Weed Management Options Options for Hay Producers - 2010

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The University of Georgia

Control Measures
- Cultural
  - Fertility Management
- Biological
  - Limited options
- Mechanical
  - Mowing
- Chemical

Do I spray or fertilize first?
- Spray first
- Control existing weeds
- Begin soil-test based lime and fertilizer program

When do you spray?
- Winter annuals - henbit, chickweed, buttercups, thistles
  - November through March
- Summer annuals - spiny amaranth, bitter sneezeweed
  - April through mid-July
- Perennials
  - growth stage dependent

Problem Weeds in Bermudagrass
- Broadleaf (not a technology problem)
  - horseradish, Southern nettle, Rubus spp., hemp dogbane, tropical soda apple
- Grasses - # 1 in Hay Fields (+ nutsedge)
  - dallisgrass - crabgrass spp.
  - vaseygrass - sandbur spp.
  - Johnsongrass - broadleaf signalgrass
  - bahiagrass - crownfootgrass

Spray this size bitterweed
Not this size
### Herbicide Options

- 2,4-D
- dicamba (Vanquish, Banvel)
- 2,4-D + dicamba (WeedMaster, others)
- dicamba + diflufenosyn (Overdrive)
- triclopyr (Remedy)
- imazapic (Impose)
- 2,4-D + triclopyr (CrossBow)
- triclopyr + clopyralid (Redeem)
- 2,4-D + picloram (Grazon P+D, GunSlinger)
- fluroxypyr + picloram (Surmount)
- fluroxypyr + triclopyr (PastureGard)

### Herbicide Options (cont.)

- aminopyralid (Milestone)
- aminopyralid + 2,4-D (ForeFront)
- aminopyralid + metsulfuron (Chaparral)
- diuron (Direx, Duuron)
- metsulfuron (Cimarron, MSM E.Pro, others)
- metsulfuron + chlorsulfuron (Cimarron Plus)
- metsulfuron + 2,4-D + dicamba (Cimarron MAX)
- hexazinone (Velpar)
- sulfosulfuron (OutRider)
- tebuthiuron (Spike)
- paraquat (Gramoxone Inteon, Firestorm, Parazone)
- glyphosate (Roundup UltraMax, others)

### Newest Herbicides

- PastureGard - fluroxypyr + triclopyr (Remedy)
- Surmount – fluroxypyr + picloram
- Milestone – aminopyralid
- ForeFront – aminopyralid + 2,4-D
- Chaparral – aminopyralid + metsulfuron
- OutRider - sulfosulfuron

### PastureGard

- 1.5 lbs./gal. triclopyr ester + 0.5 lbs./gal. fluroxypyr ester
- Controls numerous brush species and broadleaf weeds.
  - Upright blackberry, sweet gums, Sericea lespedeza, dogfennel, gallberry, rose species, lantana
  - Palmetto and yucca – use 2.0% v/v solution in water
  - Fair control of horsenettle and tropical soda apple
  - Also has activity on maypop passionflower

### Reseeding Restrictions – PastureGard

- Cool-season grasses and small grains - 21 days
- Clover and other legumes – 30 days
- Other crops – 120 days
- Labeled for use on permanent grass forage systems
  - This includes permanent pastures that are overseeded with winter forages.

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### Surmount

- **1.19 lbs/gal. picloram amine + 0.96 lbs gal. fluoroxypry amine**
- Controls broadleaf weeds, horsenettle, tropical soda apple, and pricklypear cactus.
- Apply 3 to 4 pts/acre for prickly pear cactus in fall months, control is very slow, about 2 yrs.
- About 30 d residual control
- Excellent control of upright-growing blackberry (3 to 4 pts/acre)

### Milestone

- **2.0 lbs/gal. aminopyralid**
- Use rate: 4.0 to 7.0 fl. ozs/acre
- Numerous broadleaf weeds – thistles, horsenettle, tropical soda apple, buttercup
- Do not seed legumes year of application (additional research being conducted)
- Delay application until grasses have 4 to 5 leaves.

