

## Competition Kills



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## Living systems revolve around "Peaks and Valleys"...

- awake, asleep
- healthy, sick
- happy, sad
- hungry, satisfied

**Your turf is no different either.**

When you have the absolute best looking, thickest, darkest green turf possible, what ultimately (maybe not immediately) must happen?



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## Your goals as a successful sports turf manager

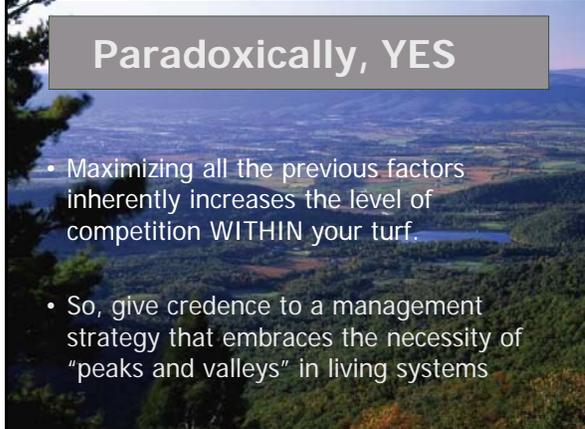
- uniform, dense canopies
- extensive, deep root systems
- Delivering a safe playing surface
- accolades from your field users for playing quality

**Does achieving the goals ever work against you?**

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## Paradoxically, YES

- Maximizing all the previous factors inherently increases the level of competition WITHIN your turf.
- So, give credence to a management strategy that embraces the necessity of "peaks and valleys" in living systems



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## The fight is on...

- Every day you battle your coaches, greens committee, supervisors, administration, players, clients AND Mother Nature over your turf.
- However, the biggest battle taking place is literally IN the turf itself. And, it is quite often this "infighting" which is presenting such a challenge to you!



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Blackburg High School vs. Worsham Field, Virginia Tech

Which of these fields is the most prone to damage from...

- Environmental stress?
- Attack from pests?
- Mistakes by the manager?



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## Why is this true?

- **COMPETITION**
  - Air
  - Light
  - Water
  - Nutrition
  - Space

Much of the time, you have an opportunity to manage the components of competition, although some factors are not always in your control. Today we will discuss the ways we try to maintain control of the competition.



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The best thing that I can do in my job is to grow a thick, dense turfgrass

The worst thing that I can do in my job is to grow a thick, dense turfgrass




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## Not all competition is bad...

- The best means of weed control IS a competitive turf -- PERIOD. But, our cultural programs that we implement towards achieving a dense turf can alter turf competition (both favorably and unfavorably) as well.



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One of the best weed control strategies is appropriate mowing height. "Effects of Mowing & Fertility on Crabgrass Density in Tall Fescue Lawns"

Based on research by Dr. Ron Calhoun, Michigan State Univ.

<p>Mow at 1.5 inch</p>  <p>288 Crabgrass/m<sup>2</sup></p>	<p>Mow at 1.5 inch + Fert</p>  <p>108 Crabgrass/m<sup>2</sup></p>
<p>Mow at 3.0 inch</p>  <p>27 Crabgrass/m<sup>2</sup></p>	<p>Mow at 3.0 inch + Fert</p>  <p>6 Crabgrass/m<sup>2</sup></p>



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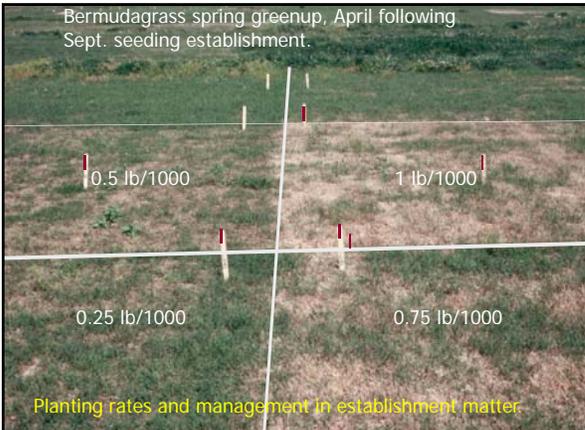
## Competition begins at establishment

- Almost all turfgrasses that can be established by seed are recommended to be planted at levels of 10-30 living seed per square inch... these rates are very similar to what you will find in shoot densities of an established turf. You do not expect all of the seed to live, nor do you actually want them to live if you follow the typical seeding rate guidelines.



