Landscape Weed Management

Sanitation & Exclusion
Site Preparation
Mulches
Preemergence Herbicides
Postemergence Herbicides
Hand weeding

A typical Landscape Calendar
- Winter – Mulch & PRE herbicides for spring germinating weeds
- E. Spring – control winter annual weeds
- L. Spring / E. summer
  - 2nd PRE for late germinating summer annuals and nutsedge
  - POST control – grasses, sedges and broadleaves
- L. Summer / E. Fall
  - PRE for winter annual weeds
  - POST control of perennial weeds

What about mid-summer?
- Lets keep summer annuals from going to seed

Postemergence Weed Control
- Labor
- POST
- Cultivation

POST grass control – best started in early summer

Well, it looked like a weed to me
POST grass control

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

Crabgrass Control

- Any of the POST graminicides will work.
- Segment > Fusilade = Envoy > Acclaim
- Early applications work better

Perennial grass control:

Fusilade = Envoy > Segment

Japanese Stiltgrass

- Improved turf management will exclude it.
- Mulches will not.
- PRE and POST herbicides for crabgrass are generally equally or more effective on Japanese stiltgrass.
- Start early with PRE.

What about nutsedges?

POST Yellow Nutsedge Control – selective herbicides

- Basagran TO: directed applications to most woody ornamentals (except taxus, sycamore & rhododendron)
- Dismiss – directed application around woody ornamentals. Avoid areas with bulbs or other herbaceous plants are present
- Sedgehammer (halosulfuron): directed applications around woody ornamentals
Purple Nutsedge Control

- NOT Basagran
- Dismiss: partial control.
- Sedgehammer will require 3 applic. at ~4 to 6 week intervals
- Start treatments in the spring. Later treatments do not work as well

Other Options – Non-selective:

- Roundup & Finale -- Repeat applications when new growth is observed
- Start in the spring and continue as needed
- Combine with Sedgehammer or Dismiss to extend control

Non-Selective Herbicides

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

Contact vs Systemic

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

Glyphosate

- Non-selective
- No soil residual
- Systemic – apply to foliage
- Many formulations…
- Many concentrations…

Over 50 glyphosate products on the market

- Roundup, Roundup-Pro, Quick-Pro, etc
- Generics: Glyfos, Glyflo, Glyfomax, Target, Razor, assorted “weed and grass control” products
- Differences?
  - Rapid action formulations
  - Residual formulations
**Rapid Action Formulations?**
- Quick-Pro – glyphosate + diquat
- Roundup “rapid action” – glyphosate + pelargonic acid
- Both have:
  - Rapid action, plus systemic kill of annual weeds
  - ??? Will this reduce activity on creeping perennials?? Yes.
  - Popular with many landscapers and consumers

**Postemergence Broadleaf Weed Control**
- **Selective: Few Options**
  - Generally not very useful in landscapes except….
  - Lontrel, Casoron, triclopyr for poison ivy

**Do not use synthetic auxins for weed control in ornamental beds**
- In this bed of liriope the maintenance staff used glyphosate mixed with a synthetic auxin to kill tree seedlings
- Synthetic auxin herbicide vapors damaged nearby grape vines (as well as the liriope)

**Many summer annual weeds will continue to emerge**
- Extended Control
  - Roundup Extended
  - Glyphosate + imazapic
  - Durazone
  - Glyphosate + diquat + indaziflam
  - RTU or Concentrate
Good for hardscapes but watch out for runoff

Roundup Extended damage to loropetulum from root-uptake

Don’t use the residual materials for site preparation before planting

Don’t use the residual materials for site preparation before planting

Cool-Season weeds will be emerging

A typical Landscape Calendar

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  - PRE for winter annual weeds
  - POST control of perennial weeds
Stop winter annuals before they emerge

Winter annual weeds are best controlled PRE
- Apply herbicides in late August
- Bedding plants – Preen actually works
  - Henbit, chickweed, annual bluegrass
  - Not: Carolina geranium, vetch, others
- Woody beds: broader spectrum herbicides are preferred
  - Snapshot, Specticle, Sureguard, Broadstar, Freehand, etc.

PRE Herbicides in Landscapes
- Many choices – over 20 products registered
- Dinitroanlines are the most common
- Gallery (isoxaben) for broadleaf weed control
- Combinations for broad spectrum control
- Granules are preferred for plant safety and convenience

Dinitroanline Herbicides
- PRE grass control, some broadleaf weeds – spurge, chickweed, henbit and oxalis
- Several similar herbicides
  - Surflan (oryzalin)
  - Pendulum (pendimethalin)
  - Barricade (prodiamine)
  - Treflan / Preen (trifluralin)
- GR formulations are safer
- But, are weak on a number broadleaf weeds

Dinitroanline herbicides control many common annual weeds

Gallery (isoxaben)
- Preemergence broadleaf weed control
- Spray formulation generally tank mixed with PRE grass herbicide
- Safe on most woody ornamentals
- Injures many herbaceous ornamentals
- Do not use on bedding plants
Snapshot TG
- A combination of Gallery + Treflan
- Preemergence control of annual grasses and broadleaves
- Broad spectrum preemergence weed control
- Good plant safety – does not burn foliage like some broad spectrum herbicides
- Weak on bittercress & phyllanthus
- Safe on ‘blue-collar’ perennials but injures most bedding plants

Want to know more about herbicides labeled for use in ornamentals?
- Browse the herbicide information fact sheets in the Extension Resource Catalogue
  https://content.ces.ncsu.edu/catalog/series/92/