### Reseeding Restrictions – Surmount

- Cool-season grasses - 21 days
- Clovers – 12 months
- Other legumes – 12 months

### Surmount- It’s Good - BUT!!!!!

- Injurious to clovers
- Apply to seedling grasses or overseeded small grains at tiller growth stage
- Newly-sprigged bermuda – delay until stolons are 6 inches long
- Beef grazing - 0 d; slaughter 3 d
- Lactating Dairy Animals – grazing 14 d; silage 14 d.
- Hay – 7 d (all livestock types)

### Reseeding Restrictions – Surmount

- Cool-season grasses - 21 days
- Clovers – 12 months
- Other legumes – 12 months

### Surmount- It’s Good - BUT!!!!!

- Do not
  - Use hay from treated areas for compost or mulch
  - Transfer livestock to untreated areas without 7 d cleanout
  - Use manure for fertilizing broadleaf crops
  - Use in any temporary forage system involving broadleaf crops
  - **USE ONLY ON PERMANENT GRASS FORAGE SYSTEMS**

### Milestone

- Non-volatile
- Injurious to legumes
- No grazing or hay restriction for any type of livestock
- Weak on sida species, dogfennel, plantains, blackberry, wild radish, other mustards.
- Add 2,4-D or Remedy for weeds above.
ForeFront

- 0.33 lbs./gal. aminopyralid + 2.67 lbs./gal 2,4-D
- Use rate: 1.5 to 2.6 pts./acre
- Numerous broadleaf weeds – thistles, horsenettle, buttercup, henbit, plantains, verbena
- Do not seed legumes year of application (additional research being conducted)
- Delay application until grasses have 4 to 5 leaves.

ForeFront

- Injurious to legumes
- No grazing restriction for any type of livestock.
- 7 day hay harvest restriction
- Better control of plantains and common pokeweed than Milestone

Comparison of Grazon P+D, Surmount, PastureGard, Milestone and Forefront

<table>
<thead>
<tr>
<th>Herbicide</th>
<th>Active Ingredient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grazon P+D, GunSlinger</td>
<td>2,4-D picloram</td>
</tr>
<tr>
<td>GrazonNext</td>
<td>2,4-D aminopyralid</td>
</tr>
<tr>
<td>Surmount</td>
<td>fluroxypyr picloram</td>
</tr>
<tr>
<td>PastureGard</td>
<td>fluroxypyr triclopyr</td>
</tr>
<tr>
<td>Milestone</td>
<td>aminopyralid</td>
</tr>
<tr>
<td>Forefront</td>
<td>aminopyralid 2,4-D</td>
</tr>
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</table>

Comparison of Grazon P+D, Surmount and PastureGard, Milestone and ForeFront

<table>
<thead>
<tr>
<th>Weed</th>
<th>Grazon P+D</th>
<th>Surmount</th>
<th>PastureGard</th>
<th>Milestone</th>
<th>ForeFront</th>
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</thead>
<tbody>
<tr>
<td>Buttercup</td>
<td>E</td>
<td>G</td>
<td>F</td>
<td>G-E</td>
<td>E</td>
</tr>
<tr>
<td>Blackberry</td>
<td>P-F</td>
<td>E</td>
<td>E</td>
<td>P</td>
<td>P</td>
</tr>
<tr>
<td>Dogfennel</td>
<td>G-E</td>
<td>E</td>
<td>E</td>
<td>F</td>
<td>F-G</td>
</tr>
<tr>
<td>Horsenettle</td>
<td>G</td>
<td>G-F</td>
<td>F</td>
<td>E</td>
<td>E</td>
</tr>
<tr>
<td>Horseweed</td>
<td>E</td>
<td>E</td>
<td>G</td>
<td>E</td>
<td>E</td>
</tr>
<tr>
<td>Pricklypear</td>
<td>F-G</td>
<td>E</td>
<td>F</td>
<td>P</td>
<td>P</td>
</tr>
</tbody>
</table>

Chaparral

- Premix of:
  - Aminopyralid - 62.13% (0.525 lb. ae/lb.) and
  - Metsulfuron – 9.45% (0.0945 lb./lb.)
- Use rate -1.5 to 3.3 oz. product/a
- X rate = 2.0 oz./a
- ‘Pensacola’ bahiagrass, horsenettle, trop. soda apple, plus 135 more broadleaf weeds, wild garlic and 14 brush sp.
2010 Hay Production School
Weed Management Options
For Hay Producers

Chaparral

<table>
<thead>
<tr>
<th>Act. Ingredient</th>
<th>Rate (oz. product/a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>aminopyralid</td>
<td>0.049 0.066 0.098</td>
</tr>
<tr>
<td>metsulfuron</td>
<td>0.009 0.012 0.018</td>
</tr>
</tbody>
</table>

Chaparral at 2.0 oz/a = 4.0 fl. oz/a of Milestone 2SC + 0.3 oz/a Metsulfuron 60DG

- No grazing or haying restrictions.
- Non-volatile
- Injurious to legumes
- Do not seed legumes year of application (additional research being conducted)

For All Aminopyralid Products !!!!

