Spring and Summer Weed Management Options for Bermudagrass Athletic Fields

L. S. Warren (03-06-12)

2011 Season

1st two weeks of season: 6 – 1 First
End of season: 69 - 93 Last
Apr 5, 2011

Baltimore Orioles                           St. Louis Cardinals
Spring / Summer Weed Control Programs

Crabgrass / Goosegrass – Pre (Now!!!)

Crabgrass / Goosegrass – Post (Apr-May-Jun)

Rye grass removal – spring transition (May)

Broadleaf weed control - Post (Apr-May-Jun)

Nutsedge and kyllinga control - Post (May-Jun)

Dallisgrass control - Post (May-Jun or Oct-Nov???)
Preemergence Crabgrass and Goosegrass Control in Bermudagrass

Root Inhibitors: DNA’s such as pendimethalin and prodiamine or pyridines such as dithiopyr

Shoot Inhibitor: oxadiazon (no post activity at all)

Bayer: Specticle 20WSP (indaziflam): 2010 label
Crabgrass, goosegrass, annual sedges, poa annua

BASF: Tower 6L (dimethenamid): 2011 Label
Goosegrass control; crabgrass suppression
Specticle 20WSP

Acceptable Turf Sites (>1 yr establishment)

- Golf course turf – not putting greens
- Sod farms
- Sports fields
- Home and commercial lawns
- Parks
- Cemeteries
Specticle 20WSP

- Broadleaf spectrum similar to DNA & triazine herbicides – doesn’t stain like DNAs
- Cellulose biosynthesis inhibitor (alkylazine herbicide family)
- Long soil residual (overseeding concerns)
- Sold as water soluble packets
Specticle 20WSP
Specific use rates (oz/A)

- Crabgrass spp. 2.5 to 4.375 - good
- **Goosegrass** 3.75 to 5 - great
- **Annual bluegrass** 2.5 to 3.75 - great
- Annual sedge 3.75 to 5
- Broadleaf weeds 2.5 to 5
- Also controls barnyardgrass, foxtail spp., ryegrass spp., green kyllinga
- Also has early POST activity
## Specticle 20WSP

<table>
<thead>
<tr>
<th>Tolerant turf species</th>
<th>Max. single rate (oz/A)</th>
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<tbody>
<tr>
<td>Centipede grass</td>
<td>2.5</td>
</tr>
<tr>
<td>St. Augustine grass</td>
<td>2.5</td>
</tr>
<tr>
<td>Bermuda grass</td>
<td>5</td>
</tr>
<tr>
<td>Zoysia grass</td>
<td>5</td>
</tr>
<tr>
<td>Seashore paspalum</td>
<td>5</td>
</tr>
<tr>
<td>Buffalograss</td>
<td>5</td>
</tr>
<tr>
<td>Bahiagrass</td>
<td>5</td>
</tr>
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</table>
# Specticle 20WSP

<table>
<thead>
<tr>
<th>Rate (oz/A)</th>
<th>Overseeding Intervals</th>
</tr>
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<tbody>
<tr>
<td>2.5</td>
<td>8 months</td>
</tr>
<tr>
<td>3.75</td>
<td>12 months</td>
</tr>
<tr>
<td>4.375</td>
<td>12 months</td>
</tr>
<tr>
<td>5.0</td>
<td>12 months</td>
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</table>
Tolerance of overseeded ryegrass to March-applied indaziflam

Data collected Sept 29 (11 DAOS), rates are g ai/ha, single applications applied March 11, sequential applied May 11.

LSD = NS
Tolerance of overseeded ryegrass to March-applied indaziflam

Data collected October 13 (25 DAOS), rates are g ai/ha, single applications applied March 11, sequential applied May 11.

LSD = NS
Specticle 20WSP

Restrictions and Comments

• Stay 25’ away from bodies of water
• Stay 15’ away from susceptible turf species
• Sprigs: If spray first, sprig 2 months later
  If sprig first, spray 4 months later
• Sod: If spray first, sod 4 months later
  If sod first, spray 2 months after growth
• Do not apply to stressed turf
Specticle 20WP  2.5 oz/A
Applied Apr 22, 2010   Photo Jun 7
Nontreated
Photo Jun 7, 2010
Specticle 20WSP 2.5 oz/A
Applied Apr 22, 2010; photo 10-28-10
Sandhills Station
Nontreated
10-28-10
Sandhills Station
Probable Specticle Label Changes

- A flowable (SC) formulation will be released

- Top use rate reduced from 5 to 3.75 oz/acre

- Remove tees and collars from label where most of the damage has occurred

- Remove Seashore Paspalum use from label

- More restrictive overseeding intervals
Effect of indaziflam or prodiamine on ‘Tifway 419’ bermudagrass root mass

