New Weed Management Tools for Grazed Pastures

Patrick McCullough, Ph.D.
University of Georgia
August 8, 2013

Winter Annual Weeds

- Begin emerging when soil temperatures drop below approximately 70 F.
- Can be controlled with preemergence herbicides in fall.
- Proper application timing is critical.

Late Summer Management

- Control Summer Weeds
  - Promote Recovery From Stress or Disease
    - Redirect traffic
    - Modify cultural practices
  - Plan Fall Preemergence Herbicides

Dr. Patrick McCullough
Extension Weed Scientist
2013 Georgia Grazing School:
New weed management tools for grazed pastures

Preemergence Herbicides

- Chateau (flumioxazin)
  - Alfalfa
- Kerb (pronamide)
  - Legumes
- Prowl H2O (pendimethalin)
  - Grass pastures

pendimethalin

- Trade Name: Prowl H2O (3.8SL)
  - Family: Dinitroaniline
  - Mode of action: Mitosis inhibition
- Applications: 1.1 to 4.2 qt/acre
- Maximum Use: 4.2 qt/acre per year
- Grazing restrictions: 45 days after treatment

Preemergence herbicides do not prevent germination.

Dinitroaniline Injury

- pendimethalin on zoysiagrass
- Surflan on St. Augustinegrass
- Dimension on bermudagrass

Annual (Italian) Ryegrass

Dr. Patrick McCullough
Extension Weed Scientist

THE UNIVERSITY OF GEORGIA
COLLEGE OF AGRICULTURAL & ENVIRONMENTAL SCIENCES
2013 Georgia Grazing School:
New weed management tools for grazed pastures

Annual Ryegrass

Common Name | Trade Name | Control
--- | --- | ---
benefin (PRE) | Balan | G
imazamox | Raptor | G
metsulfuron | Cimarron | F
nicosulfuron + metsulfuron | Pastora | G-E
paraquat | various | G
pendimethalin (PRE) | Prowl H2O | G
pronomide (PRE) | Kerb | G
sethoxydim | Poast | G-E

Italian Ryegrass Control

Life Cycle: Problems in Turf:

Dr. Patrick McCullough
Extension Weed Scientist

College of Agricultural and Environmental Sciences
2013 Georgia Grazing School:
New weed management tools for grazed pastures

### Henbit Control

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Trade Name</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,4-D (and combination products)</td>
<td>various</td>
<td>P</td>
</tr>
<tr>
<td>aminopyralid</td>
<td>Milestone</td>
<td>F-G</td>
</tr>
<tr>
<td>aminopyralid + metsulfuron</td>
<td>Chaparral</td>
<td>G-E</td>
</tr>
<tr>
<td>dicamba</td>
<td>Banvel, Clarity</td>
<td>G</td>
</tr>
<tr>
<td>metsulfuron</td>
<td>Cimaron, others</td>
<td>G</td>
</tr>
<tr>
<td>metsulfuron + 2,4-D + dicamba</td>
<td>Cimarron Max</td>
<td>G-E</td>
</tr>
<tr>
<td>nicosulfuron + metsulfuron</td>
<td>Pastora</td>
<td>E</td>
</tr>
<tr>
<td>picloram + fluroxypyr</td>
<td>Surmount</td>
<td>G</td>
</tr>
<tr>
<td>triclopyr</td>
<td>Remedy</td>
<td>F</td>
</tr>
<tr>
<td>triclopyr + fluroxypyr</td>
<td>PastureGard</td>
<td>G-E</td>
</tr>
</tbody>
</table>

### Pastora

- **Metsulfuron**
  - Excellent activity on broadleaf weeds, some grassy weed activity (bahiagrass, ryegrass)
- **Nicosulfuron**
  - Grassy weed control
  - Previously used in field crops as Accent

---

Dr. Patrick McCullough
Extension Weed Scientist
2013 Georgia Grazing School:
New weed management tools for grazed pastures

