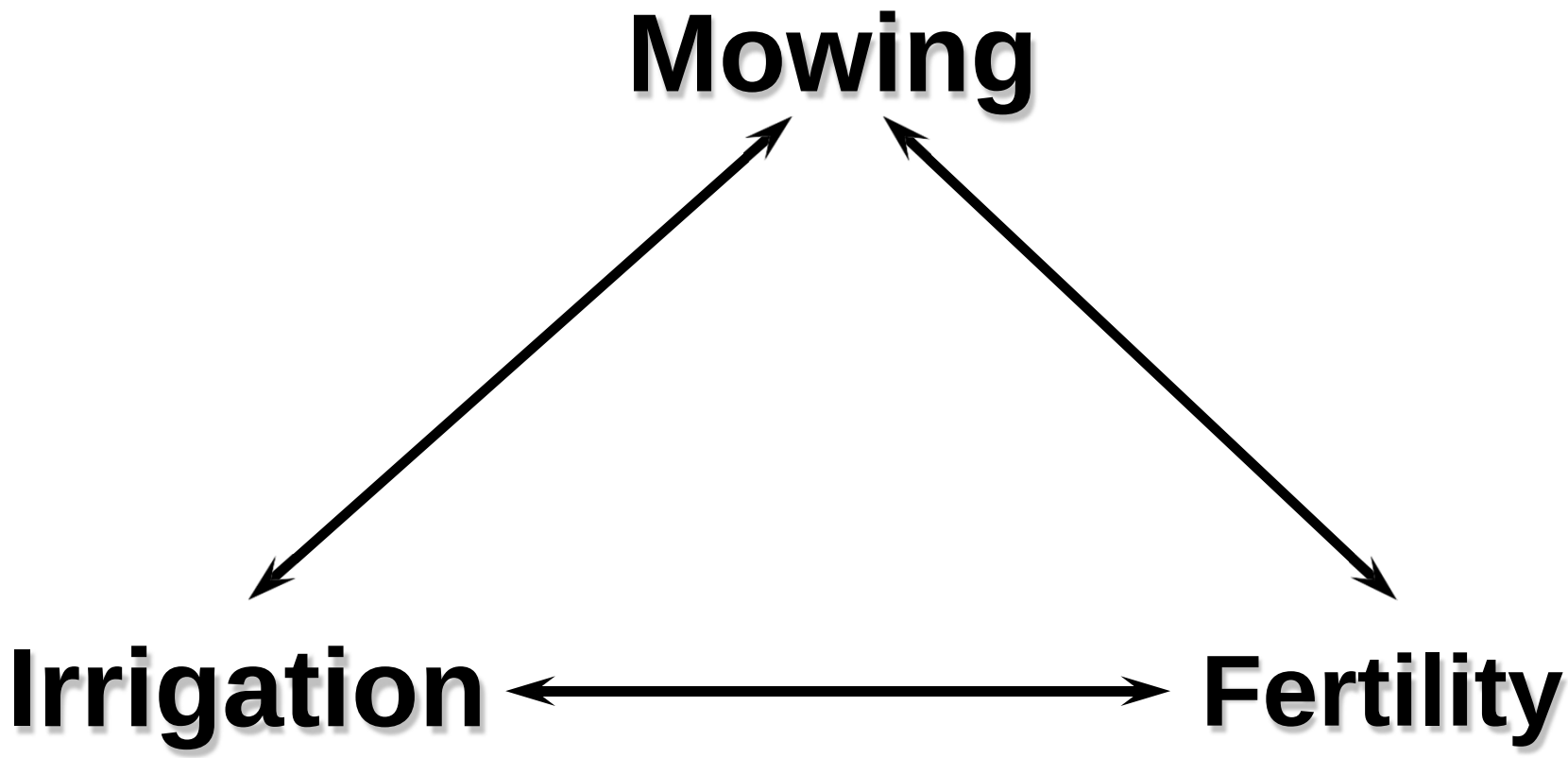
Irrigation

Fertilizing

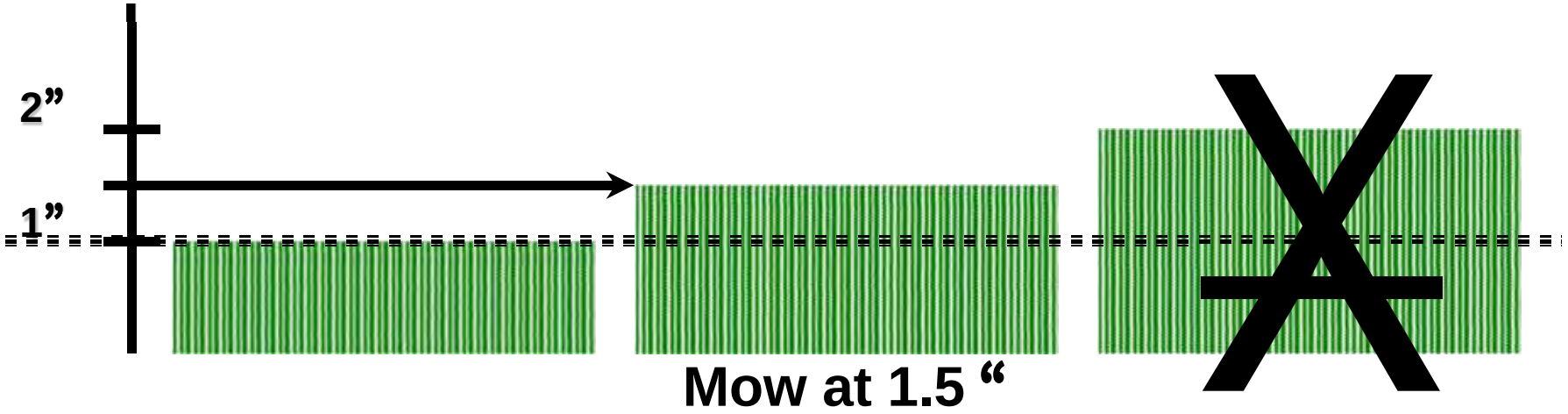
Cultivation

Pest Management

Sound Management = Integrated Thinking

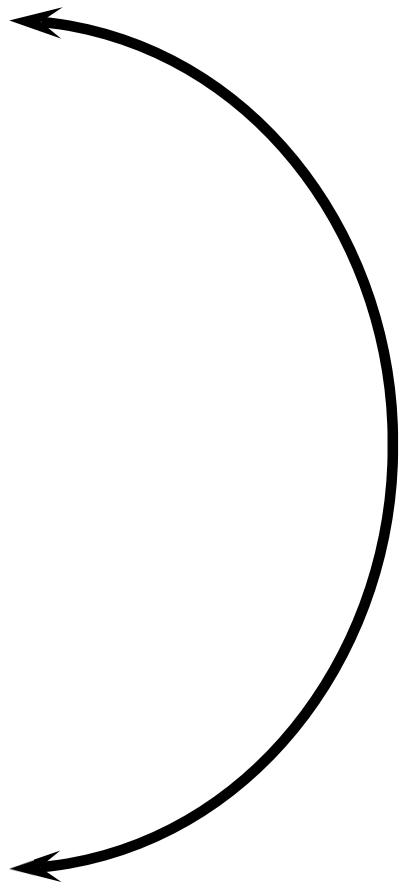


The 1/3 rule states…
“never remove more than 1/3 of the turfgrass leaves with a single mowing”



