

# Using Bermudagrass On Athletic Fields In Colder Climates

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# Bermudagrass Basics

- Popularity in colder climates due to:
  - Aggressive stolon and rhizome growth
    - Results in high recuperative potential
  - Better tolerance:
    - heat, drought, low mowing
  - Fewer insect and disease issues than cool-season species
  - Genetic improvements in cold tolerance over past several years

# Bermudagrass Basics

- Major drawbacks of use in colder climates:
  - Extended dormancy
    - Lasts from first frost of fall until soil temperatures reach 50°F
      - Late May/early June
  - Much higher potential for winterkill



**Dormancy**



**Winterkill**

# Cold Tolerant Cultivars at Purdue

- ‘Patriot’
  - Rapid rate of establishment
  - Requires more thatch management to prevent “puffiness”
    - Puts its leaf structures on top which gives appearance of being scalped if steps aren’t taken to shorten the stems



# Cold Tolerant Cultivars at Purdue

- ‘Riviera’
  - Available as seed
  - Initially very slow to establish
  - Leaf growth from base and top of stem
    - Better traffic tolerance than Patriot
  - Doesn’t hold morning dew as long
  - Seed heads are an issue when plant becomes stressed

# ‘Patriot’ vs ‘Riviera’



# Reasons For Selecting Bermuda

- Regularly seeing hotter summers
- Water conservation/bans are becoming the norm
- Heavy play in summer/early fall
  - Cool-season species typically fail because they are at their weakest during that time of year



# Dealing w/ Shorter Growing Season

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- Fertilization
- Primo Applications
- Aerification/Verticutting

# Fertilization

- 100% fast release sources
  - 46-0-0 urea, 21-0-0 ammonium sulfate, 34-0-0 ammonium nitrate
- Applied every 2 weeks from May until overseeding occurs
  - Don't have the luxury of letting mother nature grow in our fields
- Bermudagrass grows most efficiently when ratio of nitrogen to potassium is 1:1

# Primo Applications

- Slows down top growth and focuses it into root, rhizome and stolon growth
  - Stands are more dense and tolerant to traffic
    - Shorter internode length = more leaves/area
- Potentially improves cold tolerance on hybrid bermudagrasses
- Applied to ryegrass seedlings
  - Potentially speeds up tillering process because you're not mowing off its energy

# Aerification/Verticutting

- The fastest growing type of bermudagrass is a juvenile plant
  - By aerifying &/or verticutting, you cut up older growth and create new plants
  - Be careful not to over verticut which can leave your field loose
- Recommend only verticutting to eliminate thatch
  - Safer to aerify

# Dealing w/ Long Dormancy Period

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- What to do when play occurs after 1<sup>st</sup> frost
- Spring Dead Spot Disease
- Winter covers
- Spring transition



