

Matching Needs with Products: Role of Herbicides in Invasive Plant Management



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Panel Members



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Purpose



- **Goal:**
 - ✓ Build lasting links between agrichemical industry, technical experts, weed scientists, and land managers.
- **Objectives:**
 - ✓ Discuss the role of herbicides in invasive plant management programs with land management professionals.
 - ✓ Improve transfer of herbicide technology information.

Session Topics



- Assess audience perceptions of herbicides and their fit in management programs.
- What information is needed?
- How to improve communication and technology transfer?
- Questions from audience.
- Establishing a vegetation management expert network.
 - ✓ Industry
 - ✓ Academia
 - ✓ Land managers
 - ✓ Consultants

Topics



- Integrating vegetation management tools
- Herbicides in the market place
- Factors affecting herbicide selectivity
- Herbicide application technology
- Examples

Weed Management Strategies



Prevention

- Keep weeds from occurring or increasing in an area.

Eradication

- Eliminate weeds from area.

Control

- Reduce weed impacts.

Desired Plant Community Concept

- 📄 Invasive plant management as a component of plant community management.
- 📄 Desired plant community (“**Begin with the end in mind.**”)
 - Community that best meets management objectives (SRM 1995)
 - Community: *resistant* to invasion, *resilient* after disturbance, and more complete resource capture

Rangeland & Grassland Improvement Process



- Site plant survey**
- Management history of site**
- Biology and ecology of key species**
- Desired plant community characteristics**
- Use of tools in appropriate sequence and combination to expedite development desired plant community.**

Components of Integrated Vegetation Management

 **Biological**

 **Cultural**

 **Mechanical**

 **Chemical**

Chemical Control



- ☞ Commonly used means to control invasive plants.
- ☞ Large variety of herbicides
- ☞ Advantage - quick response; **catalyst** for rapidly altering plant community composition
- ☞ Disadvantage - non-target plant effects; cost; public concerns about pesticide use

Chemical group	Common name	Trade name	Plant control	Activity	Application timing
Benzoic acid	Dicamba	Banvel, Clarity	B	F, S	PRE, POST
Benzonitrile	Bromoxynil	Buctril	B	F	POST
Bipyridilium	Paraquat	Gramoxzone	B, G	F	POST
Semicarbazone	Diflufenzopyr	N/A	B	F	POST
Imidazolinone	Imazethapyr	Pursuit	B, G	F, S	PRE, POST
	Imazapyr	Arsenal, Habitat	B, G, W	F, S	PRE, POST
	Imazapic	Plateau	B, G	F, S	PRE, POST

B - broadleaf herbs, G - grasses, W - woody plants

F - foliar active, S - soil active

Chemical group	Common name	Trade name	Plant control	Activity	Application timing
Phenoxy acid	2,4-D	Weedone, etc.	B	F	POST
	2,4-DB	Butyrac	B	F	POST
Phenylurea	Tebuthiuron	Spike	B, G, W	F, S	PRE, POST
Pyridine	Aminopyralid	Milestone	B, W	F, S	PRE, POST
	Clopyralid	Stinger, Transline	B, W	F, S	PRE, POST
	Picloram	Tordon 22K	B, W	F, S	PRE, POST
	Triclopyr	Remedy Ultra, Garlon 4 Ultra	B, W	F	POST
s-Triazine	Hexazinone	Velpar	B, G, W	F, S	PRE, POST
Sulfonylurea	Metsulfuron	Escort XP Cimarron family	B, G, W	F, S	PRE, POST
	Chlorsulfuron	Telar XP	B, G	F, S	Pre, POST
	Sulfometuron	Landmark XP Oust XP	B, G	F, S	PRE, POST
Unassigned	Fosamine	Krenite S	B, W	F	POST
	Glyphosate	Roundup, Rodeo, Accord	B, G, W	F	POST

Factors Effecting Herbicide Selectivity



- Rate of herbicide applied
- Herbicide chemistry
 - Persistence
 - Mode of action
 - Metabolism
 - Formulation (salt, ester, acid)
- Plant growth stage
- Frequency of application
- Environmental conditions
- Adjuvants
- Application method

Individual Plant Application



- Reduce herbicide amount applied per unit area.
- Minimize non-target plant herbicide exposure.

 **Low Volume Basal**

 **Cut-Stump**

 **High Volume Foliar**

 **Low Volume Foliar**

 **Spot-Applied Concentrate**



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