Pasture
Weed Control
MD Pesticide Conference
February 12, 2013

By
R. David Myers
Principal Agent, Agriculture
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Pasture or Hayfield?
Quality Hay Begins with Quality Hayfields/Pastures

• Continually assess pasture and hayfield condition.

• Reseed or overseed as required.
The Legume/Grass Balance

♦ The Either/Or Syndrome.
♦ Stack Forage Species.
♦ Build Upon Successes.

Urea - $800/ton
Legume 50%
Orchardgrass, Tall Fescue & Ladino Clover
Recognize the Causes of an Unprofitable Pasture

♦ Overstocking.
♦ Cutting Strategies.
♦ Drought or Excessive Water.
♦ Fertility & pH.
♦ Pest Control.
Expect to Renovate and Reseed Often in Maryland

• Control Broadleaf Weeds Prior To Legume Establishment.

• Control Grass Weeds Prior To Forage Grass Establishment.

• Suppress Existing Forage Prior To Over-Seeding.
## Annual Cover Crop Options for Southern Maryland

<table>
<thead>
<tr>
<th>Crop Species</th>
<th>Planting Date</th>
<th>Seeding Rate/A</th>
<th>Seed Cost/A*</th>
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</thead>
<tbody>
<tr>
<td>Austrian Winter Pea</td>
<td>March 1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>75 lbs</td>
<td>$39.00</td>
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<tr>
<td>Oats</td>
<td>March 1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>120 lbs</td>
<td>$22.56</td>
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<tr>
<td>Striate Lespedeza (Kobe)</td>
<td>March 5&lt;sup&gt;th&lt;/sup&gt;</td>
<td>35 lbs</td>
<td>$28.00</td>
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<tr>
<td>Korean Lespedeza</td>
<td>March 10&lt;sup&gt;th&lt;/sup&gt;</td>
<td>30 lbs</td>
<td>$21.60</td>
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<tr>
<td>Forage Soybeans</td>
<td>May 12&lt;sup&gt;th&lt;/sup&gt;</td>
<td>75 lbs</td>
<td>$45.00</td>
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<tr>
<td>German Foxtail Millet</td>
<td>May 25&lt;sup&gt;th&lt;/sup&gt;</td>
<td>30 lbs</td>
<td>$15.72</td>
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<tr>
<td>Japanese Millet</td>
<td>May 25&lt;sup&gt;th&lt;/sup&gt;</td>
<td>30 lbs</td>
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<tr>
<td>Pearl Millet</td>
<td>May 25&lt;sup&gt;th&lt;/sup&gt;</td>
<td>35 lbs</td>
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<td>Hairy Vetch</td>
<td>September 1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>25 lbs</td>
<td>$31.25</td>
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<tr>
<td>Crimson Clover</td>
<td>September 1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>25 lbs</td>
<td>$34.13</td>
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<tr>
<td>Annual Ryegrass</td>
<td>September 15&lt;sup&gt;th&lt;/sup&gt;</td>
<td>30 lbs</td>
<td>$26.10</td>
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<tr>
<td>Cereal Rye</td>
<td>September 25&lt;sup&gt;th&lt;/sup&gt;</td>
<td>120 lbs</td>
<td>$19.20</td>
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</tbody>
</table>

* Seed Cost is based upon December 2, 2002 price quotes per 50 lb unit from the Southern States Corporation. Not an Endorsement. For educational purposes only.
German Foxtail Millet

5 Days AP
German Foxtail Millet
35 Days AP
German Foxtail Millet
65 Days AP
Overcoming The Weed Challenge

♦ Prevent Weed Take-Over.

♦ Identify The Weeds.

♦ Control Trouble Spots.
Gain Control With Herbicides

♦ Proper Sprayer Set-Up.

♦ Proper Herbicide Choice.

