Landscape Weed Control – JC Neal, NCSU

Hand Weeding and Hoeing

- Seedling weeds controlled
- Not effective for established perennial weeds

Postemergence Weed Control

- Labor

Postemergence Herbicides

- Selective – controls some weeds not others
  - Grass control (Graminicides)
  - Sedges
  - Broadleaf weeds
- Non-selective – controls or damages most species

POST grass control

- Selective control of most grasses in most ornamental beds
- “Over the top” applications

Postemergence Graminicides

- 4 Selective Options –
  - Aryloxyphenoxy propionate (FOPS)
    - fenoxaprop (Acclaim) – mainly for turf
    - fluazifop (Fusilade & Ornamec)
  - Cyclohexanedione (DIMS)
    - Sethoxydim (Segment)
    - Clethodim (Envoy)

Acclaim (fenoxaprop-ethyl)

- Primarily used for crabgrass control in fescue lawns
- Also effective for Japanese stiltgrass
- Safe over most broadleaf ornamentals but not widely used in beds
- Not particularly effective on bermudagrass or other perennial grasses – duh, its used in lawns!
Crabgrass Control
- Any of the POST graminicides will work.
- Segment > Fusilade = Envoy > Acclaim
- Early applications work better

Perennial grass control:
Fusilade = Envoy > Vantage

Envoy is the only POST graminicide that controls annual bluegrass

POST Graminicide Safety on Ornamentals

Yellow and Purple Nutsedges (*Cyperus* spp.)
- Grass-like, but “Sedges have edges” – triangular “stems”
- Leaves emerge 3-ranked
- Spread by rhizomes and over-winter as tubers
- Tubers often introduced in top soil
- Will Cover Sedge Control in the next lecture
Postemergence Broadleaf Weed Control

Select: Few Options
- Lontrel, Basagran, Goal, Casoron, Image, Asulox
- Generally not very useful in landscapes except….

Lontrel controls legumes and asters

Lontrel works best on young actively growing weeds

Avoid Lontrel applications near Asters & Legumes

Casoron or Barrier (diclobenil)
- POST and PRE control of many perennial weeds and winter annuals
- Positional selectivity (basically non-selective)
- Use ONLY IN THE WINTER

Casoron controls perennial weeds but can kill many ornamentals
Casoron injures many ornamentals.

- Safe on many deciduous trees and shrubs
- Kills herbaceous ornamentals and some conifers
- Symptoms often start with marginal chlorosis

Triclopyr – Brush-B-Gon, Poison Ivy / Oak Killer, etc

- Active ingredient: triclopyr (same as Garlon 3A)
- Woody weed control
- Synthetic auxin (labeled for broadleaf weed control in turf)
- Caution around ornamentals

Triclopyr works better on woody weeds than Roundup

Triclopyr, cont.

- Foliar spray in spring better than fall – BUT
- Works most times of the year
- Also labeled for cut-stump applications

triclopyr

- Treat freshly cut stumps
- Also can be used as a basal bark spray (usually in oil)

Non-Selective Herbicides

- Kills most any plant it contacts
- Contact (not systemic)
  - Scythe
  - Reward (diquat)
- Systemic (translocated in plants)
  - Finale (glufosinate)
  - Glyphosate – many formulations

What do they have in common?

- No soil residual – POST only
- Non-selective – damage most any plants they contact

What is different?

- Contact vs. Systemic (translocated)
  - This impacts the kinds of weeds controlled – annual vs. perennial
  - Speed of action
  - Cost

Contact vs Systemic

- Contact herbicides – Do not translocate
- Systemic herbicides translocate from the site of application to the “target site” (roots, shoots, etc.)

Scythe (pelargonic acid)

- Nonselective, Contact herbicide
- Rapid (within hours)
- Effective on seedling annuals
- Top kill only on perennials and larger established annuals
- Odor can persist for days
- Eye & skin irritant

Scythe

- Contact burn
- Fast – within 30 min on a sunny day

Reward (diquat)

- Nonselective, Postemergent
- Contact type -- Not translocated
- Rapid response -- symptoms are visible within 24 hours
- No soil residual
- Effective on seedling annual weeds
- Top kill only on perennials or larger annuals
Reward – contact burn symptoms in a few hours to a day

Finale (glufosinate)
- Nonselective, Postemergent
- Systemic (translocated)
- Rapid response -- symptoms are visible within 48 hours
- No soil residual
- Effective on annual & perennial weeds
- Not as well translocated as Roundup-Pro

Finale – symptoms in 48 hr

translocated as well as Roundup

Glyphosate (Roundup, Touchdown and many others)
- Postemergence, non-selective control of annual and perennial weeds
- Systemic (translocated)
- No soil residual
- Be careful around conifers with the new formulation

Roundup-Pro & others
- active ingredient: glyphosate
- non-selective, postemergent
- systemic (translocated)
- No soil residual
- Not toxic to humans or wildlife
- Fish may be injured by the surfactant
Glyphosate products

- Isopropyl amine salts
  - Roundup, Roundup-Pro
  - Generics: Glyfos, Glyflo, Glystar, Glyfomax, Target, Razor, the list goes on …
- Diammonium salt: Touchdown-Pro
- Differences? Slight.

