2008 Hay Production School
Weed management options for hay producers

Control Measures

- Cultural
  - Fertility Management
- 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

Herbicide Options

- 2,4-D
- dicamba (Vanquish, Banvel)
- 2,4-D + dicamba (WeedMaster, others)
- dicamba + diflufenzopyr (Overdrive)
- triclopyr (Remedy)
- 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)
- diuron (Dixem, Diuron)
- metsulfuron (Cimarron, MSM E.Pro, others)
- metsulfuron + chlor sulfuron (Cimarron Plus)
- metsulfuron + 2,4-D + dicamba (Cimarron MAX)
- hexazinone (Velpar)
- sulfosulfuron (Maverick) – Section 18 2007
- tebuthiuron (Spike)
- paraquat (Gramoxone Inteon, Firestorm, Parazone)
- glyphosate (Roundup UltraMax)
- imazapic (Imose, Panoramic)
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Newest Herbicides
- PastureGard - fluroxypyr + triclopyr (Remedy)
  - controls annual, perennial, & woody species; enhanced control of blackberry
- Surmount – fluroxypyr + picloram
  - controls annual, perennial, & woody species
- Milestone – aminopyralid
- ForeFront – aminopyralid + 2,4-D
- Maverick - 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

PastureGard
- Mixes with diesel and other oil carriers
- PastureGard 50% + 50% diesel, excellent as basal application for trees < 4 inch DBH
- Injurious to clovers
- Apply to seedling grasses after tiller development

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.

Surmount
- 1.19 lbs./gal. picloram amine + 0.96 lbs. gal. fluroxypyr amine
- Controls broadleaf weeds, horsenettle, tropical soda apple, and prickly pear cactus.
- Apply 3 to 4.0 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)
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### Surmount
- 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
- 2.0 lbs./gal. aminopyralid
- Use rate: 4.0 to 7.0 fl. ozs./acre
- Numerous broadleaf weeds – thistles, horseretttle, tropical soda apple, buttercup
- Do not seed legumes year of application (additional research being conducted)
- Delay application until grasses have 4 to 5 leaves.

### 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, horseretttle, buttercup, henbit, plantains, verbena
- Do not seed legumes year of application (additional research being conducted)
- Delay application until grasses have 4 to 5 leaves.
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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>
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<tbody>
<tr>
<td>Grazon P+D, GunSlinger</td>
<td>2,4-D</td>
</tr>
<tr>
<td>Surmount</td>
<td>fluroxypyr</td>
</tr>
<tr>
<td>PastureGard</td>
<td>fluroxypyr</td>
</tr>
<tr>
<td>Milestone</td>
<td>aminopyralid</td>
</tr>
<tr>
<td>Forefront</td>
<td>aminopyralid, 2,4-D</td>
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</tbody>
</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>
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<tr>
<td>Blackberry</td>
<td>P-F</td>
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<td>E</td>
<td>P</td>
<td>P</td>
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<tr>
<td>Dogfennel</td>
<td>G-E</td>
<td>E</td>
<td>E</td>
<td>F</td>
<td>F-G</td>
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<tr>
<td>Horsenettle</td>
<td>G</td>
<td>G-E</td>
<td>F</td>
<td>E</td>
<td>E</td>
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<tr>
<td>Horseweed</td>
<td>E</td>
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<td>G</td>
<td>E</td>
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<tr>
<td>Pricklypear</td>
<td>F-G</td>
<td>E</td>
<td>F</td>
<td>P</td>
<td>P</td>
</tr>
</tbody>
</table>

Maverick - Monsanto
- Sulfosulfuron, 75WDG
- Section 18 in GA, AL, MS, AR, OK, LA
- APPROVED FOR 2007, 2008???
- Controls johnsongrass and sedges in bermudagrass and bahiagrass
- Use rate – 1.33 ozs./acre
- Add a nonionic surfactant at 0.25% v/v.

