Why is my lawn turning-yellow?

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STOP

What soil type and soil depth do you have?

"Clay, Silt, Sand, Loam, Clay loam, Sandy loam, etc.."
"Do you have a deep soil or a very shallow soil"
(i.e. Hill Country)
"Soils vary in Texas—Is your soil suitable to grow plants?"


CENTEX HOMES

Salt-affected Sites

Factors To Consider For "Proper Turfgrass Management"

- ✓ Turfgrass selection
- ✓ Mowing practices
- ✓ Cultivation practices
- ✓ Irrigation practices
- ✓ Fertilization practices
- ✓ Weed, disease, and insect management

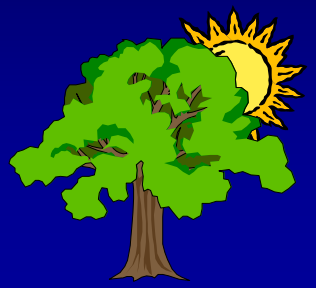
Turfgrass Selection

SHADE TOLERANCE
Ranking of Turfgrasses

Highest

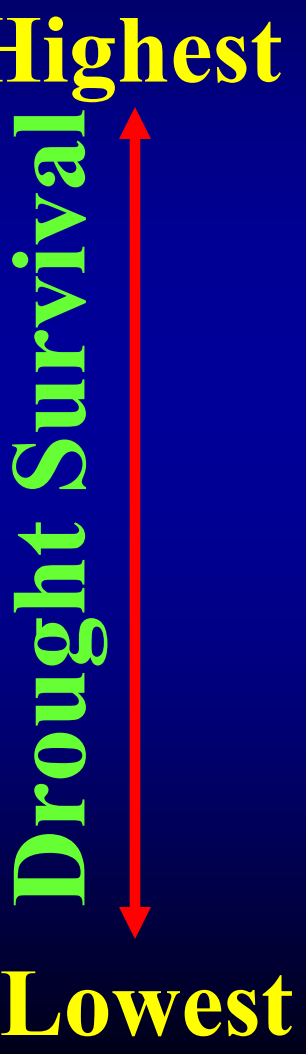
Lowest

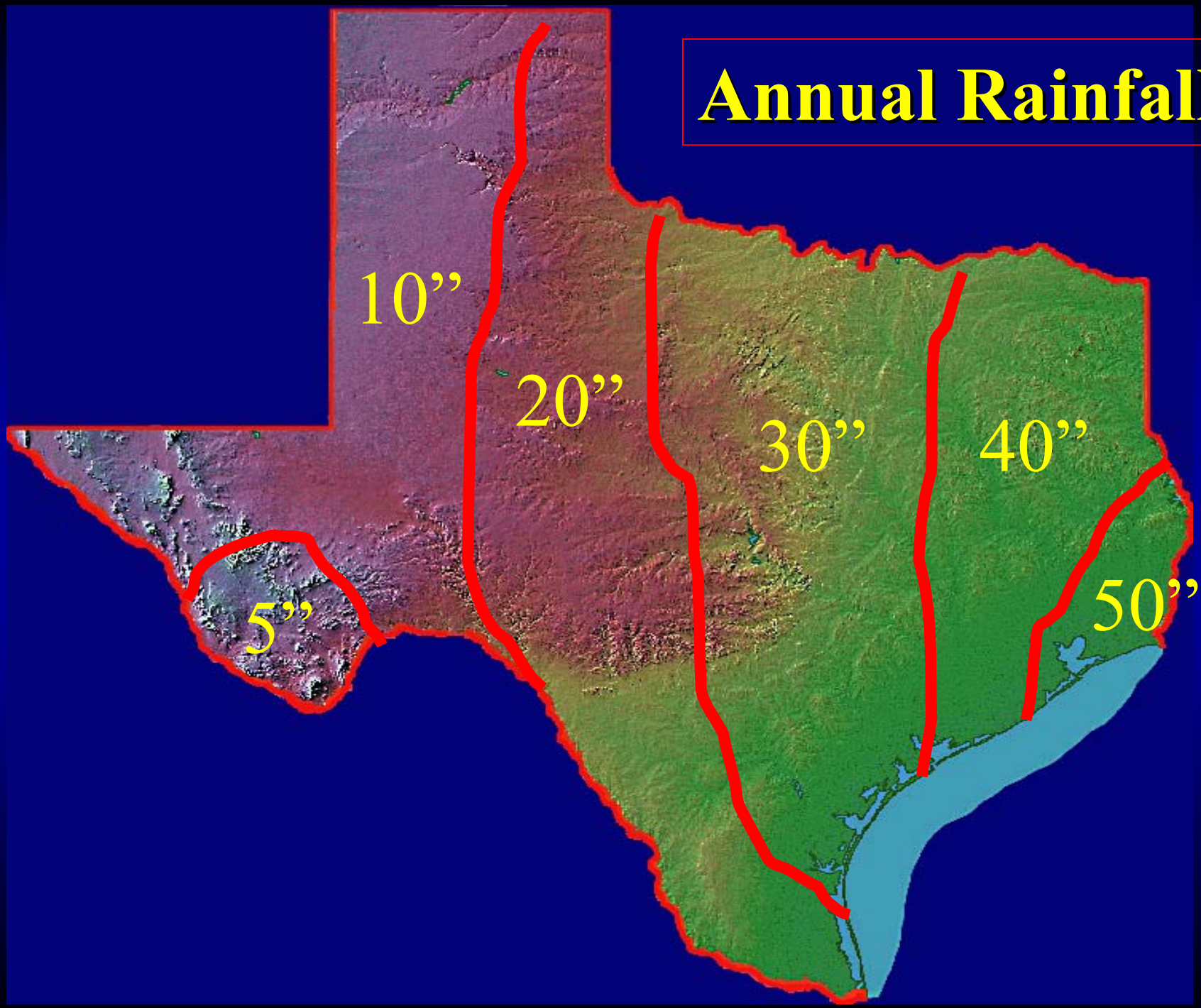
- ✓ Fescue, Red
- ✓ St. Augustinegrass
- ✓ Tall Fescue
- ✓ Zoysiagrass
  - – Seashore Paspalum
  - – Buffalograss
  - – Centipedegrass
    - • Bentgrass, Creeping
      - – Bluegrass, Kentucky
      - – Ryegrass, Perennial
        - » Bermudagrass

