

Sports Turf Diagnosis

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Potential Turfgrass Problems

Physical	Chemical	Biotic
Drought	Nutrients	Diseases
Temperature	Salts	Insects
Light	pH	Weeds
Excessive H ₂ O	Pesticides	Nematodes
Compaction		Human Activities
Drainage		

Sources of Frustration

- Issues and problems of any kind such as
 - Pests
 - Nutrient deficiencies or excesses
 - Soil physical problems
 - Water related problems
- Inability to identify cause of the problem
- Poor turf recovery following treatment
- The problem gets worse after treatment and reduces appearance, safety, playability

Proper Diagnosis of Problems on Sports Fields: A DREAM Opportunity!

Assess

Diagnose

React

Evaluate

Aadjust

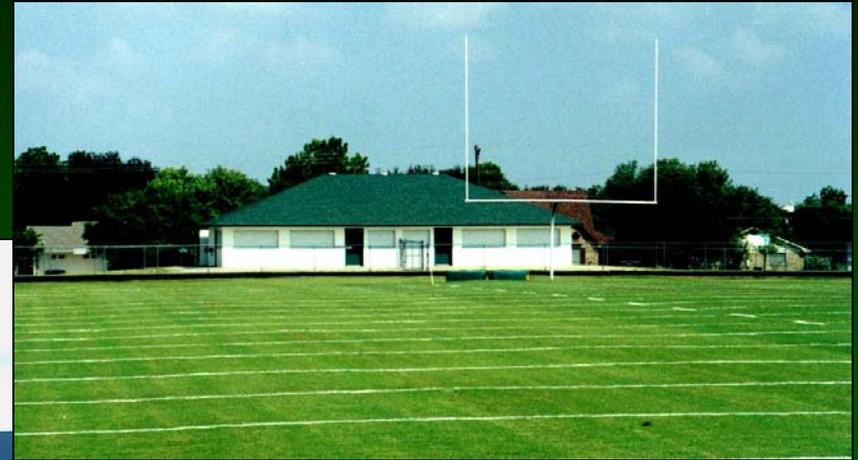
Manage

Assess

Early identification of issues and problems results from constant assessment of turfgrass performance and reduces the chance for substantial turfgrass injury and damage.

Delayed detection can have dramatic consequences!

After



Before

Scouting and early identification is a key element of reducing turf damage?



Diagnose

Diagnose without delay by using specific steps, tools, and resources

Diagnose

- Steps of the process
- Tools the Turfgrass Manager can use
- Helpful resources

Steps of the Process:

- Identify and describe the problem
- Develop an assumption about the cause
- Pursue discovery
- Draw conclusions - Is your assumption correct or incorrect?

Identify and describe the problem.

“My bermudagrass is dieing”

or

“My bermudagrass just doesn’t seem to be growing”

Too general!

Specifically Identify and Describe the Problem



Do this with someone near you!

Specifically Identify and Describe the Problem



Tifway Bermudagrass on my field has large, brown circular patches that appear to be dead or dying.



Describe this problem

Develop an assumption (hypothesis) about the cause



Develop an assumption about the cause



My Tifway bermudagrass has large, brown circular patches that appear to be dead or dying because it has Brown patch (i.e. infected with Rhizoctonia solani).



Pursue discovery

- **Dis·cov·ery:**
 1. Knowledge gained about the existence of something previously unknown or recognized.
 2. Or **Information** that brings something to light.
- **Discovery** is where you gather **information** to test your assumptions about the cause of the problem
- **Information** you might need?

What evidence do you need to test your Hypothesis or Assumption about the cause?



My Tifway bermudagrass has large, brown circular patches that appear to be dead or dying because it has Brown patch (i.e. infected with Rhizoctonia solani).

Information you might need to gather and document during discovery

- Site conditions – shade, traffic, slope, drainage
- Soil or tissue nutrient status
- Soil physical conditions
- Pathology analysis
- Nematode analysis
- Cultural history
- Climate history
- Eye witnesses – when did the problem begin

Helpful Tools

- Sharp knife
- Soil thermometer
- Cup cutter
- Hand trowel
- Dish detergent
- Hand lens (10-20x)
- Pest/disease guides
- Soil probe
- Clipboard & report forms
- “min-max” thermometer
- Shovel or spade
- Bucket
- Rating grid
- Plastic bags, bottles and ID tags
- Digital camera

Our previous assumption about the cause



My Tifway bermudagrass has large, brown circular patches that appear to be dead or dying because it has Brown patch (i.e. infected with Rhizoctonia solani).