(Desired mowing height * 1.5) = mow at height

Mowing Height



Mowing Frequency

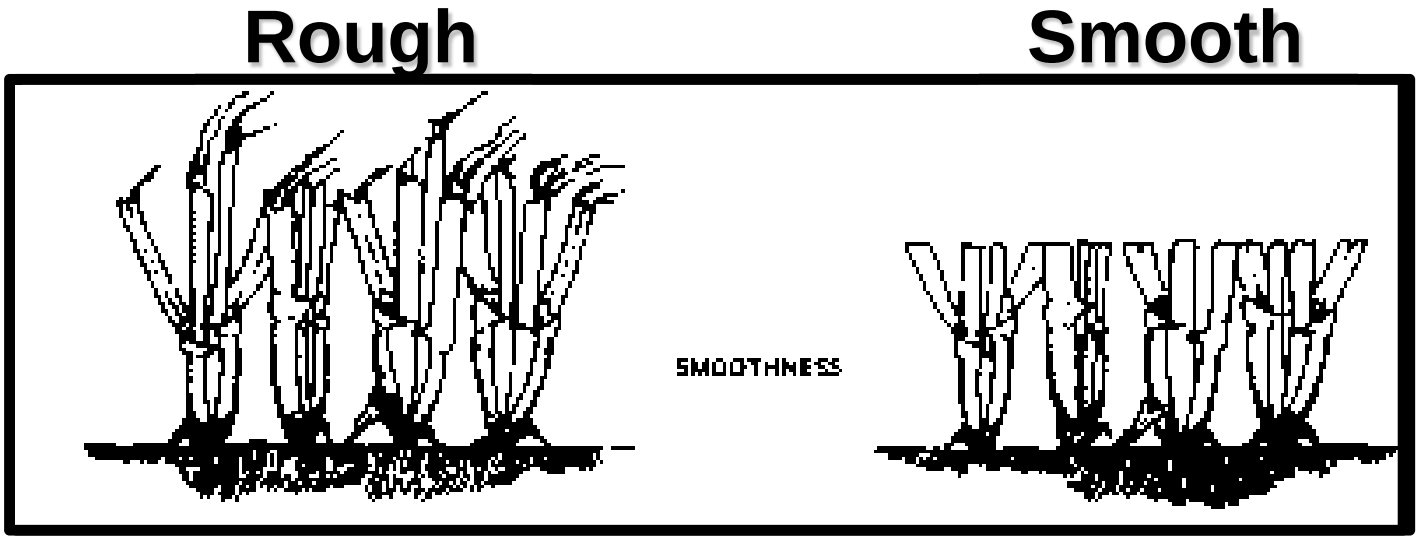
Suggested mowing heights for major cool-season turfgrasses

Species	Min. Mow	Max Mow
	---------- Height in inches ----------	
Tall Fescue	1.0	1.5	3.0	4.5
Perennial Ryegrass	0.25	0.375	3.0	4.5
Kentucky Bluegrass	0.75	1.125	3.0	4.5
Creeping Bentgrass	0.10	0.15	0.25	0.375

Suggested mowing heights for major warm-season turfgrasses

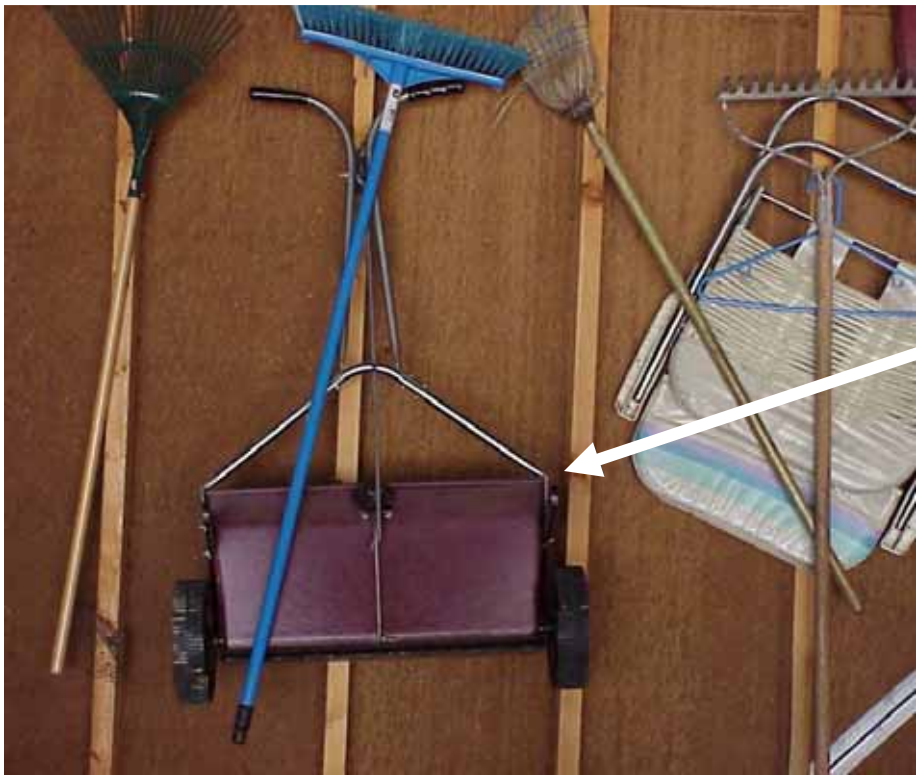
Species	Min. Mow	Max Mow
	---------- Height in inches ----------	
Greens Bermudagrass	0.10	0.15	0.25	0.375
Other Bermudagrass	0.5	0.75	3.0	4.5
Zoysiagrass	0.375	0.56	3.0	4.5
Centipede	1.0	1.5	3.0	4.5
St. Augustine	2.0	3.0	4.0	6.0