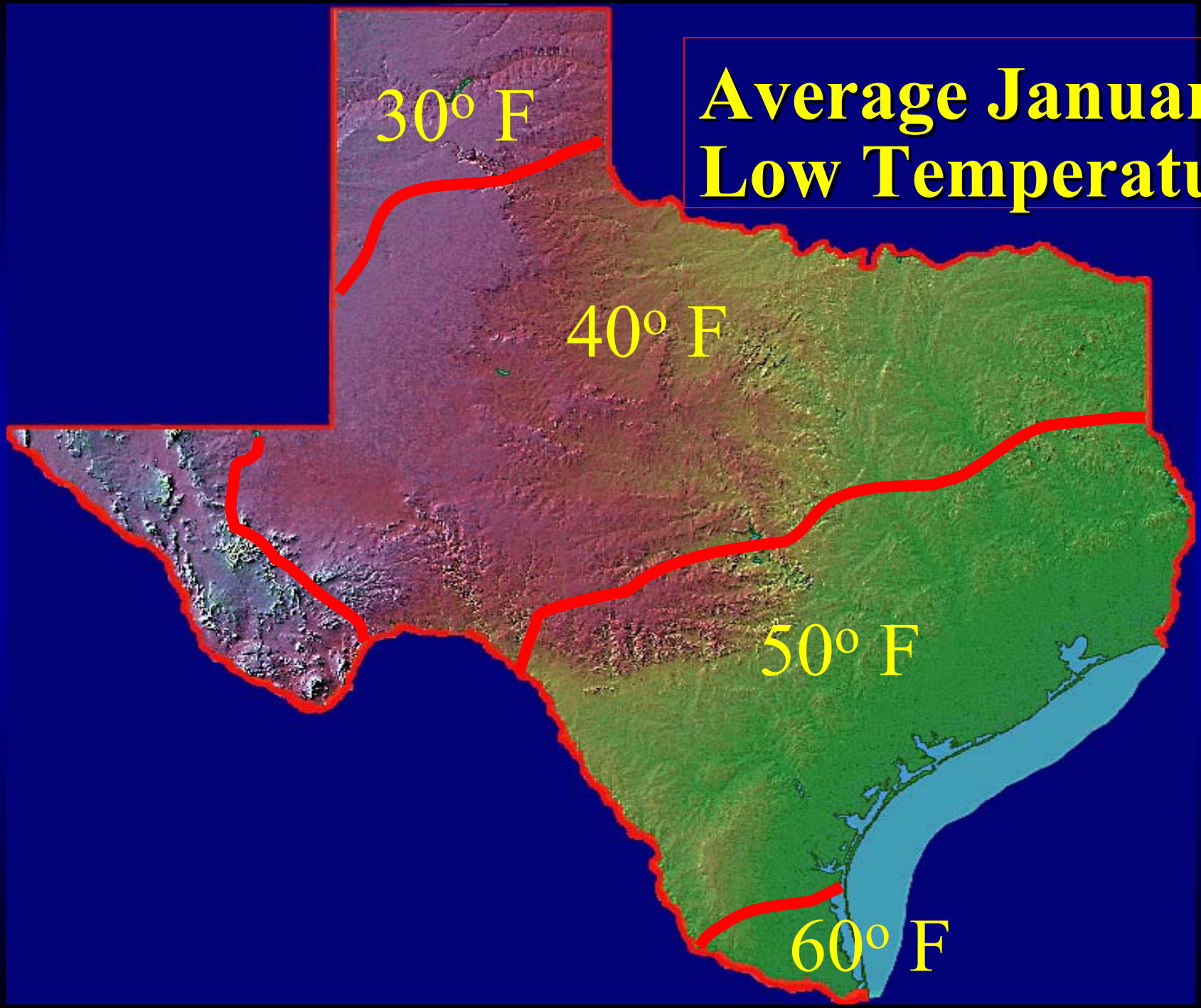


Species Selection for Drought

Buffalograss
Zoysiagrass (japonica)
Bermudagrass
Tall Fescue
Zoysiagrass (matrella)
Centipedegrass
St. Augustine
Creeping bentgrass
Kentucky Bluegrass




Annual Rainfall
10”
20”
30”
40”
50”
5”


Average January
Low Temperature
30° F
40° F
50° F
60° F

Common Bermudagrass
Several Varieties Available

Athletic Fields, Lawns, Golf Course Fairways

Arizona Common

Numex-Sahara

Cheyenne

Sonesta

Guymon

Riviera

Blue-muda

Mirage

Sundevil

Jackpot

Princess

Hybrid Bermudagrass
Varieties Available

Athletic Fields, Lawns, Golf Course Fairways

Tifway 419	Baby
Celebration	Texturf 10
Tifsport	GN-1

Golf Greens

Tifgreen 328	Tifdwarf	Champion
Tifeagle	Floradwarf	Mini-Verde

St. Augustinegrass
Varieties Available

Texas Common

Raleigh*

Floratam*

Palmetto

Seville

Bitterblue

Delmar*

Amerishade

*** SAD resistant**

Buffalograss
Buchloe dactyloides

Prairie	Vegetative
Stampede	Vegetative
609	Vegetative
Density	Vegetative
Texoka	Seeds
Common	Seeds

