Tough to Kill Weeds

- Perennial weeds
- Vines (annual and perennial)
- Controlled only at certain growth stages
- Weeds not controlled by glyphosate
Perennial weeds reproduce by:

- Rhizomes
- Tubers
- Stolons
- Bulbs
- Seeds
- Rhizomes
Weedy Vines

Cannot selectively spray

Difficult to hand remove

Virginia creeper
Ivyleaf Morningglory
*Ipomoea hederacea*

- Hard to control summer annual vine
- Germinates early summer
- Butterfly-shaped cotyledons
- Deeply 3-lobed, alternate leaves
Optimum timing to treat with glyphosate

<table>
<thead>
<tr>
<th>Weed Species</th>
<th>% Solution</th>
<th>Suggested application timing for best control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trumpet creeper</td>
<td>1.5%</td>
<td>Late summer to early fall</td>
</tr>
<tr>
<td>Virginia creeper</td>
<td>1%</td>
<td>Late summer to 1st fall color</td>
</tr>
<tr>
<td>Poison ivy</td>
<td>2%</td>
<td>~ full bloom (E. summer)</td>
</tr>
<tr>
<td>Mugwort</td>
<td>2%</td>
<td>Late summer to early fall</td>
</tr>
<tr>
<td>Japanese knotweed</td>
<td>2%</td>
<td>Late summer to early fall</td>
</tr>
<tr>
<td>Greenbriar</td>
<td>3%</td>
<td>early spring (5 leaves)</td>
</tr>
</tbody>
</table>
Pokeweed
*(Phytolacca americana)*

- Seed-propagated perennial
- Not well controlled by glyphosate
- Poisonous but edible if prepared correctly
Controlling Hard to Kill Weeds

- Sanitation – prevent introduction and spread
- Select the right tools – herbicides or other options
- Treat at the best time
- Don’t give up. Most of these weeds require multi-year efforts
Vetches
(Vicia spp.)

Winter annuals (some perennial species)
Relatively difficult to control (hand weeding is difficult)
Germinate in fall or early spring
Climbs by tendrils

Fabaceae = Legume Family
Ivyleaf Morningglory
*Ipomoea hederacea*

- Hard to control summer annual vine
- Germinates early summer
- Not well controlled by most PRE and by glyphosate
Tough to control annual weeds

🌟 Vetch:
- PRE with Snapshot, Broadstar, Sureguard
- POST – Finale, Lontrel (glyphosate on young plants)

🌟 Morningglory
- PRE – Sureguard, Broadstar, Surflan
- POST – glyphosate or hand weed young plants
Controlling annual weeds

Mulch

Select the best preemergence herbicide for the site

Sanitation!!! Keep them from going to seed.
Dodder (Cuscuta spp.)

- Parasitic annual
- Yellow to orange vining stems
- Seed propagated
Dodder control

☀️ Sanitation!!!
  ✶ Prevent introduction
  ✶ Remove plants before they flower
☀️ Don’t try to hand weed just the dodder – remove the host too!
☀️ Plant resistant ornamentals
☀️ Few PRE herbicides -- Dacthal
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

***Controlling nutsedges in landscape plantings – HIL-647***
Yellow Nutsedge  
(*Cyperus esculentus*)

- Perennial with rhizomes and tubers
- Emerge in late spring; die in the fall
- “Daughter” plants and tubers formed at tips of rhizomes
- One plant can form as many as 6000 tubers
Purple Nutsedge (Cyperus rotundus)

- Rhizomatous and tuberous perennial
- Emerge in mid-spring; die in the fall
- Forms tubers within 6 weeks of emergence
- Very hard to control
- The “world’s worst weed”

Forms tubers in “chains”
Yellow vs. Purple – Leaf tips

Yellow nutsedge leaf tips taper to a long, narrow point.

Purple nutsedge leaf tips are pointed but not tapered.
Yellow vs. Purple -- Flowers

Purple Nutsedge

Purple or reddish brown turning black

Yellow Nutsedge

Yellow fading to tan
Yellow nutsedge control

- Preemergence suppression with Pennant Magnum, Tower or Freehand
- Selective POST control with Basagran TO or Sedgehammer
- POST control with Roundup or Finale
Pennant Magnum EC (metolachlor)

- PRE yellow nutsedge and annual grass control
- Only available as an EC
- Apply Pennant EC before bud-break (to avoid foliar injury)
- ~2 to 3 months residual. Re-apply as directed spray
Tower EC (dimethenamid-p)

- PRE yellow nutsedge, annual grass and certain broadleaf weeds
- EC formulation
- Apply before bud-break (to avoid foliar injury)
- ~2 to 3 months residual. Re-apply as directed spray

New for 2008
EC herbicide injury to tender spring growth

Tower injury 1 WAT

Pennant Magnum injury 1 WAT
Freehand 1.75G (dimethenamid-p + pendimethalin)

- Preemergence control of annual grasses and small seeded broadleaf weeds
- Suppression of yellow nutsedge
- Safe on most woody ornamentals
- Herbaceous plants ??? Still testing.
PRE control of Purple nutsedge?

