Using Bermudagrass On Athletic Fields In Colder Climates

Brian F Bornino

Sports Turf Crew Chief
Purdue University Intercollegiate Athletics Department

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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
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
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

- 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 verticute which can leave your field loose

• Recommend only verticutting to eliminate thatch
  – Safer to aerify
Dealing w/ Long Dormancy Period

- What to do when play occurs after 1st frost
- Spring Dead Spot Disease
- Winter covers
- Spring transition
Dealing with Play after 1st Frost

- Possible to extend color by covering the field when frost is predicted and daytime temperatures are still warm.
- Overseeding with cool-season species becomes very important if play continues into colder months. Even though dormant bermuda can withstand considerable play, excessive field use causes a loss of resiliency.
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
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 verticuting might be required
  - Dependent on thatch layer
  - For football fields, should be done prior to July 4th 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

- 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 1st game of season – for fall sports
  – Ideal window for seeding in northern IN is Aug 15th – Sep 15th)
  – 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
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
  
• 1st 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 2nd 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?

Brian F Bornino
Sports Turf Crew Chief
Purdue University Intercollegiate Athletics Department
1337 Cherry Lane
West Lafayette, IN 47907
765-532-2470
bornino@purdue.edu