Zoysiagrass
Varieties Available

Zoysia japonica

Meyer
Palisades
Crowne
El Toro
Jamur
Empire

Zoysia matrella

Zeon
Cavalier
Diamond
Empress
Royal

japonica x tenufolia

Emerald

Centipedegrass
Varieties available

Common
Tiff Blair

Tall Fescue
Varieties Available

K-31
Rebel
Confederate

Arid
Rebel II
Bonsi

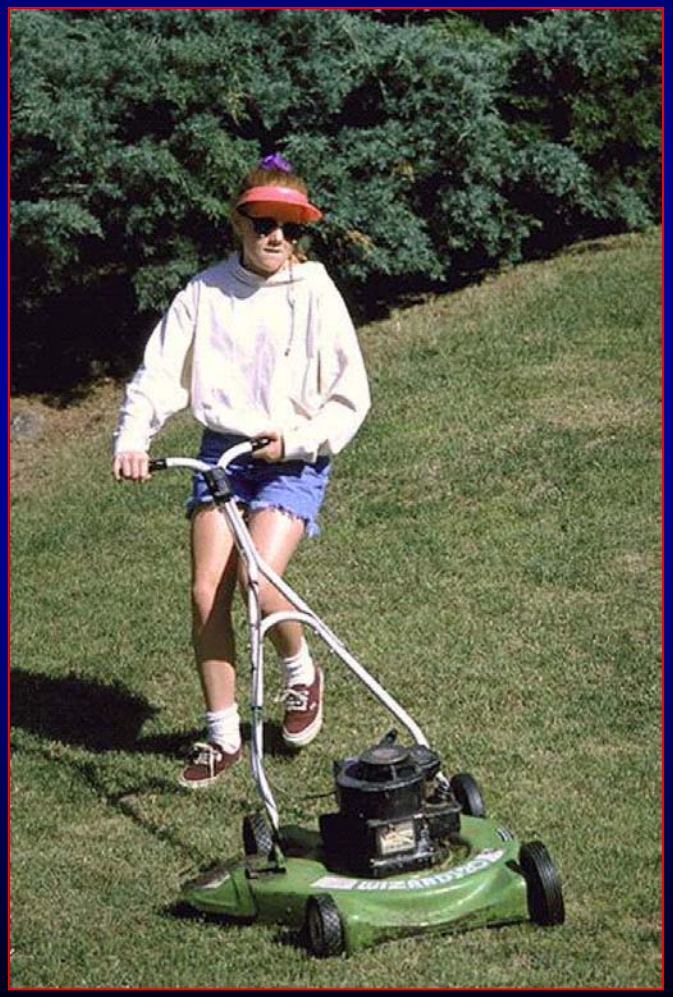
More than 75 varieties on market

Seashore Paspalum

SeaIsle 1


OLYMPIC SAVINGS

Mowing



Mowing

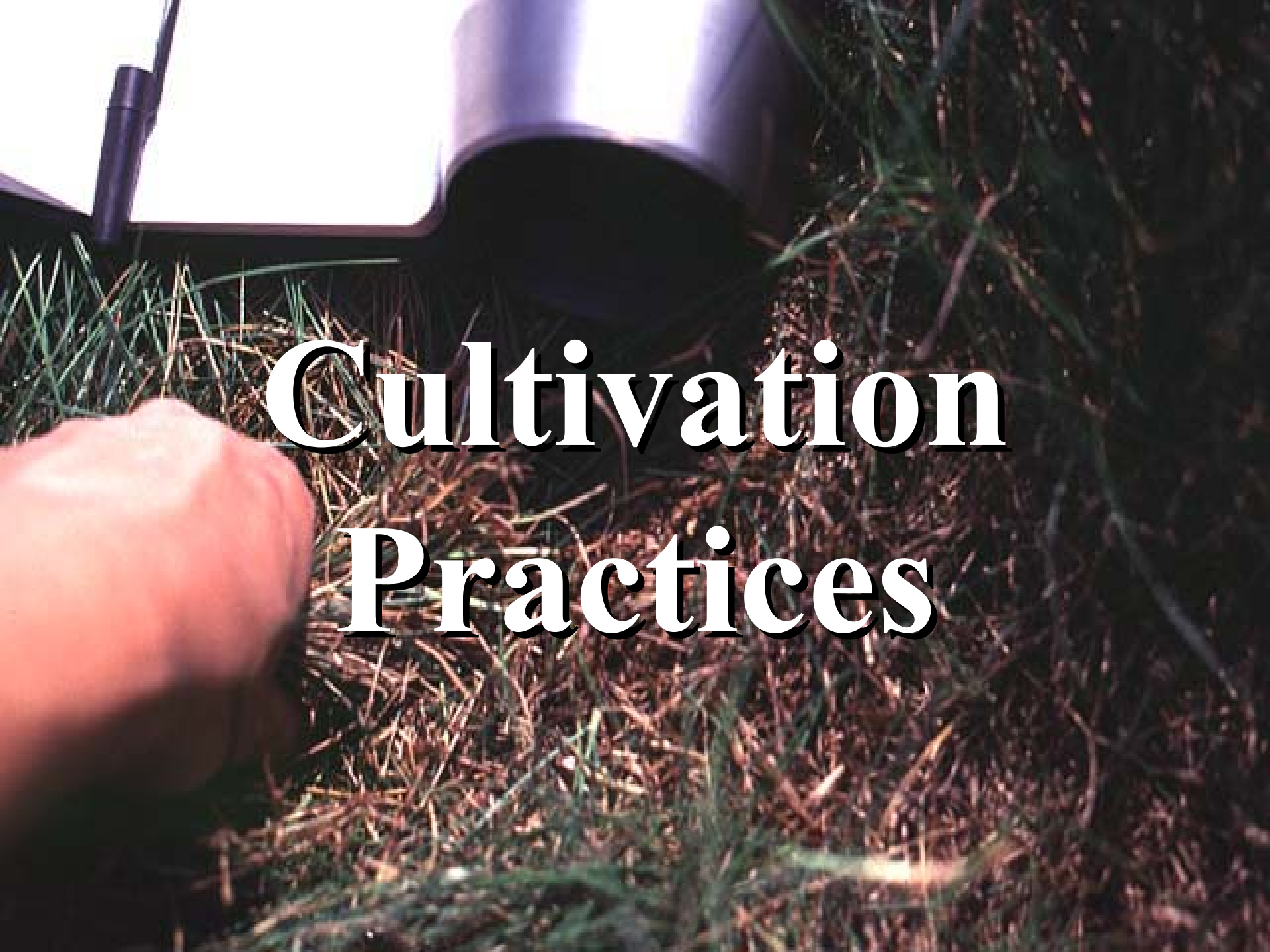
How high should I cut the grass?