♦ Consult Extension Bulletin 237.
Weed Control in Field Crops

R.L. Ritter
Extension weed control specialist
Department of Natural Resource Sciences and Landscape Architecture
University of Maryland, College Park

E.S. Haggard and H.P. Wilson
Virginia Polytechnic Institute and State University

W.S. Curran, Pennsylvania State University

B.A. Majek, Rutgers University, New Jersey

M. Van Gessel, University of Delaware

R.S. Chandran, West Virginia University

Contents:

- Chemical Weed Control in Field Crops
- Weed Control - Corn
- Weed Control - Forage Crops
- Weed Control - Grain Sorghum
- Weed Control - Small Grains (barley, oats, rye, and wheat)
- Weed Control - Soybeans
- Weed Control - Sunflowers
- Weed Control - Tobacco
- Weed Control - Vegetables

To explore this online publication, please select a section:

- Pesticide Safety
- Weed Control
- Disease Management
- Insect Management
Relative effectiveness of herbicides for pasture

Please select up to 5 weed problems and then click the 'View Treatments' button to view the best treatments for your weed problems.

<table>
<thead>
<tr>
<th>Select?</th>
<th>Weed Problems</th>
<th>Select?</th>
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<th>Select?</th>
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<td></td>
<td>Amaranth spiny</td>
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<td>Aster spp.</td>
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<td>Bedstraw spp.</td>
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<td>Bindweed (hedge)</td>
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<td>Brackenfern</td>
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<td>Burdock spp.</td>
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<td>Campion (bladder)</td>
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<td>Carrot (wild)</td>
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<td>Chickweed (mouse-ear)</td>
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<td>Clover spp.</td>
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<td>Clover (hop)</td>
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<td>Cockle (corn)</td>
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<td>Cocklebur</td>
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<td>Cowcockle</td>
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<tr>
<td></td>
<td>Dandelion</td>
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<td>Dewberry spp.</td>
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<td>Dock spp.</td>
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Dock, Broadleaf

Relative effectiveness of herbicides for pasture

<table>
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<th>Treatment (from best suited to worst suited)</th>
<th>Dock spp.</th>
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<td>2,4-D + Picloram (Grazon P + D)</td>
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<td>ForeFront</td>
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</tr>
<tr>
<td>Cimarron</td>
<td>G</td>
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<tr>
<td>2,4-D + dicamba</td>
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<td>Triclopyr + cloyralid (Redeem)</td>
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<tr>
<td>Surmount</td>
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<tr>
<td>Milestone</td>
<td>F-G</td>
</tr>
<tr>
<td>Crossbow</td>
<td>F-G</td>
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<tr>
<td>Dicamba (Banvel or Clarity)</td>
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Weed Control Annuals

% Control

Seedling  Vegetative  Flowering  Mature
### Relative effectiveness of herbicides for pasture

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<th>Treatment (from best suited to worst suited)</th>
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<th>Henbit</th>
<th>Jimsonweed</th>
<th>Ragweed (common)</th>
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<td>2,4-D + Picloram (Grason P + D)</td>
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# Relative effectiveness of herbicides for pasture

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<th>Treatment (from best suited to worst suited)</th>
<th>Buttercup spp.</th>
<th>Dandelion</th>
<th>Horsetail</th>
<th>Poison-ivy poison-oak</th>
<th>Thistle (Canada)</th>
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<tr>
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<th>Treatment (from best suited to worst suited)</th>
<th>Blackberry spp.</th>
<th>Garlic (wild)</th>
<th>Honeysuckle spp.</th>
<th>Kudzu</th>
<th>Multiflora rose</th>
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How to Read Your Pesticide Label
Remember it is a Legal Document

Pesticide Label Parts:
• Manufacturer's Brand or Trade Name
• Ingredient Statement, % Active and Inert Ingredients
• Chemical Name or Shorter Common Name Designation
• EPA Registration Number
• Type of Formulation: EC-Emulsifiable Concentrate, S-Solution, F-Flowable, D-Dust, WP-Wettable Powder, G-Granular, WDG-Water Dispersible Granular, M-Microencapsulated, Aerosol, Fumigant, and Baits.
• Classification: Restricted or General Use
• The Signal Word: Danger, Warning, or Caution
• Human Hazard Statements
• Personal Protective Equipment Requirements -- PPE
• Worker Protection Standard Requirements - WPS
• Practical First-Aid Treatment
• Environmental Hazard Statement
• Directions for Use
• Mixing, Additives, and Application Instruction
• REI- Restricted Entry Interval, and PHI- Pre-Harvest Interval Statements
• Special Requirements - EPA or Other Agencies
• Storage and Disposal
The leading provider of electronic data, information and decision support technologies to the agro-business and food industries.

