Penn State's Center for Sports Surface Research

THE SPORTSTURF SCOOP

Can Plant Growth Regulators Improve Your Field ?



What is a Plant Growth Regulator?

- Compound that regulates plants growth
- Affects hormone levels
- Changes in growth and development





Plant Growth Regulators

- <u>Plant growth regulators</u>

 Can increase <u>or</u>
 decrease growth rate
- <u>Trinexapac-ethyl (TE)</u> -Inhibits gibberellic acid
 - Side effects increased tiller density and rooting



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www.turffiles.ncsu.edu

Trinexapac-ethyl – Affects Cell Size

Normal Gibb.





PGRs on Sports Fields ?



- What we know about Trinexapac-ethyl:
 - Reduced shoot growth
 - Increased tiller density
 - Increased rooting



Surface Stability



<u>Divoting</u> = complete shearing (removal) of turf root system from rootzone



PGRs and Surface Stability

- Can Primo Improve Divot Resistance (Kentucky bluegrass) ?
 - Primo Applied May July "Pre-condition"
 - Sand: 10 20% Reduction in Divot Size
 - Soil: 10% Reduction in Divot Size

 Primo Applied From May – October was not better/worse than Untreated Plots



PGRs and Surface Stability

- Tiller Density
 - Primo Treatments
 Increased Tiller
 Density up to 15%
- Root Mass
 - Primo Applied May July Increased Root Mass by 10%





Conclusion From Research

- Primo Applied in Spring and Summer Improves Divot Resistance for Fields Used in the Fall
 - Increase in Tiller
 Number
 - Increase in Root Mass





Applying Trinexapac-ethyl

- Foliar Absorbed
 - Must Dry on Leaf (Label Says 1 Hour)
- Expect 50% Growth Reduction (Effects 3-5 Days After Application)
- May Have Some Discoloration After First Application
 - Then Darker Green Color



Do Not Apply to Stressed Turf





Applying PGRs

 Do Not Apply Immediately Before or After Cultural Practices

(Aerification, Verticutting, etc.)





Applying Trinexapac-ethyl

- Be Ready for Growth Surge (Rebound Effect)
 - Use it to Your
 Advantage





Trinexapac-ethyl in Paint





Do Not Use In High Wear Areas



Non-Sports Events





Non-Sports Events

- Recommendations:
 - Primo Application at Least 2 Months Before
 Event
 - Primo Application 21 Days Before Field is to be Uncovered
 - Growth Surge grow out of damage

Recommendations by Steve LeGros (Sports Field Mgmt, Nov. 2007)



Poa annua Control?





Poa annua Suppression

- Paclobutrazol
 - Root-Absorbed –
 Water in
 - Include Some N to Mask Discoloration
 - Slows Growth 6 8
 Weeks





Poa annua Suppression

- Be Careful!
 - Know How Much Poa You Have
 - Can <u>Discoloration</u> Be Tolerated?
 - Can You Establish Turf in its Place?
- During Play Actively Growing Poa is Better than Injured Poa
- Seed Desirable Species (Perennial Ryegrass)



Poa annua Suppression

- Football Fields: Apply in <u>Spring</u>
- Baseball Fields: Apply in <u>Fall</u>
- Do Not Apply During Hot Weather
- Label: Do Not Seed Within 6 Weeks Prior or 2 Weeks After Application



PGRs on Sports Fields

 "Pre-condition" turf prior to season – increased divot resistance

Other uses – paint, non-sports events

Poa annua suppression



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