<table>
<thead>
<tr>
<th>Weed Species</th>
<th>Applications</th>
<th>Control*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barley, Little</td>
<td>2</td>
<td>Excellent</td>
</tr>
<tr>
<td>Carolina Geranium</td>
<td>1</td>
<td>Excellent</td>
</tr>
<tr>
<td>Chickweed, Sticky</td>
<td>2</td>
<td>Good</td>
</tr>
<tr>
<td>Corn Speedwell</td>
<td>1</td>
<td>Good</td>
</tr>
<tr>
<td>Fescue, Rattail</td>
<td>2</td>
<td>Excellent</td>
</tr>
<tr>
<td>Field Pansy</td>
<td>1</td>
<td>Excellent</td>
</tr>
</tbody>
</table>

**Excellent = 90 to 100%, Good = 80 to 89%**

<table>
<thead>
<tr>
<th>Herbicide</th>
<th>Active Ingredients</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perspective</td>
<td>aminocyclopyrachlor + chlorsulfuron</td>
<td>1.88 + 0.75 oz a.i./acre</td>
</tr>
<tr>
<td>Streamline</td>
<td>aminocyclopyrachlor + metsulfuron</td>
<td>1.88 + 0.6 oz a.i./acre</td>
</tr>
<tr>
<td>Milestone 2SL</td>
<td>aminopyralid + imazapic</td>
<td>1.88 + 1 oz a.i./acre</td>
</tr>
</tbody>
</table>

Treatments applied on April 29, 2010

Dr. Patrick McCullough
Extension Weed Scientist
2013 Georgia Grazing School:
New weed management tools for grazed pastures

Dr. Patrick McCullough
Extension Weed Scientist

Buckhorn Plantain Control

White Clover Control 5 Days After Treatment
June 2010 UGA Griffin

Catsear Dandelion 5 Days After Treatment
June 2010 UGA Griffin

Streamline at 4.75 oz/acre + NIS
(aminocyclopyrachlor + metsulfuron)

Pastora 1.5 oz/acre + Roundup at 8 fl oz/acre + NIS 0.25% v/v

Common Bermudagrass in Griffin, GA
March 20, 2009

Annual Bluegrass/ Bermudagrass (dormant)
2013 Georgia Grazing School:
New weed management tools for grazed pastures

Dr. Patrick McCullough
Extension Weed Scientist
2013 Georgia Grazing School:
New weed management tools for grazed pastures

**Popular Treatments**
Glyphosate + Pendimethalin (other PREs) in Feb/March

**Water Quality Evaluation**
- Sampled 1 Liter of water from 20 locations,
- Tested
  - Water hardness
  - pH
  - Turbidity

<table>
<thead>
<tr>
<th>Water Hardness</th>
<th>Water hardness is calculated from dissolved minerals, primarily Mg and Ca.</th>
</tr>
</thead>
<tbody>
<tr>
<td>60 to 120</td>
<td>Moderately hard</td>
</tr>
<tr>
<td>121 to 180</td>
<td>Hard</td>
</tr>
<tr>
<td>181 or higher</td>
<td>Very Hard</td>
</tr>
</tbody>
</table>

**Example: Soft Water**
![Soft Water Diagram]

Dr. Patrick McCullough
Extension Weed Scientist

---

![Image of water bottles from different counties]
New weed management tools for grazed pastures

Example: Hard Water

Turbidity and Suspended Solids

- Turbidity
  - Clarity of water samples
  - EPA Max level is 5.0 NTU

- Total Suspended Solids

<table>
<thead>
<tr>
<th>Location</th>
<th>pH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sterling</td>
<td>7.9</td>
</tr>
<tr>
<td>Fitzgerald</td>
<td>7.9</td>
</tr>
<tr>
<td>Rome</td>
<td>7.8</td>
</tr>
<tr>
<td>Tifton</td>
<td>7.6</td>
</tr>
<tr>
<td>Atlanta</td>
<td>7.7</td>
</tr>
<tr>
<td>Baldwin Co.</td>
<td>7.2</td>
</tr>
<tr>
<td>Spalding Co.</td>
<td>7.3</td>
</tr>
<tr>
<td>Jefferson</td>
<td>7.5</td>
</tr>
<tr>
<td>Jefferson Co.</td>
<td>7.5</td>
</tr>
<tr>
<td>Washington Co.</td>
<td>6.9</td>
</tr>
<tr>
<td>Gainesville</td>
<td>6.4</td>
</tr>
<tr>
<td>Marion Co.</td>
<td>5.3</td>
</tr>
</tbody>
</table>

Dr. Patrick McCullough
Extension Weed Scientist