Another look at poa management on greens and fairways

Wendy Gelernter Ph.D.

Poa control on greens: No longer impossible?

- On the green vs. off the green
- Products vs. cultural practices

On the green
Keep bentgrass healthy

Practices
- Nutrition (maintain P at >50 ppm P via Mehlich III)
- Handpicking
- Aeration

Historical P Trend, Talega GC
George Kenny, superintendent

Decline in vigor 2004

On the green

Products
- Pre- emerg: 2-3 apps of bensulide*
- Nutrition (20 to 50 ppm P via Mehlich III)
- Hand picking
- Aeration

Practices
- Nutrition (20 to 50 ppm P via Mehlich III)
- Hand picking
- Aeration

*Betasan, Presan, Bensumec
On the green

**Products** | **Practices**
---|---
• Pre-emerge: 2-3 apps of bensulide* during fall & spring | • Nutrition (20 to 50 ppm P via Mehlich III)
• Post-emerge: Trimmit monthly when bent is actively growing | • Hand picking
• Nutrition (20 to 50 ppm P via Mehlich III) | • Aeration
• Hand picking | • Aeration
• Aeration | • Aeration

*Betasan, Presan, Bensumec

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**Trimmit 2 SC (pacinobutrazole)**

- Registered in CA 5/3/05 to Syngenta
- Signal word: CAUTION
- On greens, tees, fairways, roughs
- Almost all turf types (not kikuyu)
- Timing: Best when cool-season turf actively growing (spring, fall)

**Trimmit 2 SC: What it Does**

- Type II GA inhibitor (similar to Primo)
- Regulates growth on all turf types, but poa most sensitive
- “Looks like it’s been nibbled by rabbits”
- Effects seen 1 - 2 weeks after treatment; lasts 3 to 8 wks

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**Trimmit on bentgrass greens**

- Best results inland, low poa infestations
- Long-term commitment
- Some discoloration of bent may occur
- Bermuda is regulated by Trimmit also!
- Avoid use with Primo, Proxy; Quicksilver?
- New CA label allows 8 or more applications/yr (3 oz/1000 sq ft/yr)

**Trimmit on bentgrass greens**

<table>
<thead>
<tr>
<th>Action</th>
<th>When</th>
<th>oz/1000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Begin applications</td>
<td>70% Cool Season GP for 5 consecutive days</td>
<td>0.15 - 0.18</td>
</tr>
<tr>
<td>Continue every 2-3 wks</td>
<td>70% - 85% Cool GP</td>
<td>0.15 - 0.18</td>
</tr>
<tr>
<td>Increase rate</td>
<td>85% Cool GP or more</td>
<td>0.23</td>
</tr>
<tr>
<td>Stop</td>
<td>less than 70% Cool GP</td>
<td>---</td>
</tr>
</tbody>
</table>
Inland Valleys: Trimmit window = March - June
Fresno, CA

Bakersfield, CA

The coast: Trimmit window = May - October
San Luis Obispo

Santa Maria

Some thinning and discoloration of turf

Use low rates of N to help counteract
Off the green

<table>
<thead>
<tr>
<th>Products</th>
<th>Practices</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proxy/Primo to limit seedheads</td>
<td>Replace collars w/ bentgrass sod at&lt;20% poa invasion</td>
</tr>
<tr>
<td>Control poa in fairways, roughs</td>
<td>Don’t overseed fairways and roughs</td>
</tr>
</tbody>
</table>

Poa control on greens: 2006
- Post-emergent control with Trimmit makes poa-free bentgrass greens more feasible
- Stay the course
- Must be used in conjunction with all other products and practices
- Still no guarantee of sustainable pure bentgrass
- The more poa present, the more ugliness will result

Sample program: Coast

<table>
<thead>
<tr>
<th>Product</th>
<th>Rate/1000 sq ft</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
<th>Jul</th>
<th>Aug</th>
<th>Sep</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trimmit</td>
<td>0.12 - 0.33</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>bentgrass</td>
<td>4.7 m.a.</td>
<td></td>
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</tr>
</tbody>
</table>

Modifications for inland, desert areas?