Seek Help!



A banner with a background of green leaves and a white flower. On the left, the AgriLIFE EXTENSION logo is displayed, with "Texas A&M System" below it. On the right, the text "TEXAS PLANT DISEASE DIAGNOSTIC LABORATORY" is written in white, bold, sans-serif font. Below this text are two logos: the NPDN (National Plant Diagnostic Network) logo and the SPDN (Southern Plant Diagnostic Network) logo. At the bottom left of the banner, the URL <http://plantclinic.tamu.edu> is written in red.

Discovery Phase

Collect a Sample



Send to Lab



Get the test results



Draw Conclusions

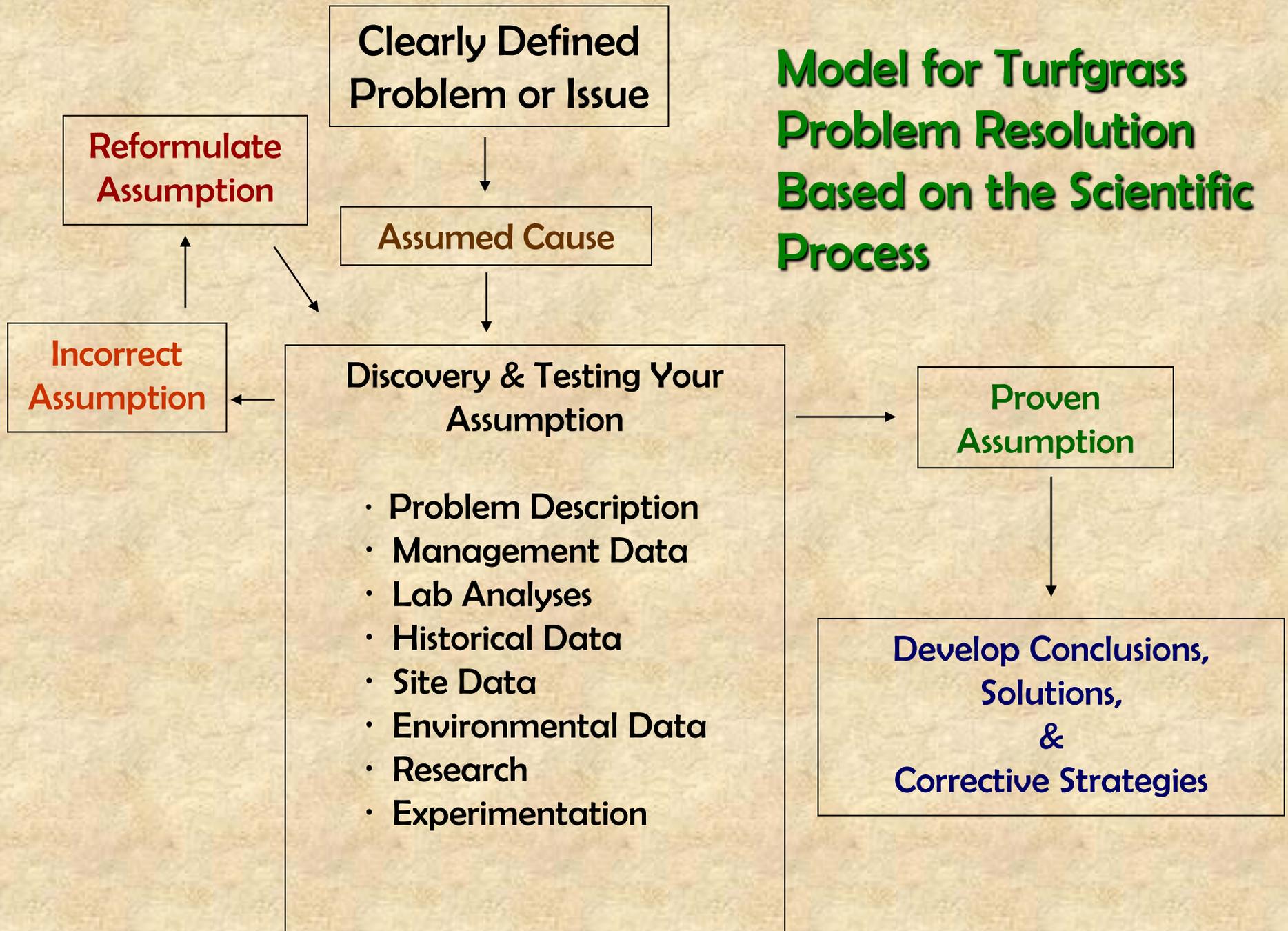
based on information available

- The damaged Tifway has Brown Patch because it is infected with *Rhizoctonia solani*.

or

- The damaged Tifway does not have Brown Patch because it is not infected with *Rhizoctonia solani*.

