New and Old Tools for Maximizing Turfgrass Establishment

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Student interns?
- 3 Creek Ranch, Jackson Hole, WY
- Anchorage Country Club, Anchorage, AK
- Bandon Dunes, Bandon, OR
- Blackstone Country Club, Perris, AZ
- Brickman Group, Brookfield, IL
- Castle Pines Country Club, Castle Rock, CO
- Columbus Crew, Columbus, OH
- Desert Mountain CC, Scottsdale, AZ
- Erin Hills GC, Erin, WI
- Haymarket Park, Lincoln, NE
- Hazeltine National, Chaska, MN
- Indianapolis Indians, Indianapolis, IN
- Lakeshore Country Club, Chicago, IL
- Loch Lloyd Country Club, Kansas City, MO
- Milwaukee Brewers, Milwaukee, WI
- Minnesota Vikings, Eden, MN
- Oakland Hills, Bloomfield, MI
- Oakmont Golf Club, Oakmont, PA
- Philadelphia Phillies, Philadelphia, PA
- Sand Hills, Mullin, Nebraska
- Shadow Creek GC, Las Vegas, NV
- TD Ameritrade Park, Omaha, NE
- The Broadmoor, Colorado Springs, CO
- The Plateau Club, Sammamish, WA
- The Powder Horn, Sheridan, WY
- Three Creek Ranch, Jackson, WY
- TPC Daere Run, Silver, IL
- TruGreen, Lincoln, NE
- USGA Green Section, Midwest
- Walt Disney World, Orlando, FL
- Westwood CC, Vienna, VA
- Wisconsin CC, Wisconsin Dells

Contact Anne Streich (astreich2@unl.edu) or Zac Reicher (zreicher2@unl.edu)

Old tools
- Right grass, right place
- Soil prep
  - Drainage, layers, construction debris, etc
  - Tilling (give it a chance)
  - Maximize seed soil contact
- Starter fertilizer – 1.0 lb P2O5/1000 almost regardless of soil test
- Irrigation
- Mowing – early and often
- Post seeding fertilization – early and often
Timing of seeding (textbook version)

- Mid to late August for cool-season grasses
  - Maximizes maturity by next summer
  - Minimizes inputs next summer
  - Minimum weed problems (crabgrass)
  - Should be mature enough for winter

Timing of seeding (reality)

- We’d love to seed mid to late August
  But....
  1. Dry summers/falls?
  2. Winterkill?
  3. Construction finishes?
  4. Poa?

1. Dry summers/dry falls

- No irrigation → bad establishment before winter
- Dormant seeding
- Not as good as Aug/Sep seeding
- Not necessarily better than spring seeding
- Advantage is no delay next spring due to weather
- “Jump” on spring seeded turf
- Works better in colder climates because of the risk of warm periods followed by cold snaps

Dormant seeding

- Tall fescue/KBG (~90/~10) or KBG
- Buffalo?
- Soil prep this fall – wide acceptable range
- Starter fert, irrigation, weed control next spring
- Regular irrigation, fertilization next spring and summer
- Early summer cold periods are risky

July turf cover of three species when seeded from Sep through May (Purdue 1990-91).

% Cover of Kentucky bluegrass when dormant seed in Nov or spring seeded in May (UNL 2014).
2. Winterkill

- Winter of 2013-14
- New seedlings not established before winter
- Areas susceptible to desiccation/direct cold temperature kill over winter
- Requires spring seeding

3. Construction finishes

- Exposed soil needs to be covered quickly
- Sod almost anytime
- Seed at less-than-optimum times requires irrigation, weed control
- TTF seeding period is very flexible
- Summer seeding is possible (unless buffalo) or wait until Aug
- Late fall is more problematic
  - Seed and risk winterkill
  - Temporary PRYE turf?

Crabgrass options in dormant/spring seedings

- Tenacity
  - PRE on bare soil
  - POST over turfed areas, 28 days after emergence
- Drive
  - POST 28 days after emergence
- SquareOne (Quinclorac+Carfentrazone)
  - POST 7 DAE
- Dithiopyr
  - Early POST with PRE residual
  - “Developed a good root system and uniform stand, and have received at least two mowings”

KBG cover 6 weeks after emergence (UNL 2011)

TF cover 6 weeks after emergence (UNL 2011)

2013 - Effect of single applications of herbicides over seeding buffalograss (UNL 2013) [primary weed was yellow foxtail]
4. Poa

- Mid- to late-August is best time to seed for cool-season grasses on most areas
- Golf courses usually push back seeding dates because of revenue-play
- Later you go, the more likely Poa will outcompete new seedlings
- Seeding should be much earlier in summer than mid to late Aug.
- Aggressive Poa controls require pre/post seeding

**Indiana fairway, CBG seeded**

Immediately after Roundup apps and no intervention following seeding

<table>
<thead>
<tr>
<th>Seeding date</th>
<th>Following June</th>
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<tr>
<td>August 15</td>
<td>19%</td>
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<td>September 15</td>
<td>43%</td>
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**Effect of seeding date on bentgrass overseeding into Poa fairway rated in October after seeding in NJ (Henry et al, 2005)**

![Graph showing % Poa annua for different seeding dates](image)