Handout Table 4

Avoiding conversion to poa

Speeding up conversion to poa
Speeding up conversion to poa
Torrey Pines South Course

Target: 100% poa greens by 6/08
- Spiking
- Vertical mowing
- Slicing
- Mowing without baskets
- No seedhead suppression
- Irrigation and fertility (increase P to 50 ppm in soil)
- Target disease management to poa

Poa invasion progress, Torrey

Poa management on non-overseeded bermuda fairways
- Greatest chance for success
- Fewer sources of contamination
- Many more products, even for non-dormant bermuda
  - Revolver, Monument
  - Barricade, Dimension, Pendulum
- Paspalum, kikuyugrass still have many fewer options
Non-overseeded fairways

Handout Table 4

Poa management on overseeded bermuda fairways

- Fewer options, especially on non-dormant bermuda
  - Pre-emerge herbicides: 75-80% control
  - Post-emerge: Trimmit: gradual control; varies w/location
  - (Velocity)
  - (Prograss)

Trimmit on overseeded fairways

- Start at 85% rye cover ~December
- 8 - 10 oz/A
- 3 monthly applications
- Water in within 24 hours
- Avoid when active bermuda growth
- Mixtures with other growth regulators:
  - Primo: NO
  - Embark: OK
  - Proxy: separate applications by 7 d

Fairway 14, Shady Canyon

<table>
<thead>
<tr>
<th>Date</th>
<th>Application</th>
<th>Poa Coverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/10/05</td>
<td>Trimmit 25%</td>
<td>30% Poa</td>
</tr>
<tr>
<td>5/30/05</td>
<td>No treatment</td>
<td>35% Poa</td>
</tr>
<tr>
<td>6/20/05</td>
<td>Trimmit 15%</td>
<td>45% Poa</td>
</tr>
</tbody>
</table>

Fairway 14, Shady Canyon

<table>
<thead>
<tr>
<th>Date</th>
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</tr>
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<tr>
<td>5/10/05</td>
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<td>35% Poa</td>
</tr>
<tr>
<td>5/30/05</td>
<td>No treatment</td>
<td>45% Poa</td>
</tr>
<tr>
<td>6/20/05</td>
<td>Trimmit</td>
<td>15% Poa</td>
</tr>
</tbody>
</table>
Shady Canyon Fairway 14
Decreased turf quality after 2 applications

Trimmit on overseeded fairways for Poa control

- Expect some yellowing and thinning of rye or bent
- Bermuda impacted, especially in winter
- Expect some ugliness if >5% poa
- Can be partly mitigated with N and Fe and by treating only healthy, actively growing turf

Trimmit: 2006

- The only effective post-emergent poa control on non-dormant bermuda fairways that are overseeded
- Avoid on actively growing bermuda
- Commitment to a long-term program necessary; expect gradual improvement
- Significant control possible

Velocity (bispyribac)

- Registered in CA 5/05 to Valent
- Signal word CAUTION
- A sulfonylurea that controls Poa (annua and trivialis) but is safe for ryegrass
- Labeled on bent, rye, dormant bermuda tees and fairways
- 80-90% post-emergent control
- Kikuyu, paspalum safety unknown

Pelican Hill Golf Club March, 2004

Poa control on overseeded fairways, 2004

<table>
<thead>
<tr>
<th>Velocity Rate oz/A</th>
<th>Interval (days)</th>
<th>Pelican Hill</th>
<th>TPC Valencia</th>
<th>Desert Princess</th>
<th>% Avg Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.3 + 1.3</td>
<td>14</td>
<td>86 bc</td>
<td>90 ab</td>
<td>70 a</td>
<td>82</td>
</tr>
<tr>
<td>2.0 + 2.0</td>
<td>28</td>
<td>97 a</td>
<td>95 ab</td>
<td>63 a</td>
<td>85</td>
</tr>
<tr>
<td>0.65 + 0.65</td>
<td>14</td>
<td>83 c</td>
<td>93 ab</td>
<td>66 a</td>
<td>81</td>
</tr>
<tr>
<td>1.3 + 1.3 + 1.3</td>
<td>14</td>
<td>96 a</td>
<td>96 ab</td>
<td>74 a</td>
<td>89</td>
</tr>
</tbody>
</table>