LSD = NS

Data collected Sept/Oct 2010/2011, rates are g ai/ha.
Sandhills Research Station.
PRE Weed Management Strategies

Dimethenamid (Tower)

Labeled in 2010 for golf course use only
Supplemental label expires Oct 1, 2014 for sod
farm, commercial, recreational, home turf

Poor crabgrass but excellent goosegrass control
21 to 32 fl oz/acre rate (do not exceed 64 fl oz/year)

Bermuda, centipede, zoysia, St. Augustine tolerant
Pre Goosegrass Control in Common Bermuda Using Specticle 20WP, Tower 6L & Ronstar Formulations

% Control

5-May  7-Jul  7-Sep

2010: Plymouth Country Club

Specticle 1.25 oz/A
Specticle 2.5 oz/A
Tower 1 qt/A
Tower fb Tower Mar-Apr 1 qt fb 1 qt/A
Pend. Aquacap 3.8CS 3.16 qt/A
Ronstar 2G 150 lb/A
Check

Ronstar 38 Flo 2.5 qt/A
Ronstar 38 Flo 3.78 qt/A
Mar-Apr 1 qt fb 1 qt/A
Pend. Aquacap 3.8CS 3.16 qt/A
Ronstar 2G 150 lb/A
Check

lsd p=.05

2010: Plymouth Country Club
Specticle 20WSP
2.5 oz/acre
Applied Mar 8, 2010
Photo: Aug 19, 2010

Goosegrass
Nontreated
Photo: Aug 19, 2010
Plymouth Country Club
Tower 1 qt/A
Mar 8 and Apr 20
Photo Aug 2, 2010
Postemergence Weed Control  
(Summer Annuals & Warm Season Perennials)

Control April – June…

…when these weeds have germinated, are young and actively growing, not producing seedheads or reproductive structures

Influenced by temperature, rain, turf canopy and growth stage (seeded, sprigged, well established?)
Crabgrass and Goosegrass Control

fenoxaprop (Acclaim Extra)
Perennial ryegrass, fescues, zoysia, not bermuda!
0.75 to 2.5 pt/acre  2 apps 14 days apart
# Acclaim Extra 0.57EC

<table>
<thead>
<tr>
<th>Annual Grass</th>
<th>fl oz/A</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 to 2 leaf</td>
<td>3.5</td>
<td>for multiple apps in bentgrass</td>
</tr>
<tr>
<td>Untillered</td>
<td>9</td>
<td>for tank-mixing with Pre’s</td>
</tr>
<tr>
<td>Untillered</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>1 to 2 tiller</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>3 to 4 tiller</td>
<td>28</td>
<td>do not exceed 28 oz to Ky. bluegrass or zoysia grass</td>
</tr>
<tr>
<td>4 to 5 tiller</td>
<td>39</td>
<td>do not exceed 39 oz to fescue or ryegrass species</td>
</tr>
</tbody>
</table>
Crabgrass and Goosegrass Control

metribuzin (Sencor 75 Turf)

Apply only to established bermudagrass with mowing height of 0.5 inch or greater

0.33 to 0.67 lb/acre  2 apps 7 to 10 days apart
Crabgrass and Broadleaf Weed Control

Generally target Apr through Jun for application.

Drive XLR8 1.5SL, Onetime 2.45SL, Q4 1.54L, Quincept 1.875SL, Solitare 75WG, SquareOne 70WG: all contain quinclorac; all control smooth and large crabgrass and numerous broadleaf weeds

Quinclorac: no goosegrass activity
Drive XLR8: Better control of 4 to 8 tillered crabgrass?

Use on tall fescue, zoysiagrass, bermudagrass, Ky. bluegrass, seashore paspalum, ryegrass and bentgrass fairways with good soil moisture conditions

Controls crabgrass, signalgrass, foxtail, clover, dandelion, corn speedwell (no goosegrass control!)

Apply before 2\textsuperscript{nd} tiller or to mature grasses (2 to 4 tillers not recommended)

Rate: 0.5 gallon/A + 1.5 pt/A MSO for Drive XLR8 1.5SL

1 lb/A + 1.5 pt/A MSO for Drive 75DF
Drive XLR8 + MSO
2 qt/A + 1.5 pt/A
Applied Jun 2, 2010
Photo Jun 7, 2010
Goosegrass Control Only

sulfentrazone (Dismiss 4F)

0.125 lb ai (4 oz) tall fescue
0.25 lb ai (8 oz) perennial bluegrass and warm season turf except bermuda and St. Augustine
0.375 lb ai (12 oz) bermuda and St. Augustine
(1 to 4 leaf stage - small!)
Goosegrass Control Only

foramsulfuron (Revolver 0.19SC)

