

Turf 101: Landscaping Issues and Solutions

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Outline

- What stresses turf?
- Preventative solutions
- Diagnosing issues
- Case study



What affects turf growth?

Nutrients/Soil



Water



Temperature



Sunlight



Injury



Common Turfgrass Issues

- **Biotic Agents**

- Fungi
- Insects
- Nematodes
- Viruses (SAD)
- Bacteria

- **Abiotic Agents**

- Water
- Shade
- Pesticides
- Fertilizers
- Temperature
- Animal urine
- Thatch
- Soil compaction
- Mower injury

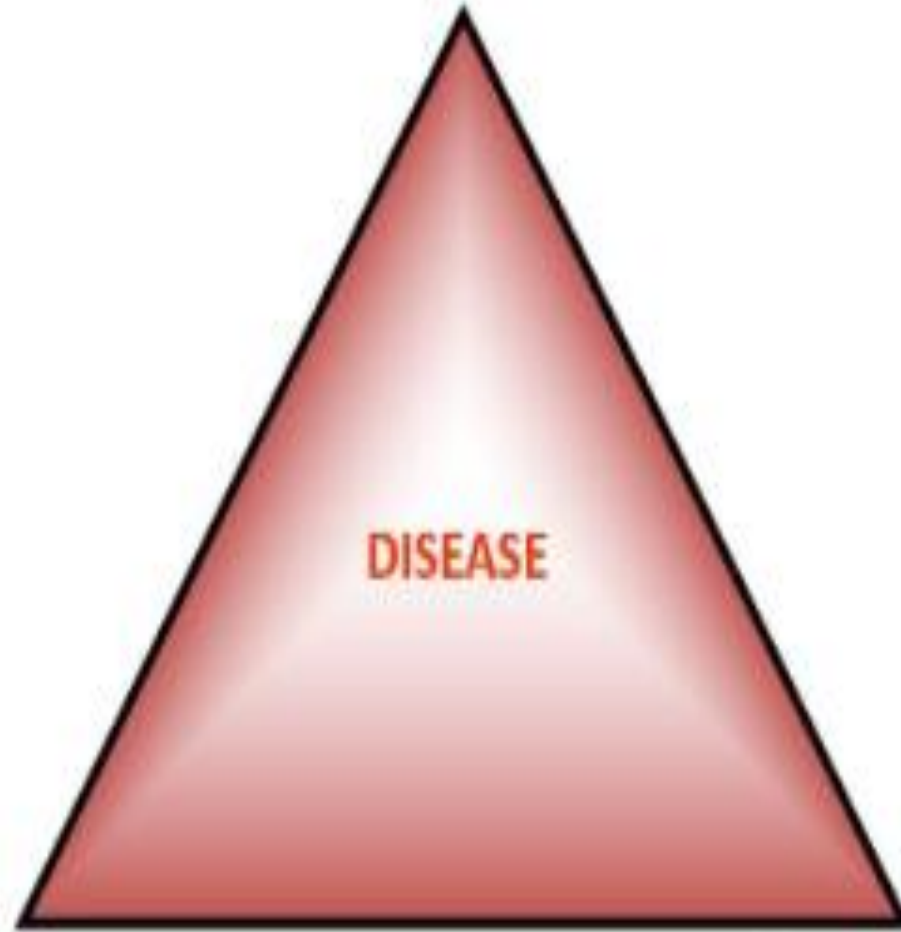
- **Treating causes, not symptoms**

- Treating symptom – Take aspirin for a headache – temporary relief
- Not treating causes – Headache caused by dehydration – not increasing H₂O intake
- Outcome – headaches continue until dehydration is resolved



Preventing biotic stress starts with reducing abiotic stressors

Environment



Pathogen

Host plant

Drought Stress

Perfect World

- Growing drought-resistant cultivars
- Ability to irrigate
- Mowing at high end of recommended range
- Amended soils
 - Core aerification
 - Compost
- Proper potassium fertility

Real World

- Older, less drought-tolerant cultivars
- Irrigation?
- Mowing too low
- Compacted soils
- Infertile soil

Drought Stress

- Droughts are not planned
- Plant drought-resistant cultivars
- Manage year-round for proper root growth
 - Deep, infrequent irrigation
 - Mow high – within reason
 - Yearly core-aeration – good cores
 - Proper K - ≥ 40 ppm (Mehlich III)
- Little to do reactively
- Stay off turf
- No mowing/fertilizing



Shade Stress

Perfect World

- Growing shade-tolerant cultivars
- Minimal trees and shrubs
- No buildings
- Sunny days

Real World

- Older, less shade-tolerant cultivars
- Live oaks exist
- Buildings are necessary
- Sun doesn't always shine

Shade Stress

- Plant shade-tolerant grasses/cultivars
 - 'ProVista' St. Augustinegrass
 - *Zoysia* spp.
- Tree maintenance
 - Limbing up
 - Thinning canopy
- Reduce N fertilization
- Less water
- Growth regulators - Primo
- Alternative ground covers