**Markets Served**
- Agro-Chemical Manufacturers
- Crop Input Management
- Food Companies

**Welcome**
For a quarter of a century, CDMS has delivered the most comprehensive market access to critical agro-chemical information and decision support tools for the agricultural, turf & ornamental, and food industries.

Our technologies, data, and information resources facilitate on-demand product distribution, utilization and regulatory compliance, which provide critical information that drive decisions and shape strategies.
CDMS’ Agro-chemical database is the most widely used and trusted resource for critical agronomic, regulatory, and use criteria.

<table>
<thead>
<tr>
<th>Product</th>
<th>Manufacturer</th>
<th>Category</th>
<th>Labels MSDS</th>
</tr>
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<tbody>
<tr>
<td>ForeFront™ R&amp;P Specialty Herbicide</td>
<td>Dow AgroSciences LLC</td>
<td>Agriculture/Crop Protection Labels &amp; MSDS - USA</td>
<td><img src="#" alt="Link" /></td>
</tr>
<tr>
<td>ForeFront™ R&amp;P Specialty Herbicide</td>
<td>Dow AgroSciences LLC</td>
<td>Turf &amp; Ornamental / Non-Crop Labels &amp; MSDS - USA</td>
<td><img src="#" alt="Link" /></td>
</tr>
</tbody>
</table>
Personal Protective Equipment (PPE)
Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for category A on an EPA chemical resistance category selections chart.

Applicators and other handlers must wear:
- Long-sleeved shirt and long pants
- Protective eyewear
- Chemical-resistant gloves made of any waterproof material such as natural rubber
- Shoes plus socks

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

User Safety Recommendations
Users should:
- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

First Aid
If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing. Call a poison control center or doctor for treatment advice.

If swallowed: Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person.

Have the product container or label with you when calling a poison control center or doctor or going for treatment. You may also contact...
Pasture Herbicides
Pre-Emergence & Post-Directed

- Aromatic Amino-Acid 5 Enolpyruvyl-Shikimate-3-Phosphate Synthase (EPSP) Inhibitors

Glycines WSSA G9

Glyphosate: Roundup Weather Max® 7+
Roundup formulations or Touchdown ® or Credit® or Rattler®

✓ Post-emergence with no soil activity or uptake.
✓ Non-selective.
✓ Contact systemic herbicide: foliar absorption with excellent translocation.
✓ Consult label for surfactant use.
Pasture Herbicides
Pre-Emergence & Post-Directed

• Cell Membrane Disrupters

Bipyridiliums WSSA D22
Paraquat: Gramoxone Inteon®

☑ Post-emergence with no soil activity or uptake.
☑ Non-selective.
☑ Contact herbicide: rapid foliar absorption with some leaf translocation.
☑ Use with a non-ionic surfactant (NIS).
Herbicide Mode of Action & Classification

- Glutamine Synthetase Inhibitor

Phosphinic Acids WSSA H10

Glufosinate: Ignite® or Rely®

✓ Non-selective Post-emergence with no soil activity or uptake

✓ Contact systemic herbicide: foliar absorption with moderate plant translocation

✓ Do not use with a surfactant – Use AMS – 4 Hour Rainfast

✓ Rotational Crop Restrictions:
  
  Corn & Soybeans – 0 days
  
  Small Grains & Vegetables – 70 days
  
  Hay Crops – 180 days
CMREC/LESREC Forage Trial 2012
R.D. Myers & J. Renshaw

Pennington Seed Entries:
- OOG - Olympia Orchardgrass
- JTF - Jessup (542 Max Q) Tall Fescue
- BLT - Barliza Timothy
- DWC - Durana White Clover
- PWC - Patriot White Clover

Kings Agri-Seed Entries:
- POG - Persist Orchardgrass
- EOG - Endurance Orchardgrass
- BTF - BarOptima Plus E34 Tall Fescue
- MPB - Matua Prairie Bromegrass
- BKB - Balin Kentucky Bluegrass
- FRC - Freedom Red Clover