Model for Turfgrass Problem Resolution Based on the Scientific Process



Proper Diagnosis: Things to Remember

- Use a systematic approach
- Be thorough
- Be patient
- Recognize your strengths and weaknesses
- Seek help when needed

Don't Forget to Look at the Big Picture First!



Perennial Ryegrass Issue



- Looking at the details first might confuse the issue!
- Could this be Red Thread disease?

Perennial Ryegrass Issue



- Could this be Red Thread disease?
- Obviously, the big picture view should direct ones should be considered first.
- With a broader view, this issue is not disease but the result of field marking paint.

Evaluate Turfgrass Community Symptoms

- Color and/or growth differences
- Appearance of plant residues
- Sod rooting stability
- Patterns of chlorosis/necrosis
- Presence of insects

Turfgrass Community Symptoms



Turfgrass Community Symptoms

- Shapes and patterns within the overall turfgrass community provide initial clues for the cause of a problem.
- Circular patches of discolored or dieing or dead turf are often associated with disease
- Problems that appear in rectangular or triangular shapes or distinct lines are most often associated with a physical, applied chemical, or mechanical issue

Any Questions?



Turfgrass Community Symptoms: Shapes



Turfgrass Community Symptoms: Shapes



Look Closer: Foliar Symptoms



- Appearance of leaf tip
- Presence of lesions
- Presence of fungal structures
- Presence of insects
- Patterns of chlorosis

Close Inspection Often Provides Evidence of a Problem's Cause

- The presence of insect adults or larvae in high numbers are strong evidence of the cause of damage
- Sometimes, more subtle signs (circles), such as holes chewed in stolons by billbug adults may be less strong evidence of a problem's cause



Some Times you Have to Dig a Little Deeper

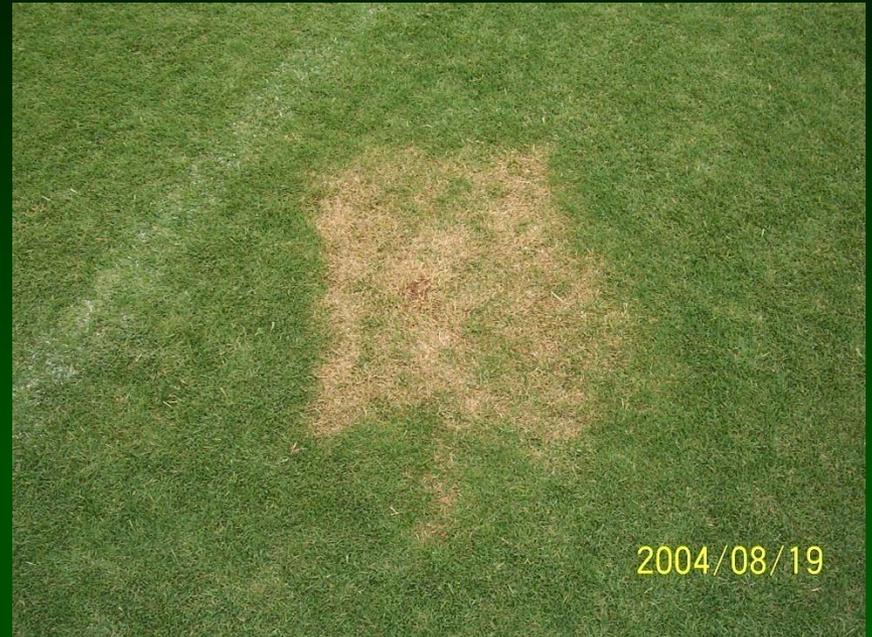


Conduct an Archeological Dig if Necessary



Expect the Unexpected

- TifSport bermudagrass
- Spot treatment of weeds with MSMA
- Injury appeared 3 weeks later
- Suspected glyphosate residue in spray tank



Expect the Unexpected

- Tifspport bermudagrass
- Spot treatment of weeds with MSMA
- Injury appeared 3 weeks later
- Suspected glyphosate residue in spray tank
- **Corrected the leaf spot problem with Daconil**