✓ St. Augustinegrass	2.5” (sun) 3.5” (shade)
✓ Bermudagrass	1-1.5”
✓ Hybrid bermudagrass	0.5-1”
✓ Zoysiagrass (japonica)	1.5”
(matrella)	0.5 -1”
✓ Buffalograss	2.5 -3”
✓ Centipedegrass	1-1.5”
✓ Tall Fescue	2.5”
✓ Seashore Paspalum	0.5 – 1.5”

Mowing

How often should I mow?

- ✓ Minimum of once each week during the growing season?????
- ✓ Use the 1/3 rule!!!! Never remove anymore than 1/3 of the leaf blade at any single mowing.
- ✓ Use sharp blades!!!!!!


Cultivation
Practices

Cultivation Practices

- ✓ Aerification
- ✓ Spiking
- ✓ Vertical Mowing
- ✓ Topdressing

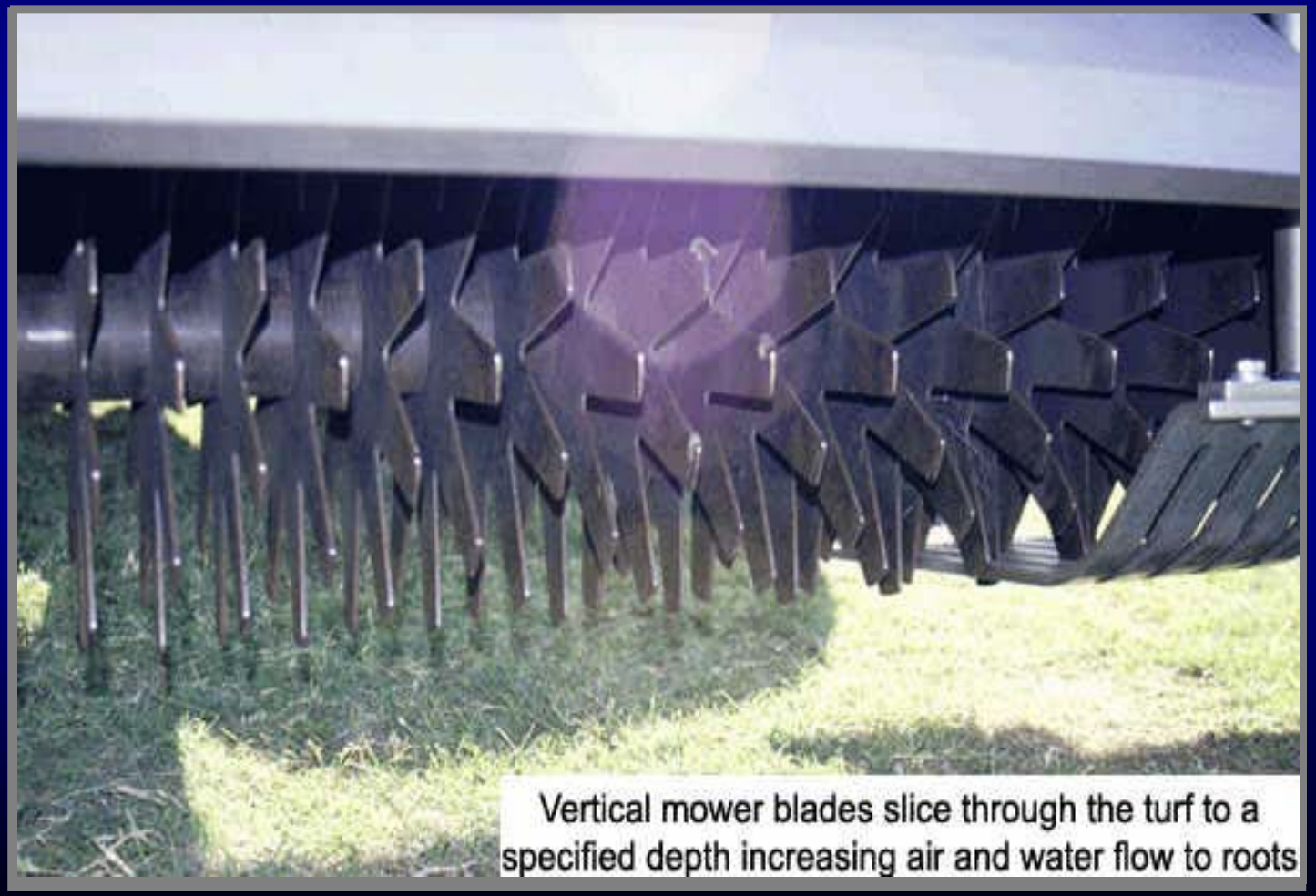
Why Cultivate?