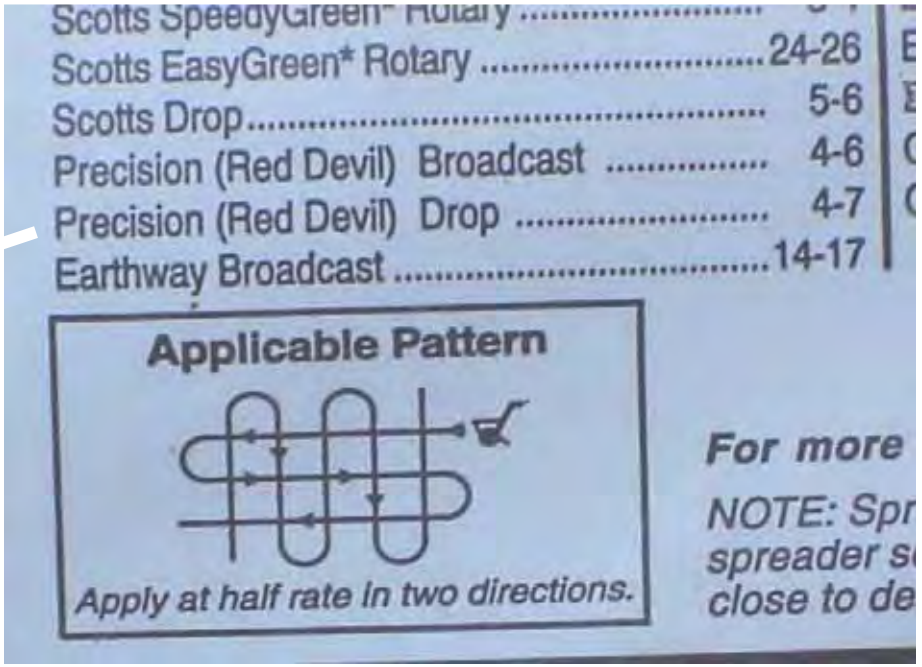
Improper Cutting Causes A Drop in Turf Quality

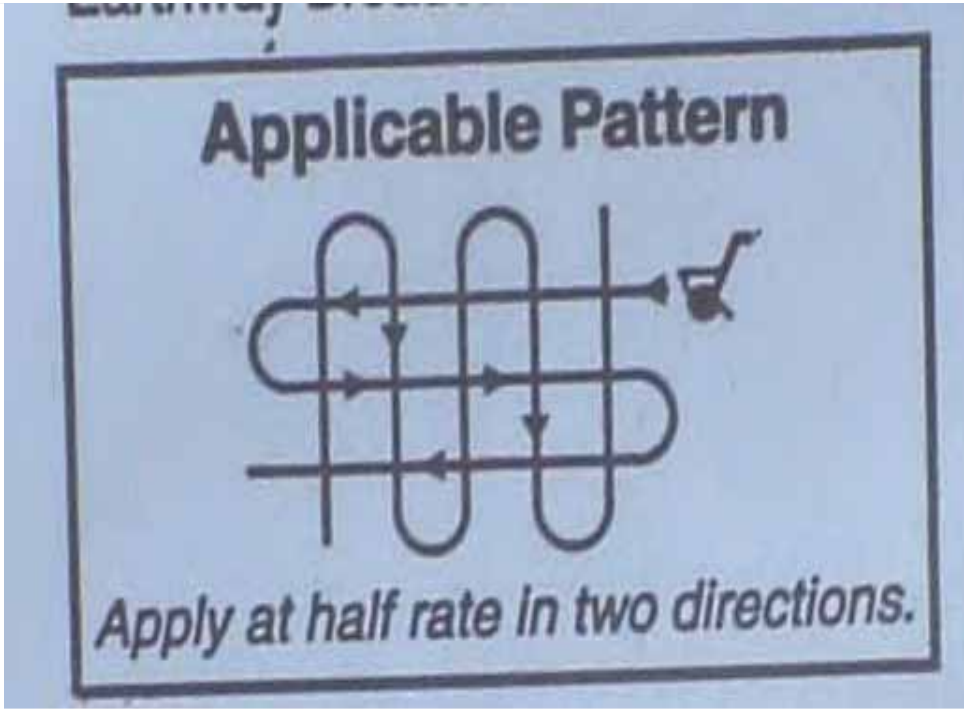


- Dull or out of adjustment mower
- Problem will look worse as grass grows
- Improperly cut grasses can use up to 20% more water

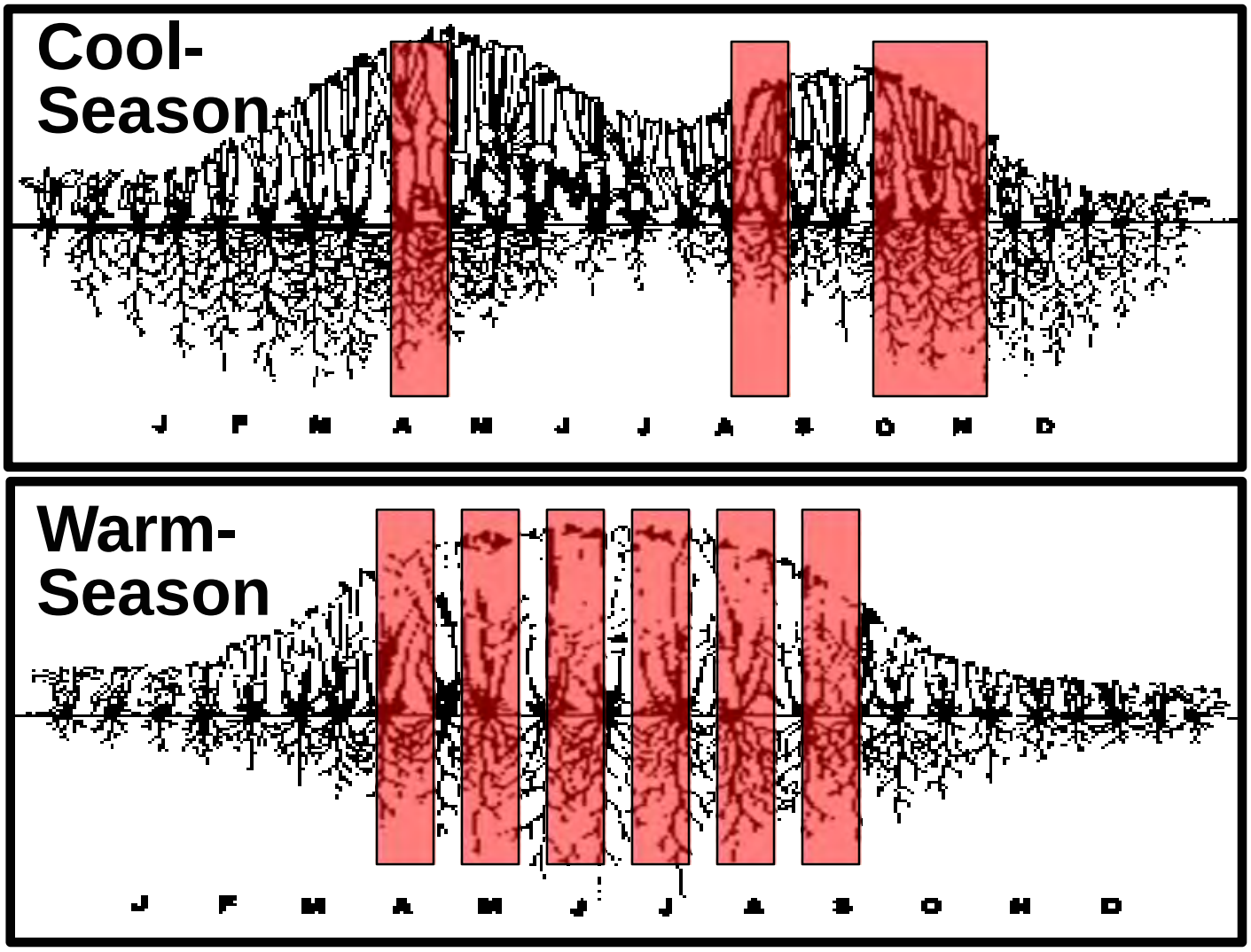
Fertilization






Applicable Pattern
Apply at half rate in two directions.