Don't forget about soil pH

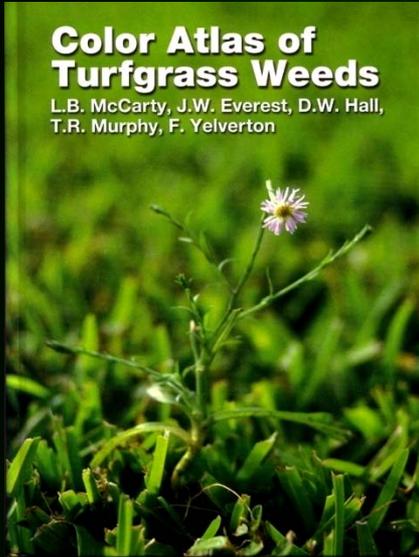
- Very acidic or alkaline soils can cause nutrient deficiencies
- Some diseases and weeds are affected by pH
- Very acidic or alkaline soils can promote thatch accumulation – increased disease, insect, and stress problems

Don't forget about soil pH



This disease problem was corrected without the use of fungicides by lowering the soil pH from 8.5 to 7.2.

Resources that may Help.



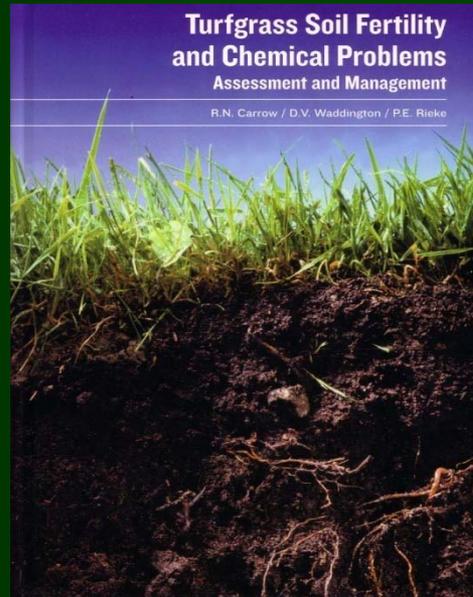
Color Atlas of Turfgrass Weeds

L.B. McCarty, J.W. Everest, D.W. Hall,
T.R. Murphy, F. Yelverton

www.bluebooktor.com

www.weedalert.com

Other web sites...



Turfgrass Soil Fertility and Chemical Problems Assessment and Management

R.N. Carrow / D.V. Waddington / P.E. Rieke

Destructive Turfgrass Insects

Biology, Diagnosis, and Control



Daniel A. Potter

weedalert.com™ Southern Weed Alerts

Return to Home | Scroll down for alert information.

Current Weed Alerts

- Western
- North Central
- Northeast
- Southern

Got a technical question?

Weed Information

- Full Weed Listing
- Western Weeds
- North Central Weeds
- Northeastern Weeds
- Southern Weeds
- Germination Dates
- Weed Spotter Posts

Societies and Associations

Pages will open in a new browser window.

GCSAA
PLCAA
PGMS
STMA

Regional Weed Societies:
Western

Select another month to view it: Currently viewing **November**

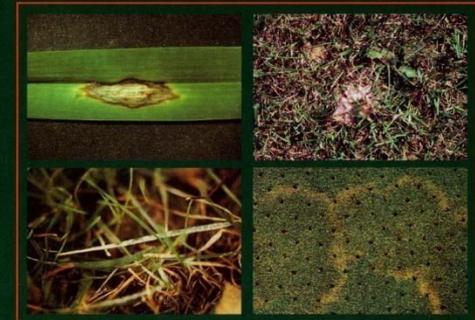
Click on the weed name or it's thumbnail image for a description and cultural control recommendations.

Blackmedic is actively growing and optimum post emergent control can be obtained at this time. ALWAYS READ AND FOLLOW LABEL DIRECTIONS.

Broadleaf Plantain is actively growing and optimum post emergent control can be obtained at this time.

Zone 9
Zone 10

Color Atlas of TURFGRASS DISEASES



Toshikazu Tani

James B Beard

React

React with a specific strategy considering short and long-term costs and impacts

React

- Consider the degree/urgency of reaction required
- Develop a plan
 - Time
 - Labor
 - Materials
 - Equipment
 - Skills
- Consider short/long-term impacts
 - Plant health
 - Environmental
 - Time & Labor
- Communicate appropriately



Evaluate

Evaluate the outcome of the corrective strategy within an appropriate time frame

- Assess results of reaction
- Success/Failures; Did plan work, etc.
- Importance of time

Adjust

Adjust the strategy if needed to achieve
short-term problem resolution.