Tolerance to bermudagrass and zoysiagrass

2 applications at 6 to 21 day intervals

17.4 to 26.2 fl oz/A (0.4 to 0.6 fl oz/M)

Improved control with Sencor 75 Turf

Can use low rate if 1 to 3 leaf goosegrass but may need a third application - apply 3rd application before re-tillering of new growth
Perennial Ryegrass Transition
Per. Ryegrass Removal From Bermuda

- Sencor 75 Turf 0.67 lb/A
  Kills in **2 to 3 days** - unattractive until fills in

- Kerb WSP 2 lb/A
  Kills in **4 to 6 weeks** - smoothest transition
Per. Ryegrass Removal From Bermuda

Sulfonylurea Herbicides

- Manor / Blade + NIS 0.5 oz/A + 0.25%
  Turf stand at least 1 year old
- TranXit GTA + NIS 2 oz/A + 0.25%, 3 to 4 wk before desired date and repeat 3 wk later
- Monument + NIS 0.1 to 0.3 oz/A + 0.25%
- Revolver 1.09 pt/A
- Katana + NIS 0.5 to 1.5 oz/A + 0.25%

Generally kills in 2 to 3 weeks
May 15, 2008 (2 WAT)
Flazasulfuron (Katana 25DG)
Tribute Total 60.5 WDG

- Bayer Environmental Sciences – SP25052
- Thiencarbazone + foramsulfuron + halosulfuron
- Control: early POST crabgrass, goosegrass, annual broadleaves, annual sedges, dallisgrass, perennial ryegrass
- For dallisgrass, later summer applications are best. Have good soil moisture at the time of application. Two applications, ~30 days apart
- Rate: 1 to 3.2 oz/acre, do not exceed 6.4 oz/acre yearly
- Add MSO at 0.25% v/v
- Anticipated Launch: 2nd quarter, 2012
SP25052 for Perennial Ryegrass Transition

14 Days after Application
LSD = 3.3

Applied 18, May 2011
MSO included w/ SP25025 and Monument @ 0.5% v/v
Postemergence Broadleaf Weed Herbicides
Labeled for Warm or Cool Season Turf Use

2,4-D          Mecoprop          Dicamba
Weedar 64      MCPP-p 4 Amine  Banvel, Vanquish
Three-way mixes:  Triplet SF, Three-Way Selective
                 Trimec – many formulations (southern)

MCPA and / or triclopyr-containing products
Tri-Power, Cool Power, Horsepower

Clopyralid-containing products (legumes) (not for home use)
Lontrel, Confront, Millennium Ultra, Millennium Ultra 2
Postemergence Broadleaf Weed Herbicides Labeled for Warm or Cool Season Turf Use

Carfentrazone-containing products (quicker burndown)
Power Zone, Speed Zone, Speed Zone Southern, Quicksilver

Fluroxypyr-containing products (woody plants-buttonweed)
Escalade, Escalade Low Odor, Escalade 2

Metsulfuron-containing products
Manor, Blindside

Penoxsulam: Lockup formulations
Postemergence Broadleaf Weed Herbicides
Labeled for Warm or Cool Season Turf Use

Sulfentrazone-containing products (quicker burndown)
Dismiss, Dismiss Southern, Surge, Tzone

Pyraflufen-containing products (even quicker burndown!!!)
Octane, 4-Speed, 4-Speed XT

Warm Season Turf Use Only
Celsius 68WG (registered in 2010)
8.7%  1.9%  57.4%
Thiencarbazone + Iodosulfuron + Dicamba (68WG)
Bermuda, zoysia, centipede and St. Augustinegrass
Golf, sod production, residential, commercial properties, sports facilities, roadsides
Post plus preemergent (residual) control up to 60 days on some weeds
Celsius WG

- Mix with Quicksilver or Octane to increase speed of control in periods of cool weather
- Can tankmix with Revolver, Sencor, Ronstar Flo or WP
- Best results when average daily temp. > 60°F
- Reduced risk of significant phytotoxicity with applications made at high temperatures
- Non-ionic surfactant or methylated seed oil improves control
Celsius WG Applications

- Rates: 2.5, 3.7, or 4.9 oz/a
  - Maximum use rate of 7.4 oz/a annually
- 2.5 oz/a applied 3 times, 2-4 wks apart as needed
- 3.7 oz/a applied 2 times, 2-4 wks apart as needed
- 4.9 fb 2.5 oz/a, 2-4 wks apart as needed
Celsius WG