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Bermudagrass spring greenup, April following Sept. seeding establishment.



Planting rates and management in establishment matter.

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But let's get real when it comes to expectations and perceptions

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### The Dynamic Grass Plant

- The management strategy with the turfgrass plant involves our ability to manipulate (within environmental constraints) the numbers of:
  - leaves
  - stems
  - roots
- Each of these components is closely interconnected and the responses vary depending on season, environment, and our management.

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### Bermudagrass

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### Why do leaf numbers vary so greatly?

- Genetic variation
- Mowing height
- Irrigation/water
- Fertility
- Light
- Cultivation
- Plant growth regulators

But, if you trigger a surge in great looking leaves this week, what MUST happen with those leaves in the coming weeks?

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### Leaves... providing more than just good looks.

- An actively growing Kentucky bluegrass shoot being grown on a moderate/high maintenance sports field will typically have from 6-10 visible leaves present at any one time.
- In general, we associate more leaves with "better turf" (more density, better looking, more recovery, etc.). Important Question Now: **How do we gain more leaves and SHOULD we always be trying to increase leaf number?**

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### The analogy to help you maintain your sanity: "Peaks and Valleys"

How does one keep an annual 'blooming throughout the summer'?

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## Mowing and competition

- Frequent regular mowing at the lowest acceptable cutting height **increases**:
  - rate of leaf formation (and typically overall leaf number)
  - tillering rate
  - number of lateral stems
  - more prostrate growth habit
- Frequent regular mowing at the lowest acceptable cutting height **reduces**:
  - seedhead formation
  - root development (at least to some degree)
  - carbohydrate reserves



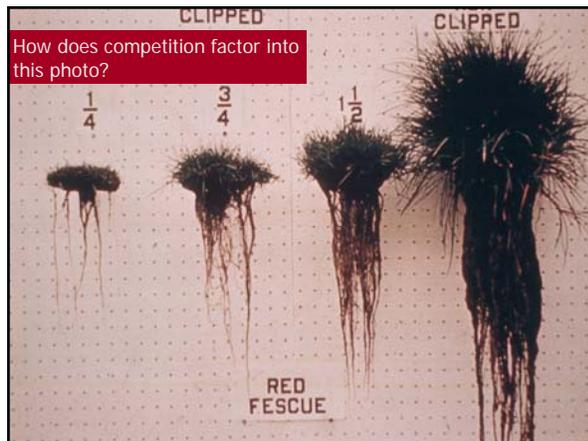
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## Build your turf from the ground up

- You desire to play on grass and not dirt... you need some level of "biomass". The way you maximize biomass is:
  - Start the **growing season** at the lowest acceptable mowing height for your situation.
  - Gradually raise the mowing height levels as the **growing season** progresses.



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## Dense Turf... the Pros and Cons

- While we associate the "best" turf as often being the thickest turf, consider this phenomenon of having the thickest turf possible: internal SHADE
- Can grasses "shade themselves"? **SURE**
- And what are two of the most shade sensitive grasses grown on sports fields?



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## Turfgrass Density as Affected by Shade

- The basal leaves in a dense sward definitely exhibit shade responses:
  - reduced leaf width
  - longer internodes
  - longer leaves
  - more upright growth habit (greater leaf angle)
- Quite often we notice the shade effects as a scalping tendency.
- Another factor with shade is lower wear tolerance.



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Finally, consider that the competition extends to your root system...



The slide features a dark red background with white text. It includes three images: a cylindrical core sample of turf showing the root system, a large pile of turf cores, and a group of people gathered around a turf core sample. A small logo is visible in the bottom right corner.

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All this being said, I always want you to grow the thickest, densest turf possible.




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### I just hope you will...

- Remember “peaks and valleys”... one can't (nor should expect to) always have turf peaked... valleys need to be incorporated into the management program
- Remember, in order to best perform your job you must manage to increase the competition... and then eventually you will have to manage the competition!



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**Thank you for coming and thanks to STMA for providing the opportunity.**

- Twitter is @vaturf... only used for turfgrass management topics!




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