Quick-Pro (glyphosate + diquat)

- Rapid action, plus systemic kill of annual weeds
- ??? Will this reduce activity on creeping perennials??? Probably.
- Popular with many landscapers

Guidelines for using glyphosate

- Annual weeds – ½ to 1% by volume
- Perennial weeds 2 to 4% by volume
- Timing for Perennial weeds
  - Deciduous – late summer early fall
  - Herbaceous – late summer early fall
  - Evergreen – Spring, new growth
  - Grasses – “boot” state = early flowering

Optimum timing for Glyphosate

<table>
<thead>
<tr>
<th>Weed Species</th>
<th>% Solution</th>
<th>Suggested application timing for best control</th>
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</thead>
<tbody>
<tr>
<td>Perennial grasses</td>
<td>1-2%</td>
<td>At boot stage (first indication of flowering)</td>
</tr>
<tr>
<td>Mugwort</td>
<td>2%</td>
<td>late summer / E. Fall</td>
</tr>
<tr>
<td>Poison ivy</td>
<td>2%</td>
<td>~ full bloom (E. summer)</td>
</tr>
<tr>
<td>Trumpet creeper</td>
<td>2%</td>
<td>Late summer / E Fall</td>
</tr>
<tr>
<td>Greenbriar</td>
<td>3%</td>
<td>early spring (5 leaves)</td>
</tr>
<tr>
<td>English ivy</td>
<td>2%</td>
<td>2-3 new leaves (E. spring)</td>
</tr>
</tbody>
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Over 36 glyphosate products on the market

- Roundup, Roundup-Pro, Quick-Pro, etc
- Generics: Glyfos, Glyflo, Glyfomax, Target, Razor, ….
- Diammonium salt: Touchdown-Pro
- Differences? Slight.
- Roundup + diquat or Scythe: rapid burn down may reduce efficacy on perennial weeds

Roundup injury – severity depends on species and season of application

Deciduous plants – greater damage in late summer / Fall
Conifers more sensitive in spring
Don’t walk through the roundup

Don’t drag the hose through the Roundup

Using glyphosate without injuring ornamentals

Selective methods for using non-selective herbicides

Directed applications

Wipers

Clippers:

Selective Methods for Applying Non-Selective Herbicides

Directed applications: spray to the base of the crop, avoiding contact with foliage and green stems

Selective Methods for Applying Non-Selective Herbicides

Directed applications:

Wipers: rope, paint roller, or sponge type devices. Just wipe the weeds when they are taller than the ornamentals
Selective Methods for Applying Non-Selective Herbicides

- Directed applications
- Wipers
- Clippers: wet clippers in Roundup-Pro and clip the weed

Nonselective Alternatives to Herbicides

- Vinegar – contact type herbicide action
- Flame weeders – almost as effective as contact herbicides. OK for hardscapes, not pine straw!!!!

Hot Foam & Steam

- Contact kill
- 3+ x cost of herbicide
- Equipment costs high ($40,000)

Contrast selective vs. non-selective.
Contact vs. systemic
On what types of weeds would you use Garlon instead of glyphosate?
On what types (families) of weeds is Lontrel particularly effective?
Name a few common ornamental species that are likely to be injured by Lontrel.

What kinds of weeds is Casoron used to control?
Name at least 3 species that Casoron controls.
Name three reasons Casoron is not more widely used.

List the 4 selective graminicides
What postemergence graminicide controls annual bluegrass?
In a ground cover juniper bed what postemergence graminicides would you NOT use and why?
When is the optimum time to treat bermudagrass with Fusilade?
Which postemergence graminicides provides the best control of crabgrass?
Compare and contrast the Scythe, Reward, Finale and Roundup-Pro. Aspects of comparison should include behavior in soil, contact vs systemic, relative effectiveness on annual and perennial weeds, how rapidly symptoms are expressed.

What is the optimum timing (season or growth stage) of glyphosate applications on the following weeds: Bermudagrass, Mugwort, Catbriar (green brier), Japanese

In general, when is the best time to treat (with glyphosate):
- a. An herbaceous perennial that dies back to the ground in the fall.
- b. An evergreen woody weed.
- c. A deciduous woody weed.
- d. A perennial grass

Describe three ways we "selectively" use non-selective herbicides such as glyphosate.

What types of weeds will vinegar and flame weeders control?
What types of weeds will they not control?
How would you categorize hot-foam or steam weeders? Systemic or contact?
Selective or non-selective.