Adjust

- Make adjustments to recovery plan
- Reassess success/failures
- Adjust strategies if required

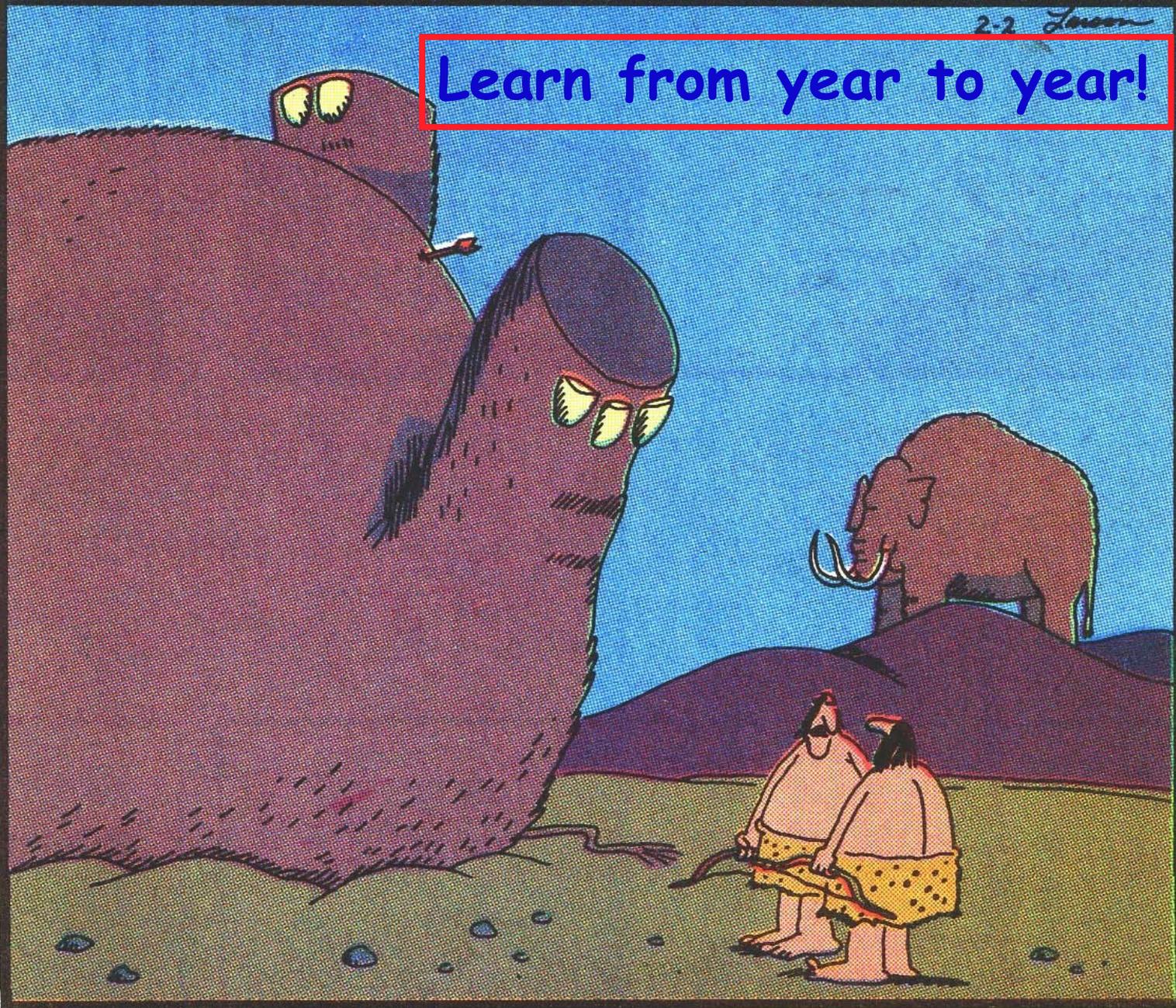
Manage

Manage by adopting strategies that minimize limitations to turf health

Manage

- Document plan and steps taken
- Document contacts, resources, & tools used
- Document successes/failures
- Adopt successful cultural components that ensure plant health long-term

Learn from year to year!



“We should write that spot down.”

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Discussion, Questions, and Answers