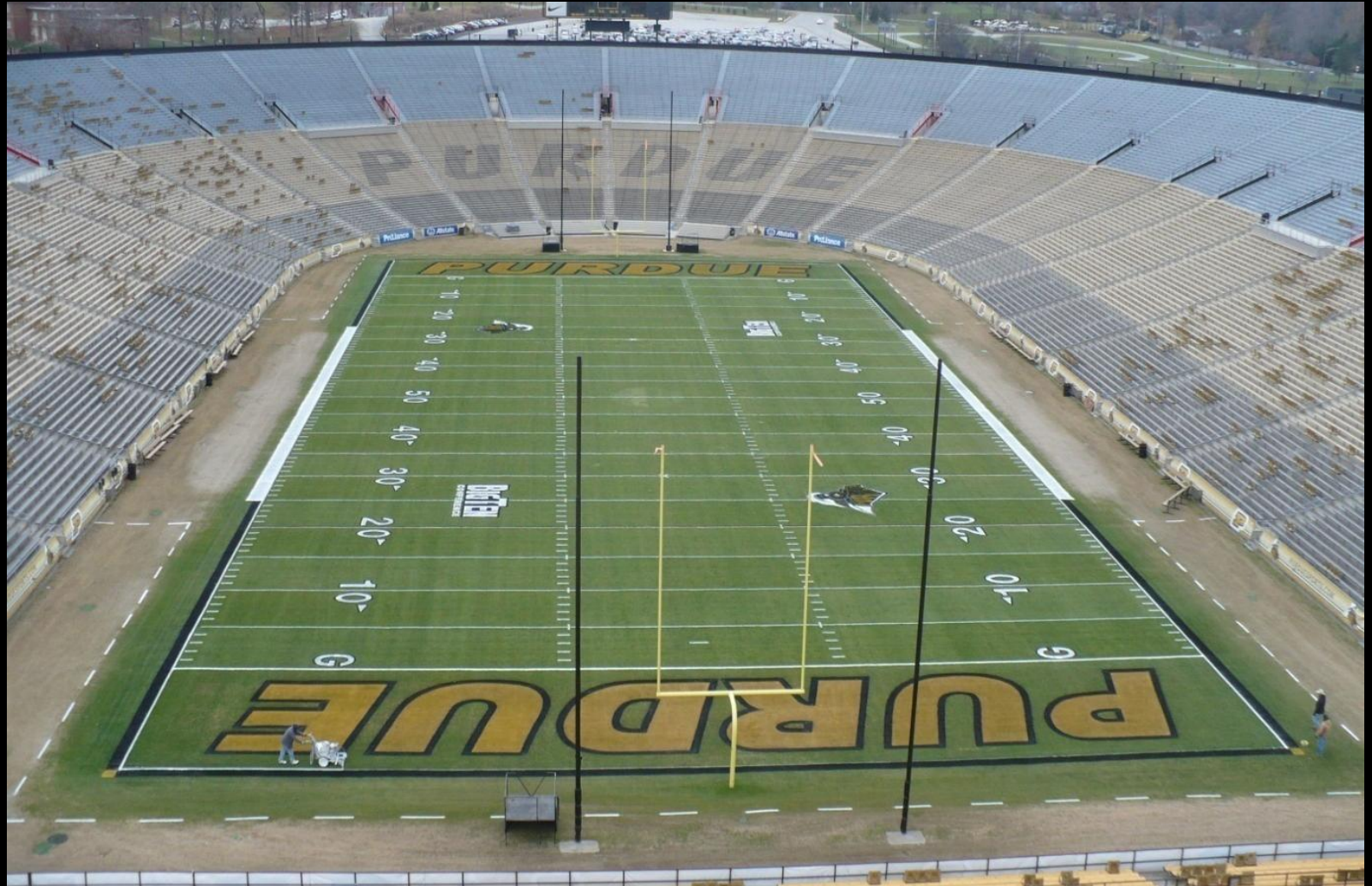
ROSS-ADE STADIUM

SOLEMAKERS

ProLiance



# Overseeded vs Non-Overseeded



11-20-08, 2 days before final football game against IU

# Spring Dead Spot Disease

- Only disease to worry about in our climate
  - Damage can be excessive due to high amounts of fertilizer being applied during summer





# Spring Dead Spot Disease Cont.

- If no play during late spring/early summer, damage is not an issue
- If preventative chemical application is required:
  - Apply when soil temps drop between 60-70°F
    - Typically September for West Lafayette, IN
  - DMI's are best chemical control but are also being taken off market

# Winter Covers

- Due to several months of cold temperatures and possible weeks of extreme cold, it is highly recommended to cover



# Spring Transition

- Timing depends on:
  - Season of play
    - Spring vs Summer vs Fall
  - Herbicide
    - Temperature dependent
    - Affordability
    - Accessibility

# Purdue's Maintenance Calendar

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# Late April/Early May

- Thin out dead ryegrass
  - Shallow verticutting and broom w/ tines
  - Prevents bermudagrass from being shaded
  - Preps field for ½ lb. PLS/1000 sqft of ‘Riviera’ seed if needed
- Fertilization begins w/ grass emergence
  - 1 lb. N/1000 sqft every 2 weeks with a 1:1 ratio of nitrogen to potassium
    - We use 23-0-25 (urea and potassium chloride)