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

Maverick - Monsanto
- Grazing and haying restriction
  - 14 days – all livestock types
- Treated fields may be rotated only to wheat.
- Injurious to clovers.
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**Imazapic – (Impose, Panoramic)**
- previously marketed as Plateau
- forage bermuda, grass roadsides, wildflowers, noncropland sites
- established bermuda, don’t use during grow-in
- will be sold as 2.0 lb./gal formulation
- add a nonionic surfactant at 0.25% v/v
- can be applied with liquid N (possibility of reduced grass weed control)
- non-volatile

**Impose, Panoramic**
- No grazing restrictions
  - (includes lactating dairy animals, horses, etc.)
- Hay
  - 7 day restriction on all types of livestock
- Use only on actively-growing bermuda after full spring green-up
- Postemergence only product
- Do not use during spring transition – delays green-up

**Imazapic - POST – 4.0 fl. oz./acre**
- Application timing critical for good control
  - Crabgrass spp., b. signalgrass - < 4 inches
  - Texas panicum, crowfootgrass - < 2 inches
  - johnsongrass – 18 to 24 inches
  - vaseygrass - < 6 inches
  - nutedge spp. - < 4 inches
- Needs 1 hour rain-free period

**Impose, Panoramic - POST**
- Smutgrass
  - < 50% control at 4 to 8 fl. oz.
- Vaseygrass
  - needs 6 to 8 oz./acre, 4 oz./acre/yr for 3 yrs worked well in LA
- Dallisgrass
  - not as sensitive as vaseygrass, requires 10 to 12 oz./acre
- Bahiagrass
  - needs 6 to 8 oz./acre, 2.0 oz./acre will suppress seedheads

**Imazapic- POST**
- Imazapic does not control
  - purple top, goosegrass
  - bitter sneezeweed
  - pricklypear caetus
  - horeseettle
  - tall fescue – but injury is too severe to permit use
  - knotroot foxtail

**Where does Imazapic fit?**
- Established bermuda
- High quality bermudagrass hay producers
  - control of annual grasses, johnsongrass
- Sandbur and nutedge control in pastures
  - crabgrass is a high quality forage
- Vaseygrass control
Where does Imazaquin not fit?

- During spring transition
- On seedling bermuda
- On newly sprigged bermuda, during “grow-in”
- “No pain – no gain.”
- Persons who will not tolerate 30 to 50% bermuda yield reduction at 30 day cutting
  - Severe annual grass infestations will reduce bermuda yield as much or more than imazaquin

Cimarron

- 60DF metsulfuron
- Now generic – MSM E.Pro, others
- DuPont is phasing out Cimarron and Ally brand name for pastures
- Effective for ‘Pensacola’ bahiagrass, spiny amaranth, curly dock, buttercup, wild garlic control, blackberry
- Poor horsenettle control
- Injurious to legumes & ryegrass (4 mo plant back)

Metsulfuron

- 0.1 to 0.4 oz. product per acre
- Use low rates on tall fescue and timothy
- Do not mix with liquid fert. for bahiagrass control
- 0 d grazing or haying restriction - all livestock

Cimarron Plus

- Two-way product
- 48% metsulfuron + 15% chlorsulfuron (63DF)
- Effective for ‘Pensacola’ bahiagrass, spiny amaranth, curly dock, buttercup, wild garlic control, blackberry, dewberry, honeysuckle
- Poor horsenettle control
- Injurious to legumes & ryegrass (4 mo plant back)

Cimarron Plus

- 0.125 to 1.25 oz. product per acre
- Use ≤ 0.5 oz. product/acre on fescue
- Do not mix with liquid fert. for bahiagrass control
- 0 d grazing or haying restriction - all livestock

Cimarron MAX

- Co-Pack product
- Metsulfuron 60DF + 2,4-D amine (2.87 lbs./gal.) + dicamba (1.0 lb./gal.)
- Increases number of broadleaf weeds controlled
- Use rates 0.25 oz./acre of Cimarron plus 1.0 to 2.0 pts./acre of 2,4-D + dicamba
- Add nonionic surfactant at 0.25% v/v
Cimarron MAX

- **Grazing Restrictions**
  - Lactating dairy animals – 7 days
  - Other livestock species – 0 days

- **Haying Restrictions**
  - All livestock – 37 days