Yearly Nitrogen Management of Grasses General Model



Irrigation:

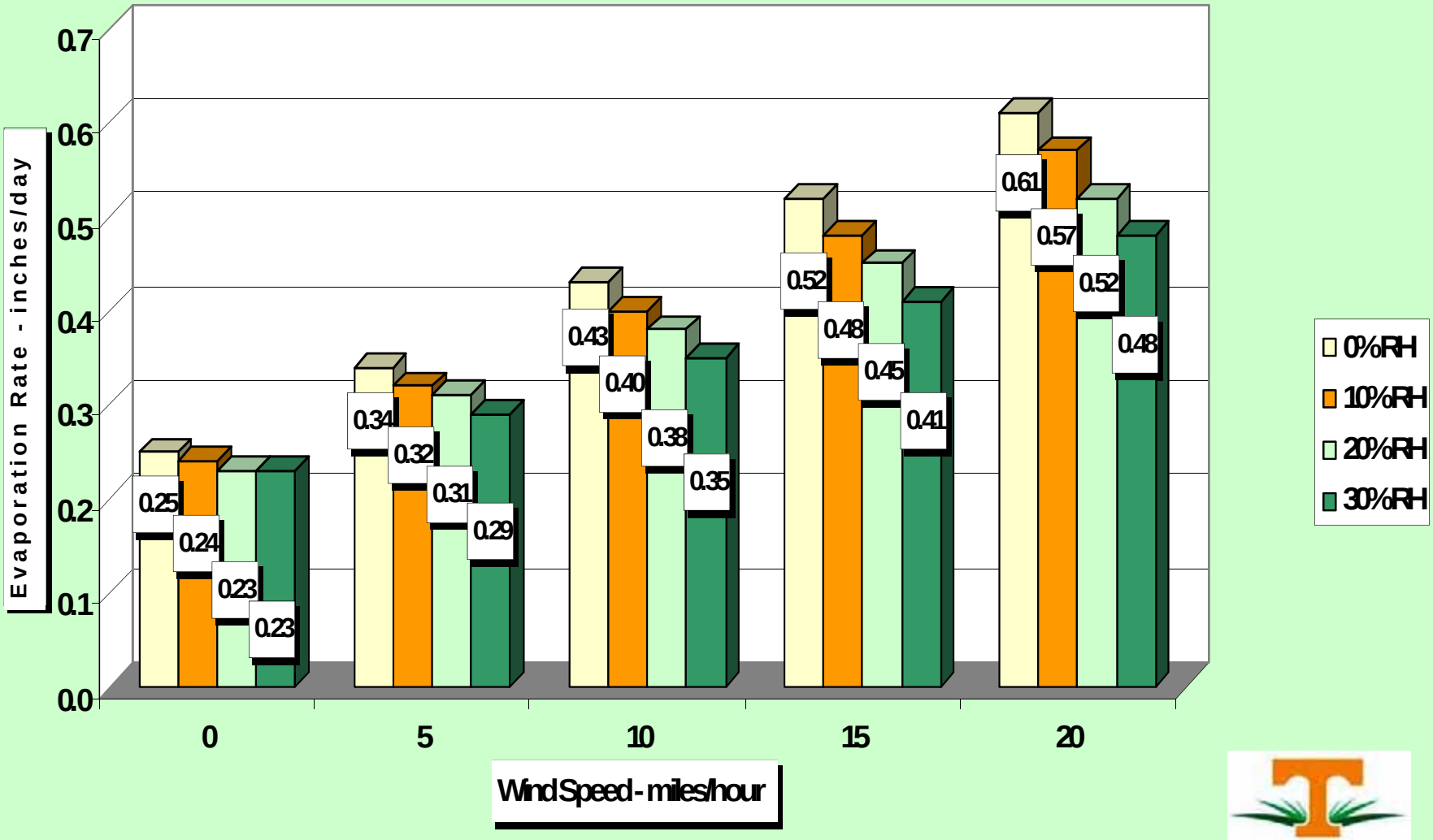
Measuring Soil Moisture

Water Loss - Evaporation (inches/day)

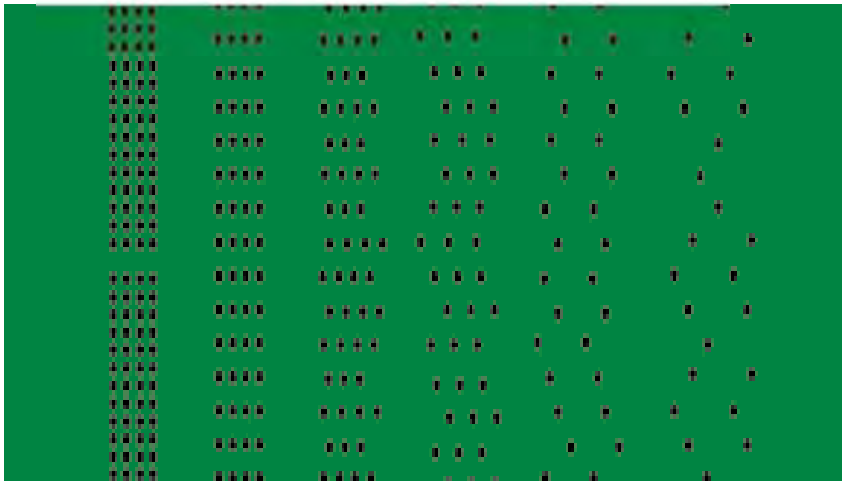
Penman's Equation for Saturated Grass

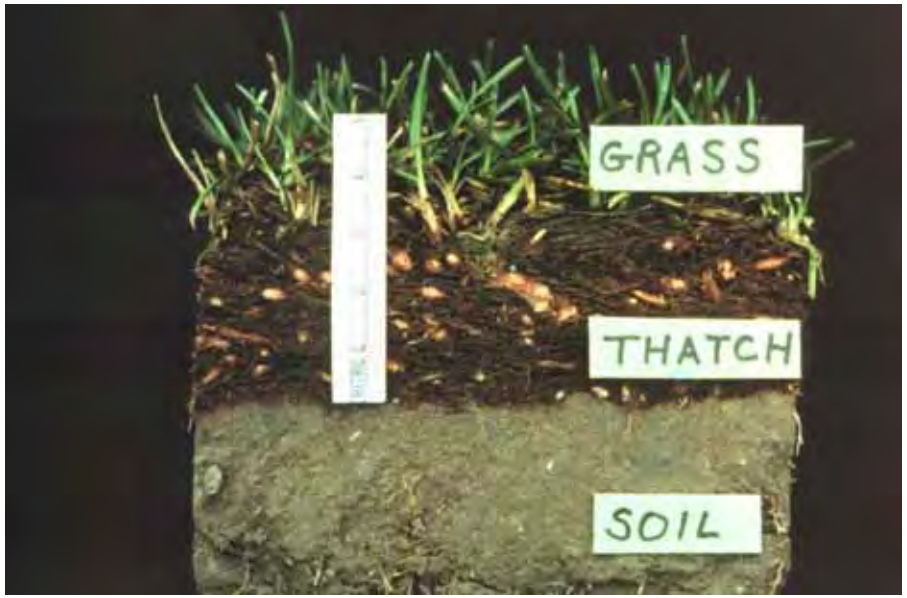
Calculated @ 70F Min 90F Max Temperature