# Late May/Early June

- Primo applications of .25oz/1000 sqft.
  - Bermudagrass coverage must be acceptable before starting
  - Applied on opposite weeks the fertilizer is put out and will be continued through the fall overseeding
- Applied based on label recommendations
  - Do not apply more than 7.0 oz/yr

# June/July

- 1 verticutting might be required
  - Dependent on thatch layer
  - For football fields, should be done prior to July 4<sup>th</sup> to prevent field being too loose by the time practices start
- 2-3 hollow tine aerifications are performed throughout the summer to prevent any layering issues
- Target ½” of sand topdressing/summer



# June/July

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- July
  - Spray for grubs and surface feeders
    - Fall Army Worms and Black Cut Worms have been present each year we've had bermudagrass

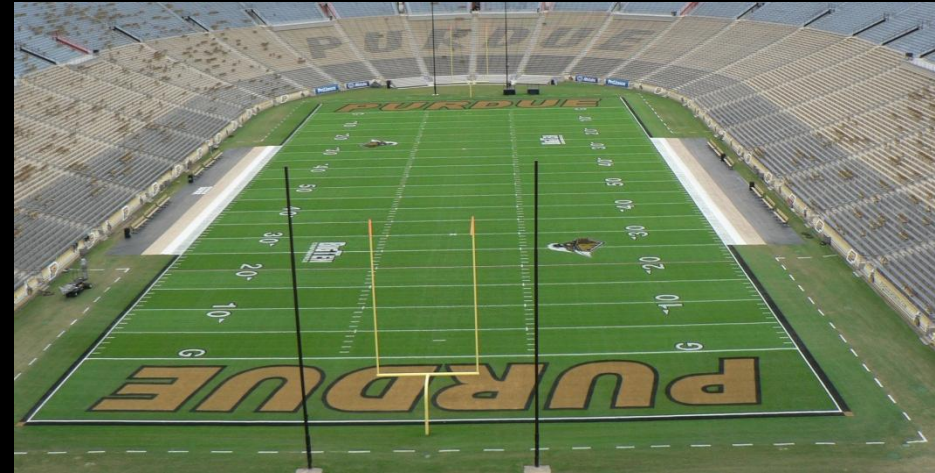
# August

- Seed perennial ryegrass 2 weeks prior to 1<sup>st</sup> game of season – for fall sports
  - Ideal window for seeding in northern IN is Aug 15<sup>th</sup> – Sep 15<sup>th</sup>)
  - Preventative Pythium spray until temperatures are no longer favorable for disease

# P. Rye Seeding Rates (lb. pls/1000 sqft.)

- Ross-Ade Stadium

- Initial 27 lb.
- Remaining seed based on damage



- i.e. Higher rates between hashes

- Varsity Soccer Field

- 35-50 lb./season b/c season is over by end of October

# P. Rye Seeding Rates (lb. pls/1000 sqft.)

- Football Practice Complex
  - Do not overseed
  - Switch to black paint instead



October 29<sup>th</sup> – Football Practice Field

# September/October

- Spray for Spring Dead Spot
  - Most publications recommend applying in October but you have to consider what soil temperature fungus is active (50-70°F)
    - Typically in September for West Lafayette, IN
- 1<sup>st</sup> frost usually occurs in late September or early October

# Winter Months

- Winter blankets go on as soon as sporting seasons end



- Removed 1 week prior to when coaches want to come out for practice in spring (usually 2<sup>nd</sup> week of March)

# Late April

- Transition out ryegrass as soon as spring practices & games wrap up



# Expectations for Your Field

- Not uncommon to treat your field as an annual when growing in colder climates
- Everything is crammed into a smaller window and takes a well planned strategy to achieve success
- Be patient
  - Bermudagrass fields change so much from day to day



# Questions?

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