Controlling Difficult Weeds In Landscape Turf

Leon Warren 01-15-14
Why are weeds present in turfgrass?

Weeds are the result of improperly managed turf!
What is Properly Managed Turfgrass? (Four Attributes)

1. **Turf species that is adapted to its environment**
   - Should you choose cool or warm season turf?

   In transition zones where both grow pretty well, problems can occur with each species.

   Example: Tall fescue doesn’t like 85+ degrees and warm humid conditions (susceptible to diseases).

   Bermudagrass can suffer winter kill in harsh winters.
Zone 1: Ky bluegrass, perennial ryegrass, red fescue, tall fescue
Zone 2: Tall fescue, bermudagrass, zoysiagrass
Zone 3: Bermudagrass, centipedegrass, zoysiagrass
Zone 4: St. Augustinegrass, centipedegrass, zoysiagrass
Bermudagrass winter kill
What is Properly Managed Turfgrass?

2. **Turf mowed at proper height and frequency**

Fescue and bluegrass mixtures do not survive very well mowing heights shorter than 3 inches, especially during the summer due to heat stress.

Their root systems do not store enough food reserves to promote new shoot production.

Weeds can quickly invade thinned areas.
Effect of Mowing Height on Large Crabgrass Incidence

3.5lbs Crabgrass/1000ft$^2$ seeded March 7, 2007

Mowing heights initiated when soil temperatures reached 55°F – mowed every 4 days thereafter

Tall fescue mowed at 1, 2, 3, 4 inches

Bermudagrass mowed at 0.5, 1, 1.5, 2 inches
Effect of Mowing Height on Crabgrass Incidence in Tall fescue

Data Collected: 09-13-07, LSD (P=0.05), Sandhills Research Station, Sodman 90/10 (mixture w/ bluegrass)
Effect of Mowing Height on Large Crabgrass Incidence in Common Bermudagrass

Data Collected: 09-13-07, LSD (P=0.05), Lake Wheeler Field Lab
Bermudagrass Encroachment in Tall Fescue

- Bermudagrass plugs (4.25” diameter) installed – March 31, 2007
- Mowing initiated 2 days following installation
- 4 plugs per plot (2.5 ft in from each side of plot)
- Grid counts taken bi-weekly
- % area of bermudagrass
- Mowing heights included: 1”, 2”, 3”, 4”, 4” w/out plugs)
Data Collected: 11-10-07, Lake Wheeler Field Lab, Confederate Blend, LSD (P=.05)
What is Properly Managed Turfgrass?

3. **Turf that is fertilized at the proper time with the proper rate and technique**
What is Properly Managed Turfgrass?

4. **Turf site that is well drained, noncompacted and receives adequate rainfall or irrigation**

Coastal plain region: sandy to sandy loam soils (droughty)

Piedmont region: clay to clay loam soils (compacted)
Five Weed Control Procedures

A successful weed management strategy should integrate all of these procedures and not rely heavily on one.

Preventative
Mechanical
Biological
Cultural
Chemical
Weed Control Procedures

Cultural

The best way to prevent weed problems in turf is to properly manage the turfgrass.

• Select an adapted grass species
• Mow at proper height and frequency
• Fertilize at proper time and rates
• Irrigate as needed in morning, not late evening
• Improve soil drainage by adding soil or soil mixes
Weed Control Procedures

Chemical

The quickest, practical way to prevent or control weed problems in turf is to apply herbicides. Herbicides are short-term solutions. Results can be seen quickly, and people are happy. Herbicides do not correct the problem as to why weeds were present in the first place. As long as the problems are not corrected, the need for herbicides will exist.
Weed Management Options

JANUARY - MARCH
POST Weed Management Strategies

Annual bluegrass: our most common and troublesome cool season grass weed problem

Cool season broadleaf weeds (many annuals and perennials)
Henbit, chickweed, dandelion, clover, cudweed, woodsorrel

Wild garlic

PRE Weed Management Strategies

Crabgrass and goosegrass
Perennial and Winter Annual Broadleaf Weeds: *Poa annua*

- metribuzin (Sencor 75 Turf) 0.67 lb/acre
- glyphosate (Roundup Pro, Touchdown Pro) 1 pt/acre*
- flumioxazin (SureGuard) 8 to 12 oz/acre*
  
  *0.25 - 0.5% v/v nonionic surfactant

Dormant nonoverseeded bermuda only!
Photo Nov 17, 2011
6 to 10 oz/acre SureGuard 2 WAT
POAAN Control Using Sureguard 51WG and Monument 75WG in Tifsport Bermudagrass

% Control

19

lsd p=.05

2-Nov
1-Dec
4-Jan
7-Feb
7-Mar
6-Apr

Rated Apr 21

2010-11: Lake Wheeler Field Lab

LSD p=.05
Dec
Feb
Check
Dec
Jan

12 oz/A Sureguard (Images Apr 21, 2011)
Poa annua Control and Seedhead Suppression in Overseeded Bermuda

Herbicide: Amicarbazone (Xonerate)

Xonerate is tolerant to many established (at least 6 months) cool and warm season turf species, but its main niche is bermudagrass overseeded with perennial ryegrass.