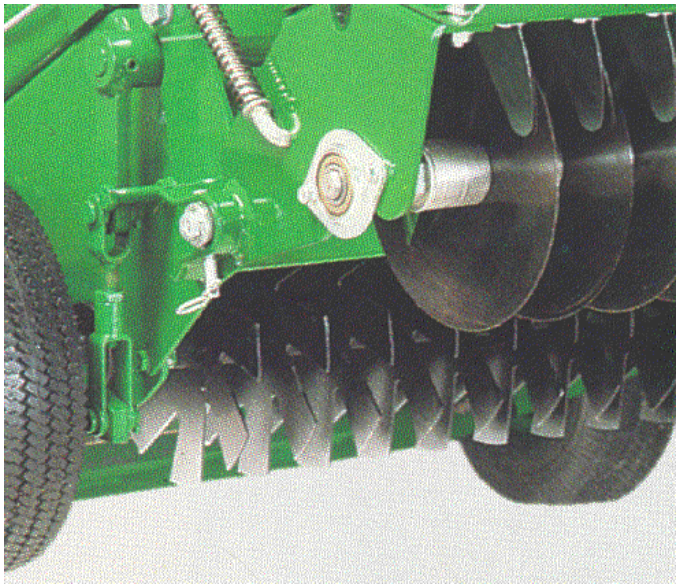
www.weather.nmsu.edu/math/Penman.xls



Cultivation



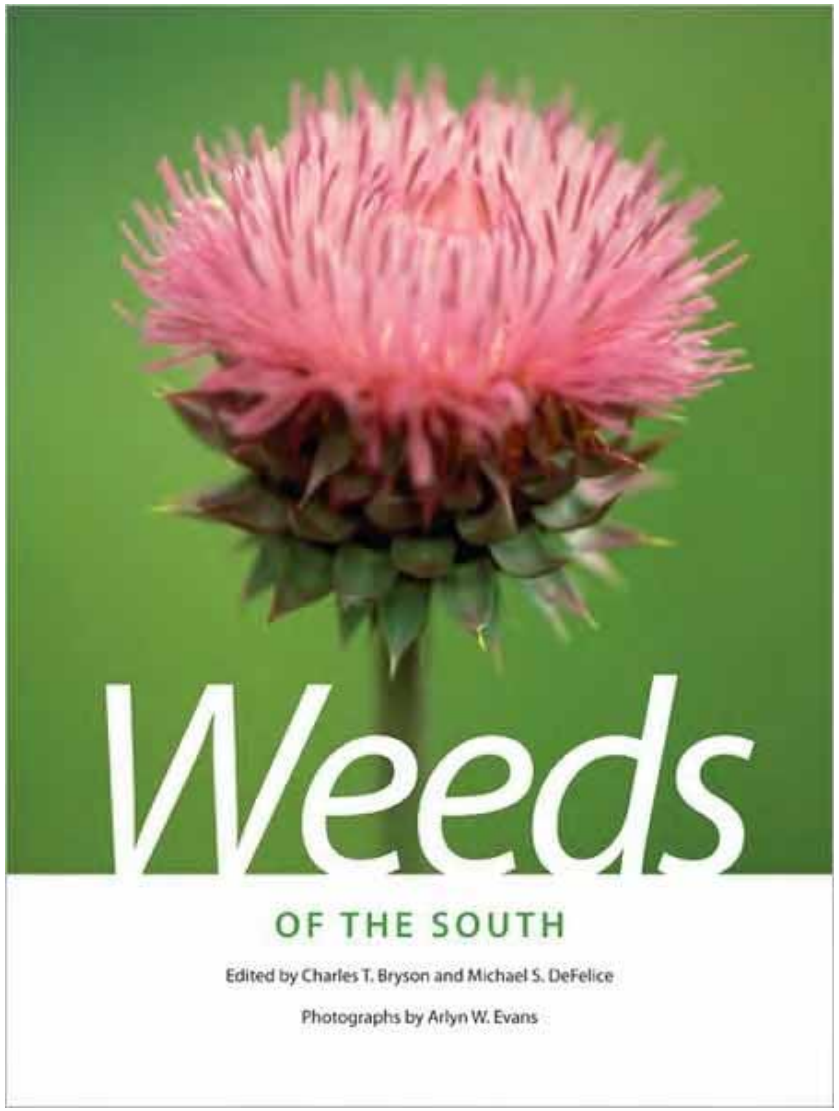

GRASS
THATCH
SOIL

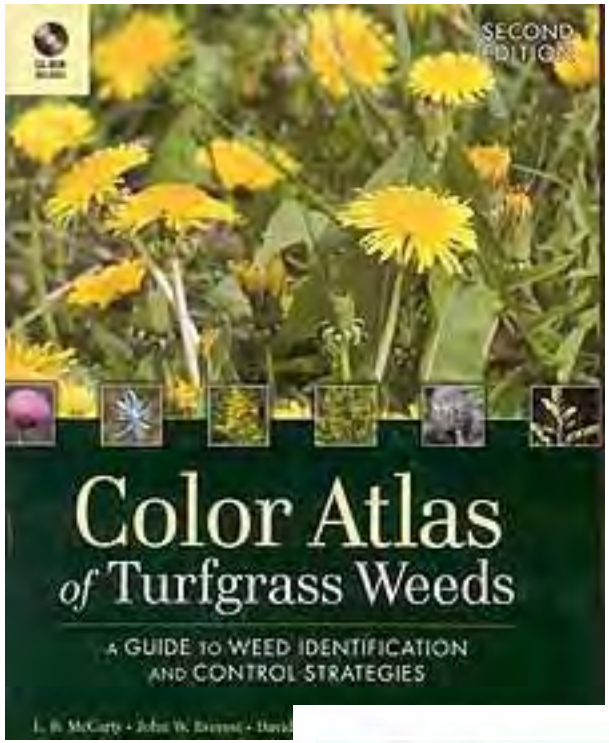


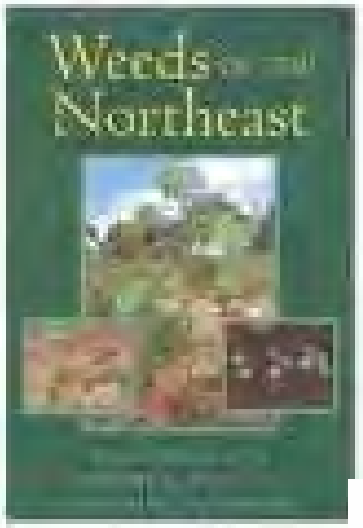
Weeds as Indicators of Turf Problems

Turfgrass Weeds

**“Weeds do not cause bad turf –
They are the cause of bad turf!”**


Weeds
OF THE SOUTH
Edited by Charles T. Bryson and Michael S. DeFelice
Photographs by Arlyn W. Evans