Temperature Stress

Perfect World

- Never drop below freezing
- Never go above 90 °F

Real World

- Winter freezes
- Soil temps approaching 90 °F

Temperature Stress

- Avoid early and late-season nitrogen
 - Frost damage
- Raise mowing heights in the fall
- Only fertilize actively growing turf



Nutrient/Soil Stress

Perfect World

- Adequate drainage
- Aerated soils
- pH 6.5 (lower for centipede)
- Available P and K
- Nitrogen mineralization adequate

Real World

- Compaction/poor drainage
- Poor aeration
- pH 4.5-8.5
- Potassium leaching
- N fertilizers necessary

Nutrient/Soil Stress

- Rarely the only cause of poor growth
- Soil testing – pH, P, K
 - Modify soil pH 5.5-7
 - $P \geq 20$ ppm, $K \geq 40$ ppm – Mehlich 3
- N fertilization according to recommendations
- Vertical mowing for thatch management
- Proper aerification
 - Increased aeration/reduced waterlogging



Biotic Injury

- **Fungi**

- Gray leaf spot
- Take-all root rot
- Dollar spot
- Spring dead spot

- **Insects**

- Chinch bug
- Tropical sod webworm
- Fall armyworm
- White grubs
- Black cut worm

- **Viruses**

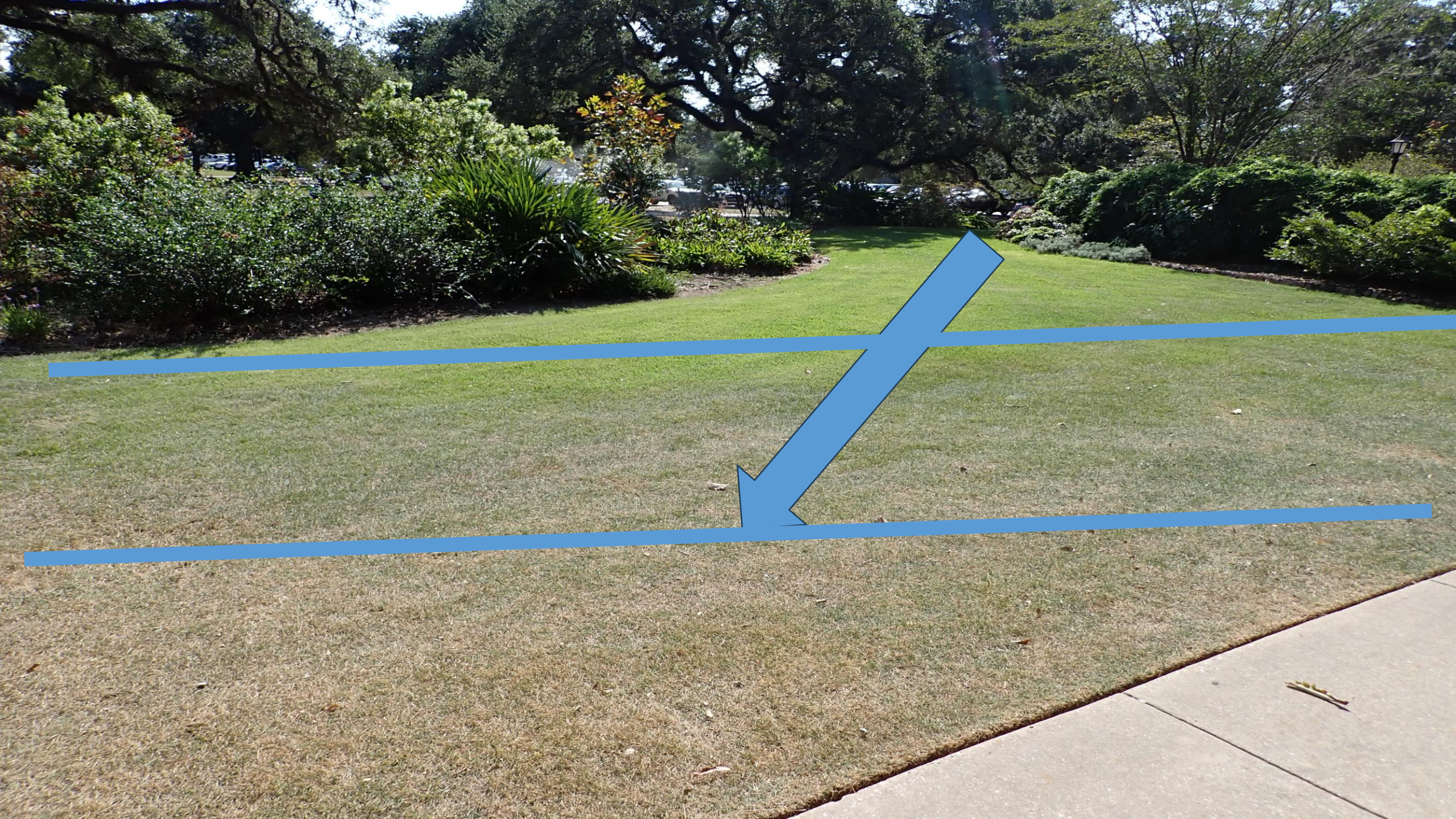
- St. Augustinegrass Decline



Determining source of issue

- Grass species and cultivar (if possible)
 - Some are resistant to common issues
- Weather history
 - Precipitation
 - Temperatures
- Products applied
 - Herbicide or fertilizer injury
- Pattern of damage
 - Nature doesn't operate in straight lines