- Do not
  - use hay from treated areas for compost or mulch
  - transfer livestock to untreated areas without 3 d cleanout
  - use manure for fertilizing broadleaf crops
  - use in any temporary forage system involving broadleaf crops
- USE ONLY ON PERMANENT GRASS FORAGE SYSTEMS

OutRider - Monsanto

- Sulfosulfuron, 75WDG
- Approved in 2008
- New name for Maverick
- Controls johnsongrass and sedges in bermudagrass and bahiagrass
- Use rate – 1.33 ozs./acre
- Add a nonionic surfactant at 0.25% v/v.

OutRider - Monsanto

- Johnsongrass 18 to 24 inches tall, up to seedhead stage of growth
- Nutsedges – 4 to 8 inches tall
- Does not control annual grasses, dallisgrass, smutgrass, etc.
- Tank-mix with other herbicides for broadleaf weed control

OutRider - Monsanto

- Grazing and haying restriction
  - 14 days – all livestock types
- Treated fields may be rotated only to wheat.
- Injurious to clovers.
Grass Control Options - Bermudagrass

- Dormant bermuda
  - Glyphosate – 1.0 pt./acre (4.0 lb./gal.)
  - Gramoxone Inteon – 1.0 to 2.0 pts./acre

- Active Growth Bermuda
  - ‘Pensacola’ bahiagrass – Cimarron, Chaparral, Impose
  - Annual grasses
    - Roundup PowerMax, after first hay cut
    - Impose (imazapic)
  - Johnsongrass – OutRider, Impose
  - Spot treat or ropewick glyphosate

New Grass Control Options for Bermudagrass in 2010

- Prowl H₂O
- Pastora

Prowl H₂O – BASF - 2010

- Pordimethalin
- Preemergence herbicide
  - Needs rainfall for incorporation within 30 days of application
  - Labeled on dormant forage bermudagrass hay or pasture (NOT LABELED ON TALL FESCUE)
  - 45 day hay harvest restriction
  - 60 day grazing restriction – all livestock types
  - See supplemental label at:
    - http://www.cdms.net/LDat/ld6CT014.pdf

Pastora – DuPont - 2010

- Sulfonylurea
  - Nicosulfuron 56.2% + Metsulfuron 15.0%
- Pastora controls:
  - Sandbur, johnsongrass, other annual grasses, annual broadleaf weeds
  - Annual grasses < 2.0 inches tall
- Use rates: 1.0 to 1.5 oz./acre + NIS
- Will be used on bermudagrass only
- No grazing or haying restrictions
- Expecting label by Apr. 15, 2010
‘Russell’ Bermudagrass Tolerance to Pastora - 2009

- Conducted at Eatonton, GA
- Pastora 1.5 oz/ac – dormant appl. – Mar. 6
- Pastora 1.0 oz/ac – 40% green-up – Apr. 15
- Pastora 1.0 oz/ac – 18 d after 1st harvest – June 26
- Pastora 1.0 oz/ac – 5 d after 2nd harvest – July 20

Pastora at 1.5 oz/ac applied March 6 to dormant bermuda caused no injury and did not affect hay yield at any harvest.


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Pastora applied June 26, 2009 – 7 in. tall bermudagrass


Pastora applied Jul. 20, 2009 – 5 d after second harvest


Pastora applied Apr. 15, 2009


Pastora applied Apr. 15, 2009 – seedling crabgrass

Conclusions - Pastora

- Will control Italian ryegrass
- Best control of crabgrass is at seedling stage
- Established bermudagrass (one growing season)
- Application Timings
  - Winter – dormant bermuda
  - Spring – before 2 inches of new growth
  - Summer – within 7 days of hay cutting

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