SECOND EDITION
Color Atlas
of Turfgrass Weeds
A GUIDE TO WEED IDENTIFICATION
AND CONTROL STRATEGIES


Weeds
Northeast

Monocots
a.k.a. grasses

Rush Species

Tapertip Rush
Juncus acuminatus

Poverty Rush
Juncus tenuis

Photos courtesy of Plants Database- USDA: http://plants.usda.gov/java/

Sedges

Cyperus esculentus

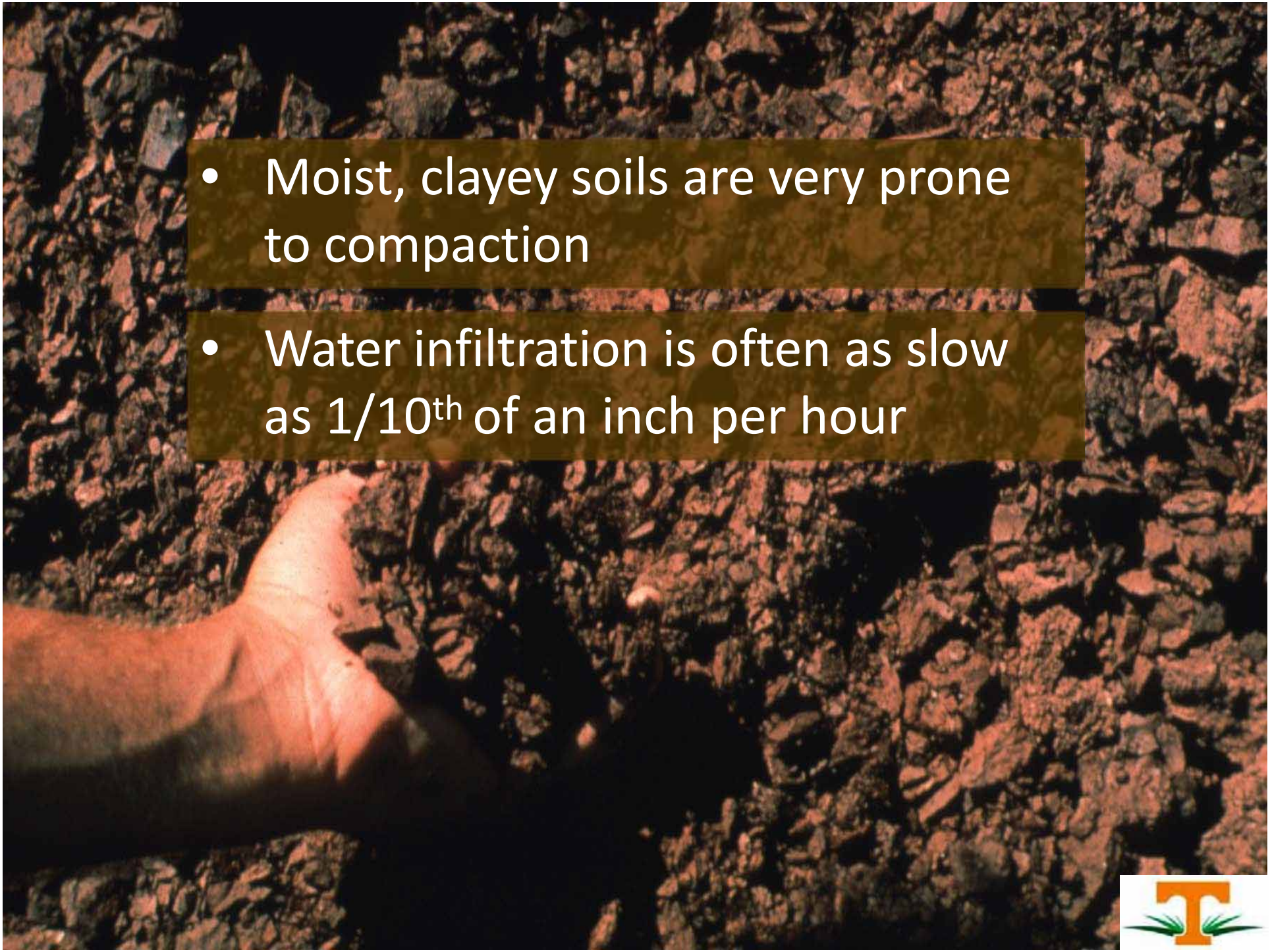
Sedges

Shortleaf Spikesedge
Kyllinga brevifolia

Picture courtesy of Larry Allain @ USDA-NRCS PLANTS Database

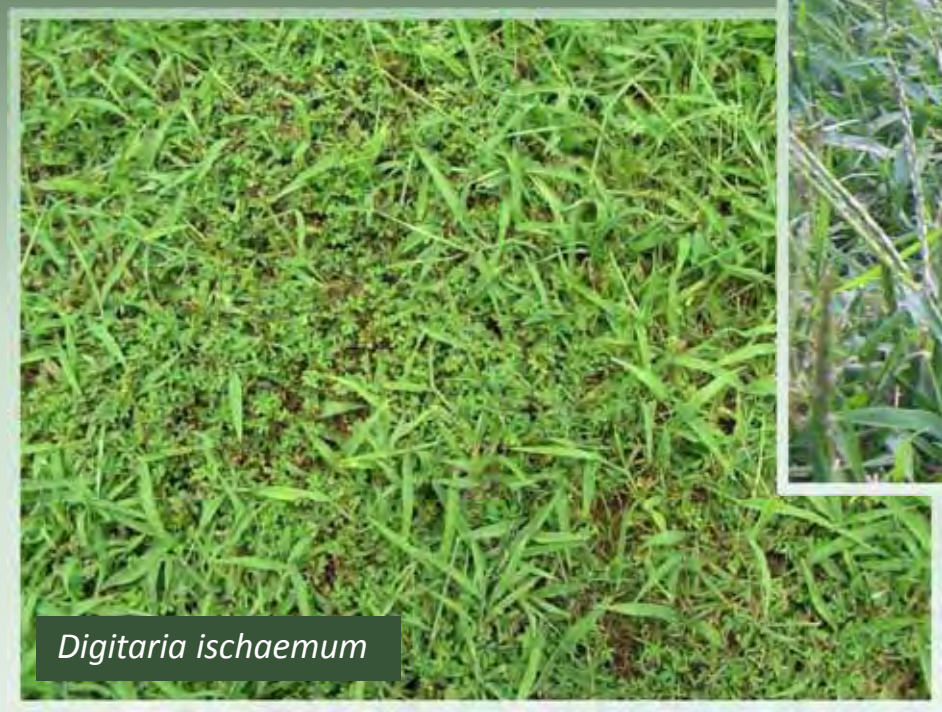
Dicots
a.k.a. Broadleaves

Compacted Soil


• Moist, clayey soils are very prone to compaction
• Water infiltration is often as slow as 1/10th of an inch per hour