Choosing the right product
- Safety to the ornamentals in the bed – this is complicated by diversity of plants
- Efficacy on the weeds
- Formulation
- Cost

Woody Ornamentals
- Many choices
- Tolerant of broad spectrum herbicides such as Broadstar, Sureguard, Specticle, Snapshot, Surflan, Regal OO, Gallery...
- Can also sometimes use Casoron (diclobenil) in the winter for perennial weed control

How to select the best herbicide

<table>
<thead>
<tr>
<th>Woody Ornamental</th>
<th>Common Name</th>
<th>Broadstar</th>
<th>Sureguard</th>
<th>Specticle</th>
<th>Snapshot</th>
<th>Sureflan</th>
<th>Regal OO</th>
<th>Gallery</th>
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<tbody>
<tr>
<td>Abelia spp.</td>
<td>abelia f/c Ø f/c *</td>
<td>Ø f/c * f/c</td>
<td>Ø f/c</td>
<td>Ø f/c</td>
<td>Ø f/c</td>
<td>Ø f/c</td>
<td>Ø f/c</td>
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<tr>
<td>Abelia x grandiflora</td>
<td>abelia, glossy f/c *</td>
<td>f/c</td>
<td>f/c</td>
<td>f/c</td>
<td>f/c</td>
<td>f/c</td>
<td>f/c</td>
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<tr>
<td>Abies spp.</td>
<td>fir species</td>
<td>f/c f/c</td>
<td>f/c</td>
<td>f/c</td>
<td>f/c</td>
<td>f/c</td>
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<tr>
<td>Abies fraseri</td>
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<td>f/c</td>
<td>f/c</td>
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</tr>
<tr>
<td>Acer spp.</td>
<td>maple species</td>
<td>f/c f/c</td>
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<td>f/c</td>
<td>f/c</td>
<td>f/c</td>
</tr>
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</table>

What does that mean?
- A species is listed on the label – it is “Registered or Labeled”
- The company warranties the herbicide safety on this ornamental species
- If it’s not listed on the label – it may or may not be safe. No guarantees.

https://weeds.ces.ncsu.edu/weeds-herbicides/
Herbaceous Plants

- More sensitive to herbicide injury than woody plants.
- Tolerance to herbicides varies among species.
- Few herbicides labeled.
- Check reference charts and labels carefully.

How to select the best herbicide for herbaceous perennials – excerpt from table

<table>
<thead>
<tr>
<th>Genus</th>
<th>Common Name</th>
<th>Barricade</th>
<th>Corral</th>
<th>Decisio</th>
<th>Dimension</th>
<th>Preen Southern</th>
<th>Regalade</th>
<th>Gallery</th>
<th>Jewel</th>
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<tr>
<td>Acrise</td>
<td>Sweet Flag</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>E</td>
<td>E</td>
<td>Y</td>
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<tr>
<td>Ageratum</td>
<td>Blue Flaxflower</td>
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<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
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<td>E</td>
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<td>Alstroemeria</td>
<td>Peruvian Lily</td>
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</table>

Key:
- Y = yes, labeled for use
- E = labeled for use on established plants only
- D = directed applications only

These tables are available on my portal or in the new Southeastern US Pest Control Guide.

Winter color beds

- Pansy –
  - Injured by Surflan, Pendulum, Barricade, Regalade, Snapshot TG (Preen Pro)
  - Little or no injury from Preen (trifluralin) or XL (low rate), Pennant Magnum

- Heuchera –
  - Injured by Surflan, Pendulum (spray), & XL,
  - Not injured by Preen, Barricade, Regalade, Pendulum GR, Pennant Magnum

Do not use these in winter color beds:
- Broadstar
- Freehand
- Snapshot
- Specticle
- Sureguard
- Surflan
- Gallery
- Tower

Efficacy – Generally….

- Grasses are easy to control
- Variable control of broadleaf weeds
- In color beds – you will sacrifice some efficacy to have safety on your plants

https://weeds.ces.ncsu.edu/weeds-herbicides/
Comparison of Preemergence Herbicides on Winter Annual Weeds

<table>
<thead>
<tr>
<th>Herbicide</th>
<th>Annual Grass</th>
<th>Bitter Cress</th>
<th>Chickweed</th>
<th>Henbit</th>
<th>Horseweed</th>
<th>Vetch</th>
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<tbody>
<tr>
<td>Surflan</td>
<td>G</td>
<td>G</td>
<td>G</td>
<td>F</td>
<td>F</td>
<td>P</td>
</tr>
<tr>
<td>Barricade</td>
<td>G</td>
<td>F</td>
<td>G</td>
<td>F</td>
<td>F</td>
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<td>Pendulum</td>
<td>G</td>
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<td>P</td>
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<tr>
<td>Spectacle</td>
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<td>G</td>
<td>F</td>
<td>G</td>
<td>?</td>
<td></td>
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</tr>
<tr>
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<td>P</td>
<td>F</td>
<td>P</td>
<td>P</td>
<td>P</td>
</tr>
</tbody>
</table>

How to select the best herbicide for herbaceous annuals – except from table

Early Autumn is often the best time of year to control perennial and woody weeds

 Glyphosate translocates to the roots

Annual bluegrass can be selectively controlled with Envoy

Roundup injury – severity depends on species and season of application

Deciduous plants – greater damage in late summer / Fall
Conifers more sensitive in spring

https://weeds.ces.ncsu.edu/weeds-herbicides/