- Two modes of action
  - Acetolactate synthase (ALS inhibitor – affects secondary root system)
  - Synthetic auxin growth regulation (twist and curl some weeds like 2,4-D injury symptoms)
<table>
<thead>
<tr>
<th></th>
<th>Yellow Nutsedge</th>
<th>Purple Nutsedge</th>
<th>Kyllinga Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basagran</td>
<td>Great</td>
<td>Poor</td>
<td>Poor</td>
</tr>
<tr>
<td>Image</td>
<td>Poor</td>
<td>Poor</td>
<td>Great</td>
</tr>
<tr>
<td>Dismiss</td>
<td>Great</td>
<td>Poor</td>
<td>Great</td>
</tr>
<tr>
<td>Katana</td>
<td>Great</td>
<td>Fair</td>
<td>Great</td>
</tr>
<tr>
<td>Dis South</td>
<td>Great</td>
<td>Good</td>
<td>Great</td>
</tr>
<tr>
<td>Sedgehammer</td>
<td>Good</td>
<td>Good</td>
<td>Good-Great</td>
</tr>
<tr>
<td>Certainty</td>
<td>Great</td>
<td>Great</td>
<td>Great</td>
</tr>
<tr>
<td>Monument</td>
<td>Great</td>
<td>Great</td>
<td>Great</td>
</tr>
</tbody>
</table>

Check individual labels – most require multiple apps
# Rates Needed for Nutsedge / Kyllinga Control

<table>
<thead>
<tr>
<th>Product</th>
<th>Rate</th>
<th>Target Grasses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basagran</td>
<td>1 to 2 qt/A</td>
<td>all grasses tolerant</td>
</tr>
<tr>
<td>Image</td>
<td>0.7 lb/A</td>
<td>berm, zoy, centipede, st. aug</td>
</tr>
<tr>
<td>Dismiss</td>
<td>0.75 pt/A</td>
<td>berm, zoy, centipede, st. aug</td>
</tr>
<tr>
<td>Katana</td>
<td>3 oz/A</td>
<td>bermuda, zoysia, centipede</td>
</tr>
<tr>
<td>Dismiss South</td>
<td>14.4 fl oz/A</td>
<td>bermuda, zoysia, centipede</td>
</tr>
<tr>
<td>Sedgehammer</td>
<td>1.33 oz/A</td>
<td>all grasses tolerant</td>
</tr>
<tr>
<td>Certainty</td>
<td>1.25 oz/A</td>
<td>berm, zoy, centipede, st. aug</td>
</tr>
<tr>
<td>Monument</td>
<td>0.56 oz/A</td>
<td>bermuda, zoysia</td>
</tr>
</tbody>
</table>
For nutsedge and kyllinga species control, initiate treatments in Apr, May or Jun (before tuber formation or rhizome maturity) when plants are young and actively growing. Reapply at appropriate intervals based on resprouting.
Kyllinga species

Mat-forming, produces rhizomes (no tuber)
Strong fragrance when crushed or mowed
Green: seedheads appear throughout summer and fall
False-green: seedheads appear all at once in late season
Monument + NIS 0.56 oz/A + 0.25% May 23, 2007 (4 WAT)
Dismiss 0.75 pt/A May 23, 2007 (4 WAT)
Dallisgrass Control

In Bermudagrass

(very difficult)

Repeat applications of MSMA in bermudagrass did control but can’t legally spray due to EPA restrictions except on golf courses or sod farms
Dallisgrass Control in Common Bermudagrass

The best option for temporary control at this time is repeat applications of...

- Celsius 68WG  4.9 oz/A
- Revolver 0.19SC  2 fl oz/M
- Nonionic surfactant  0.25%

2 or 4 week sequentials?? When is best timing??
Post Dallisgrass Control in Common Bermudagrass

14 4 9 11

% Control

6-Sep 13-Sep 27-Sep 12-Oct

2011: The River Golf Club

1sd p=.05

- Dismiss South
  - 0.626 pt/A
- Dismiss South
  - 0.76 pt/A
- Dismiss South
  - 0.9 pt/A
- Dismiss South
  - 0.626 pt/A fb 0.28 pt/A
- Dismiss South
  - 0.438 pt/A fb 0.46 pt/A
- Celsius + Revolver + Induce
  - 4.9 oz/A + 2 fl oz/M + 0.25%
- Check

Applied Aug 30 and Sep 13
Dallisgrass

Applied Aug 1 and Aug 17, 2010; Photos Aug 31, 2010
Celsius 4.9 oz/A + Revolver 2 fl oz/M + NIS 0.25%
Application: Oct 4 and Nov 2
Photo: Nov 15, 2011

Nontreated Dallisgrass and tall fescue

Tribute Total 3.2 oz + 0.5% MSO
Application: Oct 4 and Nov 2
Photo: Nov 15, 2011