Indicator Weeds

Compacted Soil: Crabgrass



Digitaria ischaemum

Indicator Weeds

Compacted Soil: Goosegrass

Eleusine indica

Indicator Weeds

Compacted Soil: Virginia Buttonweed

Diodia virginiana

Indicator Weeds

Compacted Soil:

Prostrate Knotweed

Polygonum aviculare

Common Purslane

Portulaca oleracea

Low Nitrogen

Indicator Weeds

Low Nitrogen:

Black Medic

White Clover

Poorly Drained Soils

Indicator Weeds

Poor Drainage: Sedges, Rushes

Cyperus esculentus

Juncus sp.

Indicator Weeds

Poor Drainage: Annual Bluegrass

Poa annua

Indicator Weeds

Poor Drainage: Algae

Cyanobacteria

Photos courtesy of North Carolina State University

Subsurface Drainage

Shade

Shade

Indicator Weeds

Shade: Moss

Bryum argenteum and others

Indicator Weeds

Shade: Wild Violet

Indicator Weeds

Shade: Heal-all

Prunella vulgaris

Picture courtesy of Forrest and Kim Starr

Indicator Weeds

Shade: Nimblewill

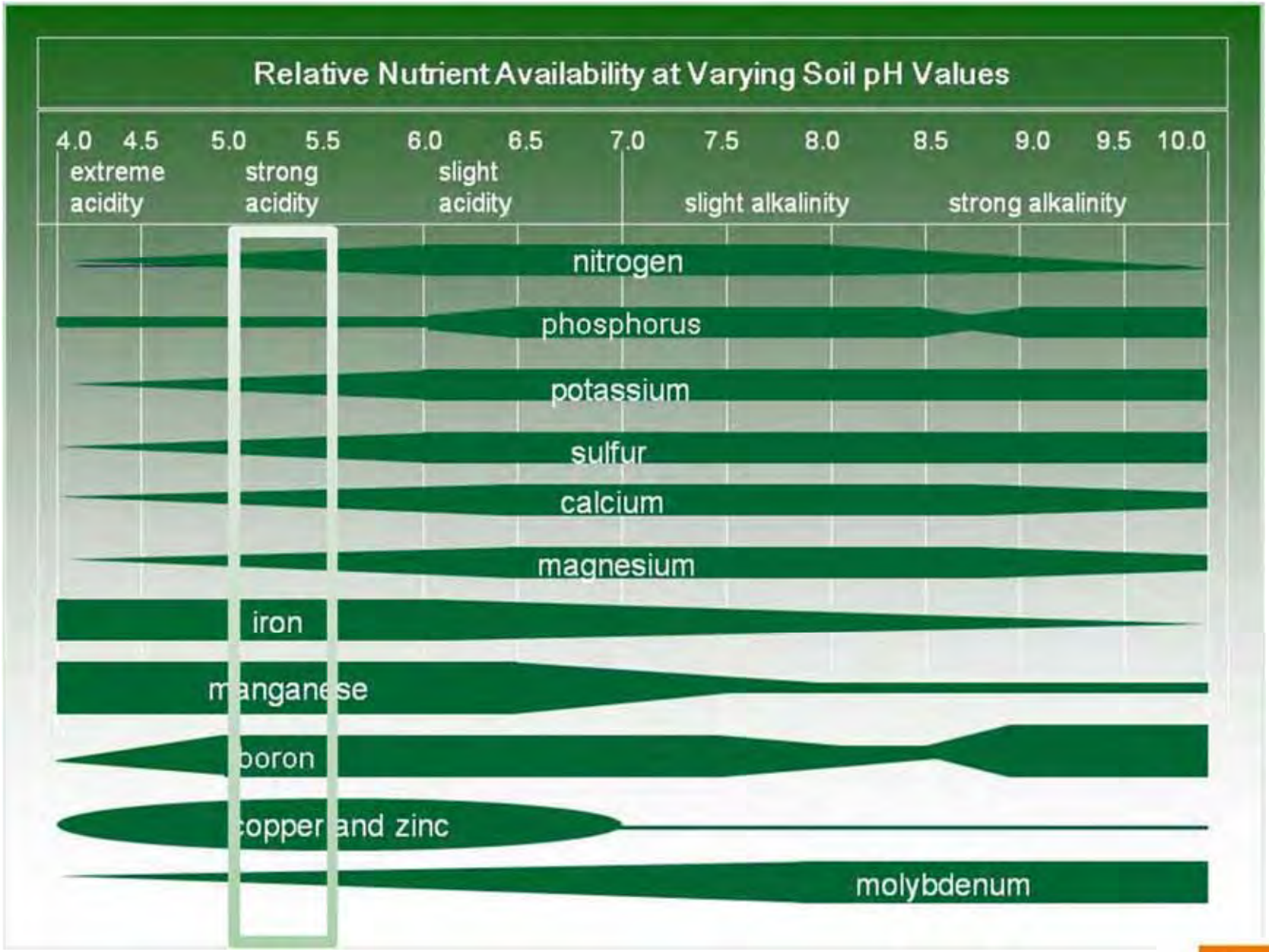
Muhlenbergia schreberi

Indicator Weeds

Shade: Japanese Stiltgrass

Microstegium vimineum

Acidic Soil


Relative Nutrient Availability at Varying Soil pH Values
4.0 4.5 5.0 5.5 6.0 6.5 7.0 7.5 8.0 8.5 9.0 9.5 10.0
extreme acidity
strong acidity
slight acidity
slight alkalinity
strong alkalinity
nitrogen
phosphorus
potassium
sulfur
calcium
magnesium
iron
manganese
boron
copper and zinc
molybdenum

Acidic Soil


Extension
SOIL, PLANT AND PEST CENTER
Soil and Media Information Sheet
Sample Information

Acidic Soil

Indicator Weeds

Acidic Soil pH: Sheep Sorrel (pH 4)