Treatments: Forage Seed Mixtures
- A - OOG 45% + JTF 45% + DWC 10%
- B - OOG 45% + BTF 45% + PWC 10%
- C - POG 45% + JTF 45% + DWC 10%
- D - POG 45% + BTF 45% + PWC 10%
- E - EOG 45% + JTF 45% + DWC 10%
- F - EOG 45% + BTF 45% + PWC 10%
- G - BKB 20% + BTF 70% + DWC 10%
- H - BKB 20% + JTF 70% + PWC 10%
- I - BLT 25% + POG 60% + FRC 15%
- J - BLT 25% + MPB 60% + FRC 15%
- K - EOG 45% + MPB 40% + FRC 15%
- L - OOG 60% + BLT 10% + BKB 20% + FRC 10%
### Prince George's County, Maryland (MD033)

<table>
<thead>
<tr>
<th>Map Unit Symbol</th>
<th>Map Unit Name</th>
<th>Acres in AOI</th>
<th>Percent of AOI</th>
</tr>
</thead>
<tbody>
<tr>
<td>AdE</td>
<td>Adelphia-Holmdel complex, 2 to 5 percent slopes</td>
<td>0.4</td>
<td>2.1%</td>
</tr>
<tr>
<td>A/B</td>
<td>Annapolis fine sandy loam, 2 to 5 percent slopes</td>
<td>7.3</td>
<td>43.0%</td>
</tr>
<tr>
<td>A/C</td>
<td>Annapolis fine sandy loam, 5 to 10 percent slopes</td>
<td>3.6</td>
<td>20.5%</td>
</tr>
<tr>
<td>CnE</td>
<td>Collington-Wist complex, 15 to 25 percent slopes</td>
<td>2.8</td>
<td>16.3%</td>
</tr>
<tr>
<td>CnF</td>
<td>Collington-Wist complex, 25 to 40 percent slopes</td>
<td>1.7</td>
<td>9.6%</td>
</tr>
<tr>
<td>DnA</td>
<td>Donlonton fine sandy loam, 0 to 2 percent slopes</td>
<td>0.1</td>
<td>0.4%</td>
</tr>
<tr>
<td>DnB</td>
<td>Donlonton fine sandy loam, 2 to 5 percent slopes</td>
<td>1.4</td>
<td>7.8%</td>
</tr>
</tbody>
</table>

**Totals for Area of Interest:** 17.4 100.0%

**Report – Map Unit Description**

**Prince George's County, Maryland**

**DnB—Donlonton fine sandy loam, 2 to 5 percent slopes**

**Map Unit Setting**
- Elevation: 0 to 230 feet
- Mean annual precipitation: 40 to 50 inches
- Mean annual air temperature: 62 to 77 degrees F
- Frost-free period: 180 to 210 days

**Map Unit Composition**
- Donlonton and similar soils: 60 percent
- Minor components: 40 percent
May 31st
May 31st
June 27th Millet
September 4th

Off Label - Ignite It! + Lorsban!
September 4th
BLT 25% + MPB 60% + FRC 15%
EOG 45% + BTF 45% + PWC 10%
EOG 45% + JTF 45% + DWC 10%
Pasture Herbicides
Post Emergence Broadleaf Control

• Growth Regulators: Abnormal Growth Response

Phenoxy Acetic Acids

2,4-D: 2,4-D Amine®

2,4-DB: Butyrac® 200

✓ Post-emergence with 1-4 weeks of soil activity.
✓ Controls broadleaves only.
✓ Foliar & root uptake translocates in the xylem & phloem.
Pasture Herbicides
Post Emergence Broadleaf Control

• Growth Regulators: Abnormal Growth Response

Benzoic Acids

Dicamba: Banvel® or Clarity®
or Dicamba + dyflufenzopyr: Overdrive®

✓ Post-emergence with 1-4 weeks of soil activity. 30-day replant restriction for Overdrive® (Distinct® in corn). For Dicamba 20-day grass replant restriction, after hay harvest for clovers (35-days).
✓ Controls broadleaves only.
✓ Foliar & root uptake translocates in the xylem & phloem.
Sampling after observation of damage is ineffective

Evidence of damage (leaf curling, lesions) in our trials with ornamentals bordering treated lawns