- ✓ Build-Up of Thatch
- ✓ Compacted Soils
- ✓ Heavy Traffic
- ✓ Soil layers

Layering Problems

Reduced Infiltration

Vertical Mowing

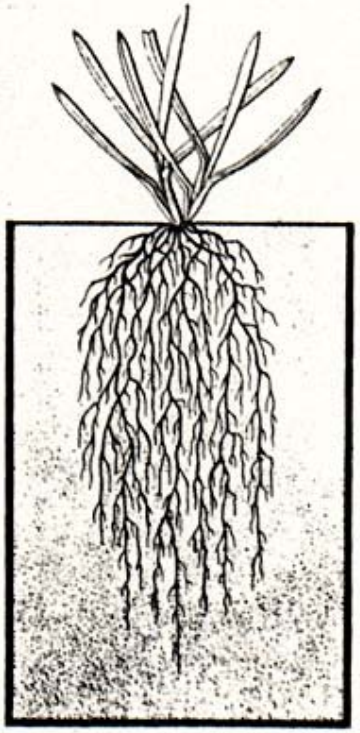



Irrigation
Management

Developing an irrigation program-you need to address these five questions!

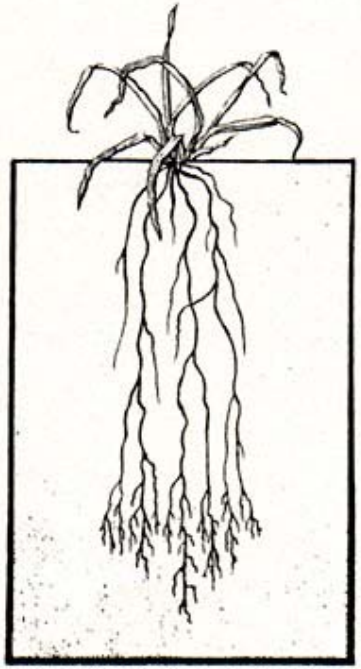
- ✓ What factors need to be considered?
- ✓ How often should irrigation water be applied?
- ✓ How much irrigation should be applied?
- ✓ When should irrigation be applied?
- ✓ How long does my system need to operate to apply the right amount of water?

Irrigation Frequency, Root Growth and Turf Health

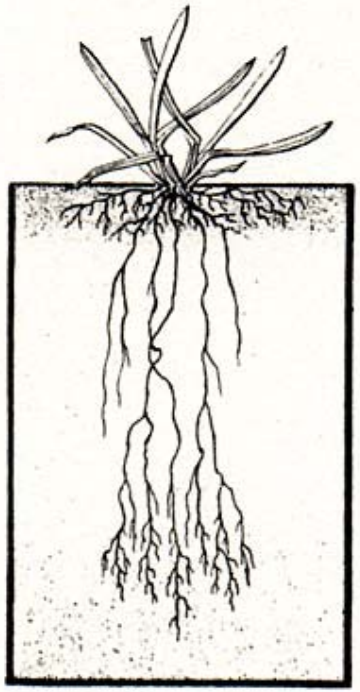


IDEAL SITUATION
1
Adequate air-pore space, with moisture at all depths. As moisture is lost it is replaced.

SATURATION
2
When soil becomes saturated with moisture, movement of air is blocked. Grass blades tend to become limp with roots ceasing penetration and remaining near the soil surface.



LACK OF MOISTURE
3
As drying out occurs, plant growth is stunted and tips brown. Feeder roots near the surface are first to succumb and gradually die back to lower depths. Roots thrive only at lower depth where moisture may be available.



LIGHT WATERING
4
Plant obtains slight, temporary relief with shallow roots absorbing moisture at the surface. Normal surface drying with inadequate deep rooting leaves plant in depleted condition and can result in severe damage.

Signs of Water Stress

- Visual Assessment for Stressed Turf
  - Leaf rolling
  - Lack of turgor pressure in the plant causes wilting
  - Leaving footprints in the turf
  - Blue/purple areas in the turf

- Turfgrass, as well as most landscape species, can withstand short periods of water stress without permanent damage to the plant.