2 – 3 applications @ 1.3 oz/A during winter
Velocity in the low desert, January 2006

Treated 1/3/06
Photo taken 1/24/06
Low rate of 0.65 oz/A
Good control, but yellowed rye

The colder the weather, the more dramatic the yellowing

Velocity

- Bent and rye can be temporarily yellowed
- Appears within 4-7 days
- Dissipates within 7-14 days
- Currently no known way to mask yellowing

Velocity: 2006

- A good alternative/rotation to ethofumesate (Prograss, Poa Constrictor) for post-emergent control
- A little softer on non-dormant bermudagrass than ethofumesate, but should not be used on actively growing bermuda

Options for post-emergent poa control

<table>
<thead>
<tr>
<th>For use on</th>
<th>Trimmit</th>
<th>Prograss</th>
<th>Velocity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tees, frys</td>
<td>All</td>
<td>Frys, roughs</td>
<td>Tees, frys</td>
</tr>
<tr>
<td>Active bermuda injury potential</td>
<td>Low</td>
<td>High</td>
<td>Medium</td>
</tr>
<tr>
<td>Start applications</td>
<td>Dec/85%</td>
<td>Dec/dormancy</td>
<td>Dec/dormancy</td>
</tr>
<tr>
<td># applications</td>
<td>3 monthly</td>
<td>2-3 monthly</td>
<td>Up to 4, 14-21 d</td>
</tr>
<tr>
<td>Other weeds?</td>
<td>no</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Do not overseed wks before/after</td>
<td>6/2</td>
<td>2/2</td>
<td>2/10</td>
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</tbody>
</table>

Handout Table 6

Poa control on overseeded fairways: the coast

<table>
<thead>
<tr>
<th>Overseeded bermudagrass fairways</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
<th>Jul</th>
<th>Aug</th>
<th>Sep</th>
<th>Oct</th>
<th>Nov</th>
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</thead>
<tbody>
<tr>
<td>Product</td>
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<tr>
<td>Preemergent</td>
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<tr>
<td>Cormark 85%</td>
<td>B</td>
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<td></td>
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<tr>
<td>Cormark 100%</td>
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<tr>
<td>Rynax 65%</td>
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<tr>
<td>Rynax 24%</td>
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<tr>
<td>Time Max 25%</td>
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<tr>
<td>Time Min 225%</td>
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<tr>
<td>Active bermuda injury potential</td>
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<tr>
<td>For the tests</td>
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<tr>
<td>Nonremoval</td>
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<td>Removable</td>
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<tr>
<td>Time Max 33%</td>
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<tr>
<td>Time Min 60%</td>
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<tr>
<td>Varsity 15%</td>
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<tr>
<td>Varsity 5%</td>
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<tr>
<td>Time Max 13%</td>
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<td></td>
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<tr>
<td>Time Min 27%</td>
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</tr>
</tbody>
</table>

Assumes 10/1 overseeding date

Handout Table 4
Transition accelerators for rye removal on overseeded fairways

- Revolver registered in CA 5/05
- Monument registered in CA 8/05
- Application timing critical
  - Too early: bare patches
  - Too late: no benefit

Optimal application timing

<table>
<thead>
<tr>
<th>Date</th>
<th>Handout Table 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desert</td>
<td>4/15-5/15</td>
</tr>
<tr>
<td>Inland</td>
<td>6/1 if Sept. overseed, 6/15 if Oct. overseed</td>
</tr>
<tr>
<td>Coast</td>
<td>7/1: but plan for some damage</td>
</tr>
</tbody>
</table>

Areas w/low warm-season cover are still potential risks on these dates

Lower rates and multi-year programs minimize risk

- Especially on the coast
- Especially in shady areas
- Especially in stressed areas

Impact of lower rates

No treatment
Revolver 0.2 oz

5/28/03 3 WAT