<table>
<thead>
<tr>
<th></th>
<th>12h</th>
<th>24h</th>
<th>48h</th>
<th>72h</th>
<th>1 week</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,4-D</td>
<td>-</td>
<td>-</td>
<td>-/+</td>
<td>+</td>
<td>++</td>
</tr>
<tr>
<td>Dicamba</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>++</td>
</tr>
<tr>
<td>MCPP</td>
<td>-</td>
<td>-</td>
<td>+/+</td>
<td>+</td>
<td>++</td>
</tr>
</tbody>
</table>

Cases where 2,4-D, MCPP, or dicamba were detected when sampled after report of overspray/drift damage: 2 of 17

Angus Murphy, PSLA
Sample collection: Dislodgeable residues (DR) Improves detection, simplifies preparation steps by eliminating endogenous plant compounds

DR sample preparation: extraction with CMW -> solvent evaporation -> analysis
Whole tissues: extraction with MW -> SPE purification -> solvent evaporation -> analysis

Detection limits: extraction vs. dislodgeable residues

<table>
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<tr>
<th></th>
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<th>24h</th>
<th>48h</th>
<th>72h</th>
<th>1 week</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,4-D</td>
<td>E+,DR+</td>
<td>E+,DR+</td>
<td>E+,DR+</td>
<td>E-,DR+</td>
<td>ND</td>
</tr>
<tr>
<td>Dicamba</td>
<td>E+,DR+</td>
<td>E+,DR+</td>
<td>E-,DR+</td>
<td>-,-</td>
<td>-,-</td>
</tr>
<tr>
<td>MCPP</td>
<td>E+,DR+</td>
<td>E+,DR+</td>
<td>E+,DR+</td>
<td>E-,DR+</td>
<td>-,-</td>
</tr>
</tbody>
</table>

Comparison of dislodgeable residue recovery to cloth traps (dislodgeable residues as percentage of trap recovery)

<table>
<thead>
<tr>
<th></th>
<th>12h</th>
<th>24h</th>
<th>48h</th>
<th>72h</th>
<th>1 week</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,4-D</td>
<td>96%</td>
<td>81%</td>
<td>24%</td>
<td>11%</td>
<td>ND</td>
</tr>
<tr>
<td>Dicamba</td>
<td>81%</td>
<td>68%</td>
<td>17%</td>
<td>nd</td>
<td>ND</td>
</tr>
<tr>
<td>MCPP</td>
<td>98%</td>
<td>93%</td>
<td>22%</td>
<td>18%</td>
<td>ND</td>
</tr>
</tbody>
</table>

Angus Murphy, PSLA
Pasture Herbicides
Post Emergence Broadleaf Control

• Growth Regulators
  Pyridines
  \textbf{Clopyralid: Stinger®}
  ✓ No Grazing or haying restrictions. Apply only to established Grass.
  ✓ 12-18 months clover rotation restrictions. No grass rotation restrictions.
  ✓ Excellent on Canada thistle.

\textbf{Triclopyr: Remedy® or Triclopyr + 2,4-D: Crossbow® or Triclopyr + clopyralid: Redeem®}
  ✓ Apply only to established Grass.
  ✓ No grazing or haying restrictions, except dairy.
  ✓ Clover next season rotation restrictions. 3-week grass rotation restriction.
  ✓ For Redeem® \textit{Bioassay Required.}
  ✓ Spot spray to control woody species, brambles & vines.
Pasture Herbicides
Post Emergence Brush & Tree Control

• Growth Regulators: Abnormal Growth Response
  Pyridinecarboxylic Acid
  Picloram+2,4-D: Tordon® RTU or Grazon® P+D
  Picloram+Fluroxypyr: Surmount®
  Environmental Use Caution with Area Restrictions & Bioassay Required.
  Restricted Use.
  ✓ Tree & Broadleaf weed control with very active & long soil residual >12-months. Also controls kudzu, poison ivy & thistles.
  ✓ Tordon® RTU “Ready to Use” formulation for application to cut or girdled tree trunks.
  ✓ Grazon® P+D & Surmount® formulated for broadcast spray application. Not recommended in Maryland.
Pasture Herbicides
Post Emergence Broadleaf Control