Water Management Tools

- ✓ **Weather Station Data Produces:**

*Potential Evapotranspiration (PET)

-the maximum amount of water lost from the soil by evaporation and through the plant growing on the soil by transpiration

-Factors affecting PET are: solar radiation, wind speed, relative humidity, and temperature

http://texaset.tamu.edu

Weslaco Center Weather Station
01/21/04 - 01/27/04

Date	ETo PET (in)	Tmax (F)	Tmin (F)	RHmin (%)	Solar (MJm2)	Rain (in)	Wind 4am (mph)	Wind 4pm (mph)
1/21/04	0.04	64	60	76	2.60	0.19	1.80	3.11
1/22/04	0.03	65	60	86	2.02	0.10	2.59	3.65
1/23/04	0.03	62	57	94	2.95	0.19	2.39	0.81
1/24/04	0.06	72	54	77	7.11	0.06	2.06	6.25
1/25/04	0.11	76	60	39	17.12	0.00	0.94	2.49
1/26/04	0.13	77	55	19	18.19	0.00	0.00	3.41
6 Day Summary	**0.40**	**69**	**58**	**65**	**8.33**	**0.54**	**1.63**	**3.29**

Water Management Tools

- ✓ **Soil Probes**

-used to determine soil moisture levels through a "seeing and feeling" assessment process

-helps to analyze thatch buildup and soil layering—having different types of soils stacked on top of each other (both of which hinder water movement in soils)

Water

When and how much should I water?

- ✓ The best time to water is in the early morning (4:00 - 6:00 am) when wind is low, water pressure is highest, demand is low, evaporation rates are low.
- ✓ Watering in the evening places water droplets on the leaves for extended periods of time, which enhances disease.
- ✓ Water deep and infrequent!!!! If possible, water to a depth of 6 to 8 inches into the soil. You may have to use additional cycles on the irrigation system to achieve this so as to avoid runoff. Use a soil probe or screwdriver to check your watering depth.

Landscape Water Use

- Water use rates are different among landscape plants. Zone your areas to meet the plants requirements.

- Plants tend to use less water and remain more drought tolerant when irrigated deep, infrequent, and below the PET rate.

What is a Water Audit?

- ✓ A method for evaluating the performance of an irrigation system.
- ✓ Used to determine an irrigation system's application rate and distribution uniformity.
- ✓ Vital for proper irrigation management.


Nutrient
Management

Fertilizer Analysis CON'T

Example: 15 - 5 - 10

The 1ST number is the percent of Nitrogen (N)

Fertilizer Analysis CON'T

Example: 15 - 5 - 10

The 2ND number is the percent of PHOSPHORUS (P)

Fertilizer Analysis CON'T

Example: 15 - 5 - 10

The 3RD number is the percent of POTASSIUM

Soluble Nitrogen Sources

Urea	46-0-0
Ammonium nitrate	34-0-0
Ammonium sulfate	21-0-0-24 S
Calcium nitrate	15-0-0
Potassium nitrate	13-0-44

Slow Release Nitrogen Sources

Coated products

- Sulfur Coated Urea
- Polymer Coated Urea
- Polymer/Sulfur Coated Urea

Reacted products

- IBDU*
- Ureaformaldehyde
- Methylene Urea
- Ureaform

Organic products

- Sewage sludge
- Composts
- Food processing by-products
- Manures

Fertilizer

So how much fertilizer will my turf need over the year?

- ✓ Depends on the grass species, use, and the quality of turfgrass desired.
- ✓ TAKE A SOIL SAMPLE!!!!!!!!!!
- ✓ Never apply > 1.0 # of N per 1000 sq. ft. / application with a quick-release fertilizer.

Calculating Fertilizer

How much fertilizer will I need for a single application?

- ✓ **Use the following formula.**

$$\frac{\text{Rate}}{\text{Analysis}} \times \frac{\text{Area}}{1000} = \text{Pounds of Fert. Required}$$

Rate = amount of N / 1000 ft^2
Analysis = percentage of N in the fertilizer
Area = total square footage of your lawn

Fertilizer

How much fertilizer will my lawn need over the year?