Cool season: 2 to 4 oz/acre at 2 to 3 wk intervals
Warm season: 3 to 10 oz/acre at 2 to 3 wk intervals
Annual Bluegrass Control in Triple Threat Ryegrass Using Amicarb at 2 and 4 oz/A

<table>
<thead>
<tr>
<th>Date Range</th>
<th>Treatment</th>
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<tbody>
<tr>
<td>21-Mar - 6-Apr</td>
<td>Amicarbazone 2 oz/A</td>
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<tr>
<td></td>
<td>Feb 23 and Mar 15</td>
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<tr>
<td>21-Mar - 6-Apr</td>
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<tr>
<td>6-Apr - 22-Apr</td>
<td>Amicarbazone 2 oz/A</td>
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<td>Feb 23 and Mar 7</td>
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2010-11: Lake Wheeler Field Lab

Induce applied at 0.25%

lsd p=.05
Xonerate - 2 oz/acre
Feb 23 and Mar 7
Overseeded Oct 13

Lake Wheeler

Check (Apr 21)
Check (Apr 21)

Xonerate - 4 oz/acre
Feb 23 and Mar 7
Overseeded Oct 13

Lake Wheeler
Xonerate applied **TOO SOON** (Dec 8, 2011 to Feb 15, 2012)
3 to 4 oz/acre per application (twice)
Rye grass overseeded Oct 10, 2011

Apply Xonerate starting late Feb to early Mar, not in the fall,
or rye grass stand will be wiped out!!!!!
Poa annua and Winter Annual Broadleaf Weed Control in Nonoverseeded Turf

Sulfonylurea Herbicides

***Certainty 75WG (erratic control)
Katana 25DG (excellent)
Monument 75WG (excellent)
Revolver 0.19SC (excellent)
TranXit GTA 25DF (excellent)

Apply to bermuda and zoysia when poa growth resumes but before poa seedhead formation (Mar).
Tranxit + NIS
1 oz/A + 0.25%
Applied Nov
Photo Apr
Katana + NIS
3 oz/A + 0.25%
Applied Nov
Photo Apr
Winter Annual Broadleaf Weeds

Henbit
Chickweed species
Carolina geranium
Speedwell species
Lawn burweed
Field pansy
Hairy bittercress
Hop clover
Parsley-piert

Buttercup
Field pansy
Purple deadnettle
Swinecress
Facelis (trampweed)
Vetch species
Knawel
Shepherds-purse
Pepperweed
Cool Season Perennial Broadleaf Weeds

- Dandelion species
- White clover
- Plantain species
- Cudweed species
- Mock strawberry
- Florida betony
- Mallow species
- Wild violet
Postemergence Broadleaf Weed Control in Tall Fescue

- Fall timings ideal if fescue is established, especially for henbit control
- **Henbit is often extremely difficult to control with winter or spring applications**
Postemergence Henbit Control in Common Bermudagrass with Standard Herbicides

35  LSD (p=.05)

- Amine 4 3.74SL 2 pt/A
- Spotlight 1.5EC 1.33 pt/A
- Amine 4 + Spotlight 0.67 + 1 pt/A
- Confront 3SL 1.5 pt/A
- Millenium Ultra 3.75L 2.5 pt/A
- Speed Zone 2.2EC 3.5 pt/A
- Trimec Classic 3.32L 3.5 pt/A
- Trimec Southern 4.58SL 2 pt/A
- Manor 60WG + X-77 0.5 oz/A + 0.25%
- Check

Sprayed Mar 14, 2005  Rated Apr 11, 2005  (Sampson County)
Trimec Classic 3.5 pt/A: Apr 11, 2005 (4 WAT)
Henbit control averaged over 1997 - 2007

Rates are product per acre, averaged across formulations, locations, years.
Postemergence Broadleaf Weed Herbicides
Labeled for Cool or **Warm Season** Turf Use

2,4-D
Weedar 64

Mecoprop
MCPP-p 4 Amine

Dicamba
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, Battleship III, Chaser

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

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

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

Florasulam-containing products
Defendor
Postemergence Broadleaf Weed Herbicides
Labeled for Cool or Warm Season Turf Use

Penoxsulam-containing products
Lockup formulations

Sulfentrazone-containing products (quicker burndown)
Blindside, Dismiss, Solitare, Surge, Tzone
Q4 – dormant bermuda; Q4 Plus – actively growing bermuda

Pyraflufen-containing products (even quicker burndown!!!)
Octane, 4-Speed, 4-Speed XT
Winter Broadleaf Weed Control in Bermuda
Postemergence Broadleaf Weed Control in Bermudagrass

- Henbit easily controlled with sulfonylureas in fall, winter or spring; however – fall timings still ideal

Certainty – 1.25 oz/A
Manor – 0.25 to 0.5 oz/A
Monument – 0.33 to 0.56 oz/A
Revolver – 1.09 pt/A
TranXit – 1 oz/A
Postemergence Broadleaf Weed Herbicides
Labeled for Warm Season Turf Use Only

Metsulfuron (Manor, MSM, Blade) -fine fescue, Ky bluegrass
Sulfentrazone + imazethapyr (Dismiss South)