- **Growth Regulators: Abnormal Growth Response**

Pyridinecarboxylic Acid

Aminopyralid: Milestone®

Aminopyralid + 2,4-D: Forefront R&P®

*Bioassay Required.*

- Broadleaf weed control with very active & long soil residual >12-months. Also controls multiflora rose, sumac, honeysuckle and blackberry.
- No grazing restriction, except dairy. 7-day hay harvest interval.
Pasture Herbicides
Post Emergence Broadleaf Control

- Amino-Acid Acetolactate Synthase (ALS) Inhibitors

Sulfonyl-Ureas (SU’s)
Metsulfuron-Methyl: Ally® to Cimarron® to Cimarron® Max to Cimarron® X-tra
Grass Pasture - POST

✓ No grazing or haying restrictions.

✓ 4-34 month forage crop rotation restrictions. Bioassay Required.

✓ Excellent for spot spraying multi-flora rose & brambles.

✓ Rate: 0.1–0.3 ounces/acre.
Pasture Herbicides
Post Emergence Broadleaf Control

- Proroporphyrinogen Oxidase (PPG or Protox) Inhibitor
  Triazalone
  Carfentrazone-ethyl : Aim®

Post-emergence with no soil activity or uptake, rapid microbial breakdown.

- Selective broadleaf control - Does not kill established clover.
- Contact herbicide: Rapid foliar absorption with leaf translocation (15-minutes).
- Use with a non-ionic surfactant (NIS).
- Targeted Weeds: Bedstraw, bittercress, black nightshade, carpetweed, cocklebur, common mallow, jimsonweed, lambsquarters, morningglories, mustards, pigweed sp., purslane, shepherdspurse, thistles, velvetleaf, wild buckwheat, and others.
New Alfalfa Herbicide
Pre Emergence Grass & Broadleaf Control

• Meristematic Root Inhibitors: Inhibition of Cell Division and Elongation of Roots

Dinitroanalines

Pendimethalin: Prowl® New H2O formulation

✔ Does not leach – forms a herbicide barrier in clay soils
✔ Apply before rainfall or shallowly incorporate
✔ Controls grasses & small seeded broadleaves
✔ Not translocated in plants
✔ Pre-emergence with 1-3 months of soil activity
✔ Future Pasture Usage?
Pasture Herbicides
Post Emergence Grass Control

- **Lipid Synthesis Inhibitor**

**Aryoxyphenoxy-Propianates**

Fluazifop-P-Butyl: Fusilade®

**Cyclohexandiones**

Sethoxydim: Poast®

- Post-emergence with no soil activity or uptake.
- Controls gasses only.
- Primarily leaf uptake – rapidly translocates to growing points.
- Use with crop oil concentrate (COC).
Pasture Herbicides
Post Emergence Grass Control

• Enzyme Protoporphyrinogen Oxidase (PPO) Inhibitor: Specifically Inhibits Acetyl-CoA Carboxylase a Key Enzyme for Fatty Acid and Flavonoid Biosynthesis

Aryl Triazolinones

Clethodim: Select® or Prism®

✓ Post-emergence with no soil activity or uptake.
✓ Controls grasses only.
✓ Primarily leaf uptake – rapidly translocates to growing points.
✓ Use with crop oil concentrate (COC).
Pasture Herbicide
Non Selective for Fencelines & Corrals.
• Mobile Photosynthetic Inhibitors
  Triazines
  Prometon + Simazine + Sodium chlorate + Sodium metaborate:
  Pramitol®
• Mobile Photosynthetic Inhibitors
  Ureas
  Tebuthiuron: Spike® Non-Selective
  ✓ No grazing restrictions for <20 lbs /Acre. Some grass selectivity.
  ✓ 1-year haying restriction in treated areas.
Alfalfa Control in No-Till Barley

1993 5 WAT

- Glyph1.0
- Glyph1.5
- Glyph2.0
- Glyph1.5+2,4-D

% Control
Thank You!
Any Questions?

Check out our website!!!
www.annearundel.umd.edu
Pasture Weed Control Web Module:
http://annearundel.umd.edu/AGNR/agmedia.cfm