	Pounds of N per 1000ft^2 per year
St. Augustine	3 - 5
Bermudagrass (common)	4 - 6
(hybrid)	5 - 8
Zoysiagrass (japonica)	3 - 5
(matrella)	2 - 4
Buffalograss	1 - 3
Tall Fescue	3 - 4
Centipedegrass	1 - 3
Seashore Paspalum	4 - 8

NITROGEN FERTILIZATION TIMING

COOL-SEASON GRASSES

- ✓ Apply 75% of the total yearly N during the fall except in extreme northern climates

- ✓ Promotes:
  - Chlorophyll production
  - CH_2O accumulation
  - Tillering
  - Root development

NITROGEN FERTILIZATION

WARM-SEASON GRASSES

- ✓ Begin about 30 days after the date of the last killing frost in spring
- ✓ Make last application about 30 days before the date of the first killing frost in fall.


Weed
Management

Why Weeds Occur

Thin

or

Weakened Turf

Preemergent Weed Control Hints

- ✓ Timing of control
- ✓ Water in thoroughly, .5 inches of irrigation
- ✓ Control germinating seeds!

Postemergent Weed Control Hints

- ✓ Young, actively growing weeds
- ✓ Climatic conditions
- ✓ Addition of a surfactant – BE CAREFUL!!

Refer to Product Labels for Weed & Turf Specifics!


Disease
Management


Brownpatch


Grey Leaf Spot


St. Augustine Decline (SAD)


Take-All Patch

Take-All-Patch

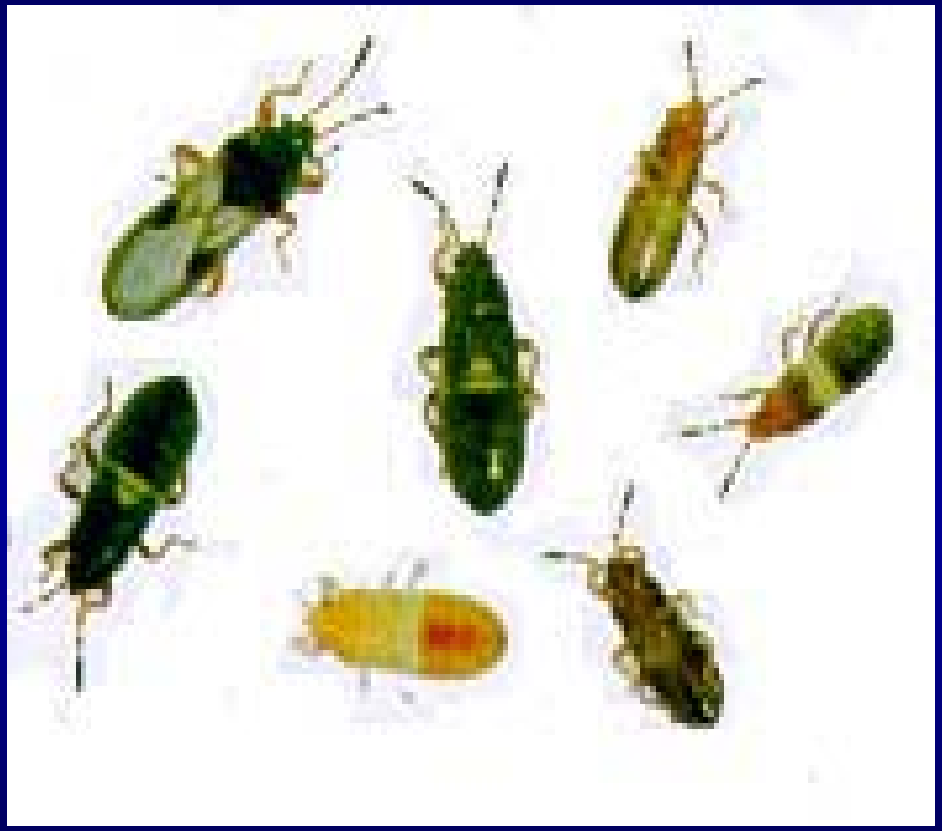
Take-All-Patch

What can I do?

- ✓ Fungicides? -- Immunox? Heritage? New products?
- ✓ Composts? (i.e. Humor)
- ✓ Peat Moss—approx. one 3.2 cubic ft. bale / 1000 sq. ft.
- ✓ Replanting of St. Augustinegrass—only if you correct the stress factor first.
- ✓ Other Species of grass?
  - Bermudagrass
  - Zoysiagrass


Insect
Management

Fall Armyworm



Chinch Bugs


White Grub

"Turf Web Sites"

- Aggie Turf: http://aggie-turf.tamu.edu
- Texas ET: http://texaset.tamu.edu
- Texas A&M University: http://www.tamu.edu
- Texas Cooperative Extension: http://agextension.tamu.edu
- Aggie Horticulture: http://aggie-horticulture.tamu.edu