The New Tools for Aquatic Plant Management

Gary J. Burtle
Animal & Dairy Science
The University of Georgia – Tifton Campus
Control of Aquatic Plants

- Copper – algae
- Diquat – contact herbicide
- Glyphosate (Rodeo) – grasses, shorline
- Endothal – contact herbicide
- Floridone (Sonar) – residual herbicide
- 2,4-D – growth regulator
- Triclopyr – brush
- Imazapyr – floating, emergent weeds
- Carfentrazone – floating weeds
- Dichlobenil – pre-emergent, not for food fish
- Aquashade - dye
Controlling Invasive Plants

- Label extensions to aquatic plants prompted quicker approval of proven chemicals
  - Triclopyr
  - Imazapyr
  - Carfentrazone
Trichlopyr

- Systemic
- Used primarily for weeds and brush along the pond edge
- Production forests and industrial non-crop areas
- Avoid overspray of pond water if possible
- Renovate 3, Garlon 3A, Garlon 4, and Pathfinder II are some of the products
Triclopyr Mode of Action

- Synthetic auxin – carboxilic acid
- Causes rapid growth
- Half life is less than one day in water
- 0.5 gal/are or 1.5 to 6 lb/acre
Best to control these plants

- Emergent or ditchbank plants
- Water lily
- Water shield
- Purple loostrife
- Woody plants (willow)
Precautions for Triclopyr

- No irrigation for 120 days
- Hold dairy out till next growing season
- No fish consumption or swimming restrictions
Imazapyr

- Systemic
- Broad leaf and brush
- Floating leaf aquatic weeds
- Not in irrigation ponds
- Habitat, Arsenal (shoreline only)
Imazapyr Mode of Action

- Interferes with amino acid metabolism
- Gradually starves the plant
- Active in small quantities
  - 1-2 pints per acre foot or surface acre
  - Applied in 100 gallons per acre = 0.125% solution
- Takes several weeks to act
Best to control these plants

- Floating weeds
- Ditchbank and emergent weeds
- Spartina (smooth cordgrass)
- Parrotfeather
## Efficacy

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Rate</th>
<th>% Control</th>
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<tbody>
<tr>
<td>Imazapyr</td>
<td>6 pt/A</td>
<td>86.8-90.3</td>
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<tr>
<td>Glyphosate</td>
<td>20 qt/A</td>
<td>80-81</td>
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<tr>
<td>Imazapyr: Glyphosate</td>
<td>3 pt: 6 pt/A</td>
<td>74.6</td>
</tr>
<tr>
<td>Control</td>
<td></td>
<td>0</td>
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</table>
Precautions when using Imazapyr

- Irrigation restricted for 120 days
- No restrictions on swimming, fish consumption, or animal watering
Carfentrazone

- Systemic
- 40 to 60 g of product/ha (0.56 oz/A)
- Half life of 6 to 9 hours in water
- Rainbow trout toxicity = ~1.1 ppm
- Bluegill toxicity = ~1.5 ppm
- Mysid shrimp toxicity = ~1.17 ppm
- Has algicidal activity
- Knockdown in 1 to 4 days
Carfentrazone mode of action

- Aryl triazolinone
- Membrane disruption by inhibition of protoporphyrinogen oxidase
- Apply to small, active growing weeds
- Contact must be achieved for effectiveness
Best to control these plants

- Duckweed and watermeal
- Water lettuce
- Water hyacinth
Precautions for Carfentrazone

- Not approved for aerial application
- Surfactants make non-target plant damage more likely
- Restrict irrigation for 1-14 days depending on crop
- Restrict animal watering for 1 day
- No swimming or fishing restriction