Bayer CropScience

Thiencarbazone + iodosulfuron + dicamba
Celsius 68WG (registered in 2010)

Thiencarbazone + foramsulfuron + halosulfuron
Tribute Total 60.5WG (registered in 2012)
Use on bermuda, zoysia, centipede and St. Augustinegrass in golf, sod farm, residential, commercial, sport and roadside turf areas

2.5 oz/A applied 3X at 3 wk intervals as needed
3.7 oz/A applied 2X at 3 wk intervals as needed
4.9 oz/A fb 2.5 oz/A at 3 wk intervals as needed

Add a non-ionic surfactant or methylated seed oil
Turf tolerances: bermuda, zoysia

Turf uses: golf, sod production, residential and commercial properties, sports facilities, roadsides

1 to 2 oz/A controls annual bluegrass, ryegrass, tall fescue, species of chickweed, clover, cudweed, dandelion, henbit, hairy bittercress, knawel, buckhorn plantain, corn speedwell

3.2 oz/A controls geranium, parsley-piert, yellow wood sorrel

Add a non-ionic surfactant or methylated seed oil
Wild Garlic

2,4-D amine

3 qt/acre + surfactant

Tall fescue, perennial ryegrass, Kentucky bluegrass, Bermudagrass, zoysiagrass

Treat for 2 years
Treat Oct-Nov or Feb-Mar

Mar 11, 2005 (17 DAT)
Wild Garlic – Warm Season Turf

Manor** = slightly sensitive
0.33 to 0.5 oz/acre + surfactant
Bermuda, centipede**, zoysia, St. Augustine, Ky. bluegrass

Corsair** = slightly sensitive
2.76 to 5.33 oz/acre + surfactant
Bermuda, centipede**, zoysia**, St. Augustine**, Ky. bluegrass

Image 70DG
0.35 to 0.7 lb/acre + surfactant
Bermuda, centipede, zoysia before spring greenup
Check Centipede

Corsair + NIS
4 oz/acre + 0.25%
Applied Nov 2010
Photo Mar 19, 2011
Pre Crabgrass and Goosegrass Control in Fescue and Bermuda

Apply now through early March before germination

1. Usually advantageous to split applications at 6 to 8 wk intervals if using DNA herbicides (benefin, oryzalin, prodiamine, pendimethalin) or dithiopyr
2. If fall seeded, prodiamine may be safest on immature fescue roots
Smooth Crabgrass Control in Tall Fescue

LSD (P = .05)

31

% Control

0 20 40 60 80 100

Single - Full Rate

Split - Half Rate 2X

09-02-03 (175 DAIT)  Trt Dates: Mar 11 and May 9

Barricade 65WG [3]
Barricade 4F [3]
Dimension 1EC [4]
Pre-M 60DF [3]
Pendulum 3.3EC [3]
Pend. Aqua Cap [3]
Pendulum 2G [3]
Surflan 4F [3]
Team Pro 0.86G [3+3]
Check

% Control

One Application

Two Applications

September

b 77

a 85
PRE Crabgrass and Goosegrass Control in Fescue and Bermuda

Dinitroaniline (DNA) herbicides and Dimension

Even tolerant turfgrasses display root stubbing or root clubbing symptoms. Do not use this family of herbicides on athletic fields because of this. Roots can be sheared off due to heavy traffic and death can occur.
Photo Taken
10-29-01

St. Augustinegrass
Nontreated

St. Augustinegrass
Barricade 65WG
Spring, 2001
Clubbed roots
PRE Grass Herbicides on Fall Established Turf

Balan, Surflan, Team Pro labels advise against applications until 1 growing season has passed.

**Pendulum Aquacap** can be applied after new turf has filled in and been **mowed at least 4 times**.

**Barricade** can be applied after new turf has filled in and been **mowed at least 2 times** or 60 days after overseeding.

**Dimension** can be applied after new turf has filled in and been **mowed at least 2 times**.
Tolerance of fall-seeded tall fescue to PRE herbicides with single applications

Tolerance of fall-seeded tall fescue to PRE herbicides with split applications

PRE Weed Management Strategies

Herbicide family: **Oxadiazole**

Oxadiazon (Ronstar G, 50WSP, 3.17SC)

Absorbed by shoots only, inhibits photosynthesis

**Does not inhibit root growth**

Therefore, use this product in worn turf or where additional grow-in is desired (athletic fields)

Not labeled for home use!!!
## PRE Crab and Goose Control in Bermuda

Specticle 20WSP or 0.622F – overseeding concerns

<table>
<thead>
<tr>
<th>Specticle rate (oz/A)</th>
<th>Overseeding Interval</th>
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<tbody>
<tr>
<td>2.5</td>
<td>8 months</td>
</tr>
<tr>
<td>3.75</td>
<td>12 months</td>
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<table>
<thead>
<tr>
<th>Specticle rate (fl oz/A)</th>
<th>Overseeding Interval</th>
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<tbody>
<tr>
<td>4.5 to 6</td>
<td>10 months</td>
</tr>
<tr>
<td>6 to 9</td>
<td>12 months</td>
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