Rumex acetosella

Indicator Weeds

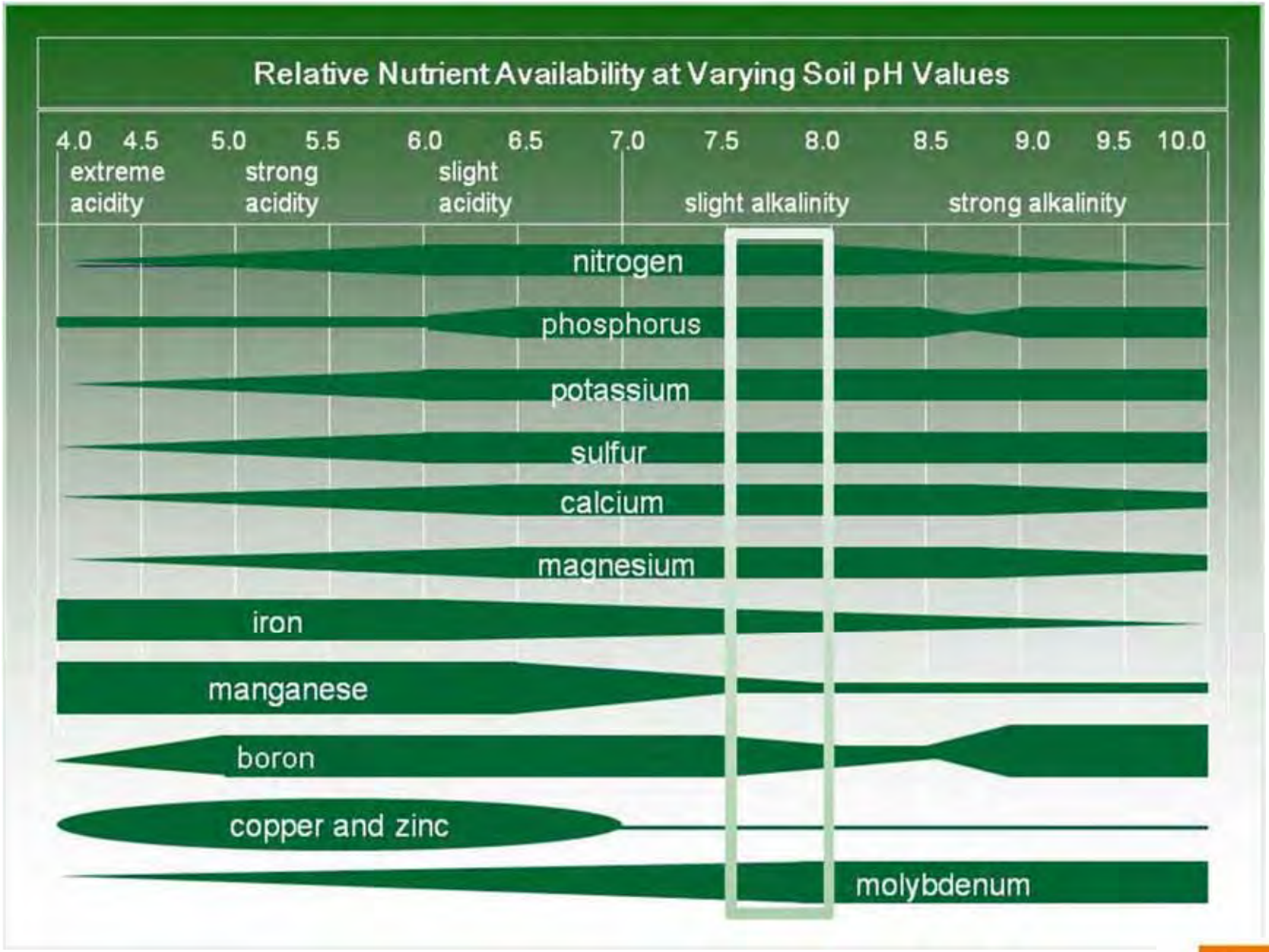
Acidic Soil pH: Ground Ivy

Indicator Weeds

Acidic Soil pH: Common Cinquefoil

Potentilla sp.

Photo courtesy of North Dakota State University:
http://www.ag.ndsu.edu/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extreme acidity
strong acidity
slight acidity
slight alkalinity
strong alkalinity
nitrogen
phosphorus
potassium
sulfur
calcium
magnesium
iron
manganese
boron
copper and zinc
molybdenum

Basic Soil

Indicator Weeds

Basic Soil pH: Common Plantain

Plantago major

Detecting Insect Activity in Turf

- Type of damage
- Location
- Time of year

Three Habitat Areas for Insects in Turf

Surface-feeding Insects

armyworms, chinch bugs, cutworms, sod webworms

- Large numbers of birds feeding in turf
- Small moths flying zigzag patterns over the turf surface, especially in late evening
- Rapid loss of green color similar to fertilizer burn or drought injury, even though the soil is moist
- Frass on or near the soil surface

Armyworm Damage

Fall Armyworm

Sod Webworm

Black Cutworm

Black Cutworm

Subsurface-feeding Insects

billbugs, white grubs

- Turfgrasses shallowly rooted, poor footing
- Damage to turf by insect feeding mammals (moles, skunks and raccoons)
- Overall thinning of turf
- Patches of yellowing turf

Sphenophorus sp.

Billbug

Cyclocephala sp.

Masked Chafer Beetle

Green June Beetle

May Beetle

Japanese Beetle

Moles in the Landscape

Eastern
Scalopus aquaticus

Hairy-tailed
Parascalopus breweri

Star-nosed
Condylura cristata

---------- http://fur-n-featherswildlifemanagement.com ----------

http://blekko.com/ws/moles+lawn+/images

http://www.google.com/imgres?imgurl

Several Diseases of Turf

- Large Patch — *Rhizoctonia* spp.
- Dollar Spot — *Lanzia* and *Mollerodiscus* spp.
- Fairy Ring — *Marasmius* sp., *Lepiota* sp., *Psalliota* sp.
- Pink Snow Mold — *Microdochium nivale*
- Pythium Blight — *Pythium* spp.
- Red Thread — *Laetisaria fuciformis*
- Slime Mold — *Mucilago crustacea, Physarum* sp., *Fuligo* sp.
- Spring Dead Spot — *Ophiosphaerella herpotricha*

Large Patch of Bermudagrass at Spring Greenup

- Favored by cool, wet weather in the spring at the time of, or soon after green-up

Dollar Spot

- Often indicates low nitrogen

Fairy Ring

- Favored by an accumulation of organic matter
- Turfgrass plants may die within the ring
- A dark green band may appear on the inside or the outside of the ring of dead turfgrass plants

Pink Snow Mold of Perennial Ryegrass

- Favored by poor air flow and high nitrogen levels

Pythium Blight

- Favored by warm air temperatures, wet weather, poor drainage and standing water

Red Thread of Kentucky Bluegrass

- Favored by poor air flow and low nitrogen levels

Slime Mold

- Favored by warm, wet weather, and moist soil and thatch
- Not considered harmful although may eventually block sunlight and limit photosynthesis

Spring Dead Spot of Bermudagrass

- Favored by a high level of nitrogen fertility in late summer, compacted and poorly drained soil, and excessive thatch

Primary Cultural Practices

Mowing

Irrigation

Fertilizing

Cultivation

Pest Management