**Effect of seeding date on bentgrass overseeding into Poa fairway rated in July, 1 year after seeding in NJ (Henry et al, 2005)**

![Graph showing % Poa annua for different seeding dates](image)

**Effect of seeding date on bentgrass overseeding into Poa fairway rated in July, 2 years after seeding (Henry et al, 2005)**

![Graph showing % Poa annua for different seeding dates](image)
Poa control options

- Maybe if seeded July 1-Aug 1:
  - Nothing
  - Multiple apps of RoundUp up to and immediately after seeding date
- Basamid
- PRE/POST in PRYE, KBG, TTF, Buff
  - Tenacity in the seedbed + 28 DAE
- POST after emergence
  - Velocity (not in KBG)
  - Prograss (CBG)
- PRE after emergence
  - Dithiopyr has safest label

Basamid and reseed

- General use
- Fine granular formulation
- Turns to gas upon contact with water
- Can control plants as well as seeds in soil
- Optimum rate of Basamid: 450 lbs/A
- Aerification before or after Basamid application doesn’t matter
- Seeding interval: as little as 1-3 days after Basamid application
- 80% of Poa seed is in top 0.2” of soil
- Likely only controls seed ready to germinate (buys some time)
- Irrigate like a new seeding

Concerns when using Basamid

- Must have adequate moisture leading up to application of Basamid
- Exposure
- Uniform app. (drop spreader)
- Wind and tracking problems
- Off-site movement? (dig a moat)
At/Post-seeding Poa control options

- Tenacity on KBG or PRYE
  - PRE on bare soil
  - POST over turfed areas, 28 days after emergence
- Velocity on CBG, PRYE
  - POST 30 days after emergence
  - Only good option for Poa trivialis
- Prograss
  - POST 1-2 weeks after emergence of PRYE
  - POST 3-4 weeks after emergence of CBG
  - POST 8 weeks after emergence of KBG
- Dimension/dithiopyr
  - Early POST with PRE residual
  - “Developed a good root system and uniform stand, and have received at least two mowings”

Tenacity

- Revolutionized weed control in seedlings (not CBG)
- PRE on bareground at seeding
- Safe on KBG
- Safe on PRYE seedlings
- Controls Poa, annual grasses, and broadleaves PRE
- POST 28 days after emergence (safer than that)
- 8 + 8 oz/A or 5.3 X 3 oz/A, include NIS in POST apps
Safety of Velocity 17.6 SG when applied over newly-seeded L93 creeping bentgrass. Regardless of rate or timing, Velocity had no effect on cover by 8 weeks after emergence (WAE) (Purdue 2007).

Effect of two applications of Velocity 17.6 SG or Certainty applied to separate stands of seeding Poa trivialis or creeping bentgrass in fall 2008 at various weeks after emergence (WAE). Data presented were collected eight weeks after emergence.

% Poa control in CBG seedlings with Velocity

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<td>0 (73)</td>
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*% Poa control
*significantly different at P<0.05 with different letters
*% cover in check plots.

Over- or reseeding fairways?

- Perennial ryegrass or Kentucky bluegrass?
  - What ratio?
- Aggressive post-seeding herbicides
  - Dramatically improves success of seeding
    - Tenacity 5 oz/A 3 apps
    - 2, 4, 6 weeks after seeding
    - Prograss 2 qts/A 3 apps
      - 2, 4, 6 weeks after seeding
Effect of seeding ratio (KBG/PRYE) and post-seeding herbicides applied starting 2WAE on cover of desired turf vs Poa rated 6 weeks after early Sept seeding in Mead, NE, research farm (no Poa on site) (UNL 2012).

Effect of seeding ratio (KBG/PRYE) and post-seeding herbicides applied starting 2WAE on cover of desired turf vs Poa rated in May after early Sept seeding in Mead, NE, research farm (no Poa on site) (UNL 2012).

Effect of seeding ratio (KBG/PRYE) and post seeding herbicides on cover of desired turf vs Poa rated 6 weeks after early Sept seeding at Lochland CC (Poa present) (UNL 2012).

Effect of seeding ratio (KBG/PRYE) and post seeding herbicides on cover of desired turf vs Poa rated in May after early Sept seeding at Lochland CC (Poa present) (UNL 2013).

Take home message so far

• Tenacity or Prograss immediately after seeding to minimize Poa
• 70%KBG/30% PRYE to minimize Poa after one year
• 90% KBG/10% PRYE to maximize KBG after one year
• Study will continue for three more years

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Effect of seeding ratio (KBG/PRYE) and post seeding herbicides on cover of desired turf vs Poa rated 6 weeks after early Sept seeding at Lochland CC (Poa present) (UNL 2012).
Effect of seeding ratio (KBG/PRYE) and post-seeding herbicides applied starting 2WAE on cover of KBG vs Poa rated in August following early Sept seeding in Mead, NE, research farm (no Poa on site) (UNL 2012).

LSD=21

Effect of seeding ratio (KBG/PRYE) and post-seeding herbicides on cover of KBG vs Poa rated in August after early Sept seeding at Lochland CC (Poa present) (UNL 2013).

LSD=25 for KBG, 19 for Poa