Case Study

- Baton Rouge, LA – Sept. 2023
- St. Augustinegrass
 - Recently sodded
- Soil tests – low potassium
- History of waterlogging
- Lime applied
 - During summer heat
- Celsius applied
 - To stressed turf











Diagnosing

- Diffuse pattern
 - Follows natural drainage pattern
- No lesions on leaves
- Got worse during drought
- Flush test – chinch bugs
- Shaded area much less stressed
- Send in sample for diagnosis



Take-all Root Rot

- *Gaeumannomyces graminis* var. *graminis*
- Complex disease – multiple species
- Irregular, chlorotic patches
 - Eventually coalesce
- Lower leaves first to become chlorotic
- Extensive dieback of roots and stolons



Photo credit: Young-Ki Jo



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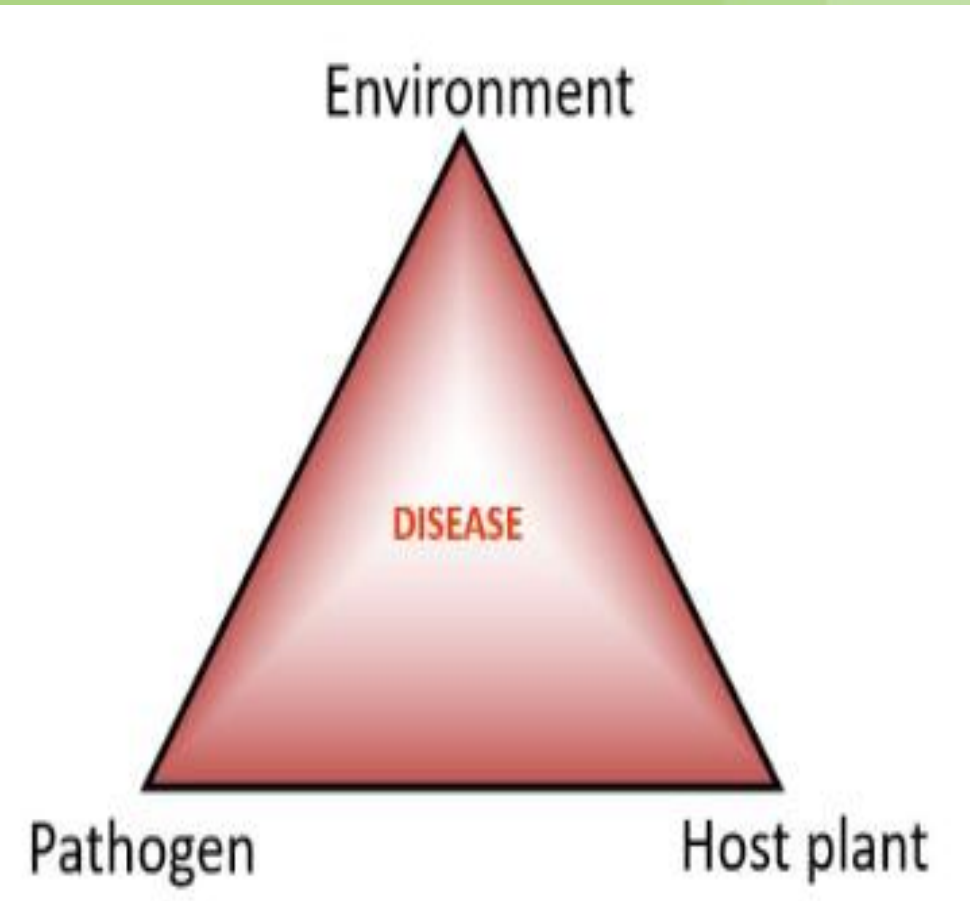
Management

- Encourage overall plant health
- Reducing soil compaction
- Increase drainage
- Avoid lime
- Acidifying fertilizers
- Foliar nutrient applications
- Watch micronutrients
- Preventative fungicide use
 - Acropetal penetrants
 - DMI's (3), Strobilurins (11), Benzimidazoles (1)



Now what?

- Disease Triangle
 - Soil acidification
 - Potassium fertilization
 - Increase drainage
- Complete renovation
 - New grass?
 - Soil modification



Review

- Many different causes of turf issues
- Manage to reduce abiotic stress
 - Healthier plants – less biotic stress
- Use patterns and history for diagnosis
- Reactive solutions much less effective
 - Manage proactively



Thank you!

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