Nothing!
POST Yellow Nutsedge Control

- **Basagran TO:** directed applications to most woody ornamentals (except taxus, sycamore & rhododendron)
- **Sedgehammer:** directed applications around woody ornamentals

Both control some broadleaf weeds => also injure ornamentals if applied over the top
Basagran TO (bentazon)

- Controls yellow nutsedge and annual sedges
- Not effective on Purple nutsedge or kyllinga
- Also controls many seedling broadleaf weeds incl. dayflower, smartweed, ragweed, & pigweed
Basagran TO (bentazon)

- Use 1 to 2 lb ai/A; 2 to 3 applications @ 14 day interval.
- Directed applications around woody ornamentals
- Injury reported on Rhododendron, sycamore and taxus
Sedgehammer (halosulfuron)

Selectively Post control of sedges
- yellow & purple nutsedge
- annual sedges
- certain kyllinga species

Apply to young nutsedge; reapply in 6 weeks (soil residual prevents nutsedge emergence for ~ 4 weeks)
Sedgehammer (halosulfuron)

- Safe on turf
- Directed applications around woody ornamentals
- Injury to contacted foliage
- Injury to taxus, Rhododendron & arborvitae
Purple Nutsedge Control

**NOT** preemergence or Basagran Sedgehammer will require 3 applic. at ~4 to 6 week intervals

Image (imazaquin) injures many ornamentals and is not recommended.
Image (imazaquin)

- Pre and Post control of yellow and purple nutsedge in warm-season turf and around some woody ornamentals.
- Treat in late spring and re-treat 6 weeks later and again if needed.
- SEVERE DAMAGE to non-labeled woody ornamentals such as river birch, azalea, leyland cypress, viburnum, ligustrum…
- Foliar and Root Uptake
Image stunts new growth

Root uptake from directed applications. Plants typically recover in about 8 weeks
Why bother?

- Image causes significant injury to ornamentals from root uptake
- Basagran & Sedgehammer must be applied as directed sprays
- So why not just use Roundup or Finale??
Other Options:

Roundup & Finale -- Repeat applications when new growth is observed

Tank mix with Sedgehammer for residual control? (controls weeds faster than Sedgehammer alone)
Selective Methods to Use Non-Selective Herbicides

- **Directed applications:**
  - **Wipers:** rope, paint roller, or sponge type devices. Just wipe the weeds when they are taller than the ornamentals.
Hard to control Weeds, cont.
Perennial broadleaf weeds

- Mugwort
- Florida betony
- Bamboo
- Dollarweed
- Woody weeds
Mugwort or Chrysanthemum Weed (*Artemisia vulgaris*)

- Perennial with rhizomes
Mugwort Control

Roundup-Pro in May and August for two years

Lontrel in May is somewhat effective but needs to be reapplied whenever new growth is present

Casoron provides temporary control but needs to be paired with August Roundup
Pennywort or Dollar Weed (*Hydrocotyle* spp.)

- Spreading perennials
- Several species
- Spread by stolons, rhizomes, seed, and occasionally by tubers
- Petiole in the center of the leaf
Pennywort Control

- Image applied in the spring. Reapply 6 weeks later.
- Image can injure many ornamentals from root uptake so use it only on labeled species.
- Roundup is not very effective.
- Casoron provides temporary suppression but dissipates by the time pennywort is growing vigorously.
Florida Betony (*Stachys floridana*)

- Spreading perennial
- Square stems
- Rhizomes and “rattlesnake” tubers
- Grows fall through late spring -- dormant in the summer
Florida Betony Control

- Winter application of Casoron, Two Years in a row.
- Supplement with Roundup-Pro as needed
- Alternative:
  - Roundup-Pro in the spring and fall for two years can provide up to 90% control
- Treat Turf and Landscape infestations! (but don’t treat the turf with Casoron! Check the turfgrass recommendations.)
Bamboo

❖ One of the hardest to kill landscape weeds
❖ Perennial with rhizomes growing to 18 inches depth
❖ Many native and introduced species
❖ Grass family
Controlling bamboo

- Multi-year effort is required
- Remove as much of the rhizome mat as possible
- Casoron in the winter followed by Roundup throughout the summer
- Spot spray with Fusilade or Envoy to suppress when above is not possible
Pre/Post Weed Control With Casoron

- Safe on certain established trees & shrubs
- Controls many perennial, hard-to-kill weeds
- Significant potential to injure non-labeled species - including hemlock, fir, & spruce
- Apply in late fall or early winter
- Residual lasts until early summer
Casoron controls perennial weeds but can kill many ornamentals
Perennial weed containment

- Rhizomatous weeds will encroach from adjacent areas
- Control the entire patch OR contain and prevent encroachment
- Vertical barriers can prevent encroachment
Vertical barriers

- Depth – typically 15 inches
- Extend several inches above the ground
- Angle into your property (forcing rhizomes up and over)
- Inspect annually to remove rhizomes
Woody weeds – not well controlled by Casoron or glyphosate

Green briar

Honeysuckle

Poison ivy

Brambles
Poison ivy
(Toxidendron radicans)

- Woody vine
- Leaves 3, let it be
- Allergic dermatitis caused by urushiol in all plant parts -- Even dead stems!
- Spread by birds that eat fruit and drop seeds.
Greenbriar or Catbriar 
(*Smilax* spp.)

- Several species of semi-evergreen woody vines
- Very hard to control

Sharp prickles

Climbs by Tendrils
Japanese Honeysuckle
(*Lonicera japonica*)

- Imported, semi-evergreen, woody vine
- Fragrant and attractive flowers
- Invasive in landscapes and public lands
Oriental bittersweet
(*Celastrus orbiculatus*)

- Imported woody vine
- Spreading in public lands and landscapes

Imported for the attractive winter fruit

Similar to and displacing native American bittersweet
Woody Weeds

- **Deciduous plants**: Roundup-Pro in late summer or early fall

- **Evergreens**: Roundup-Pro in the spring when plants have 2 to 4 new leaves

- **Triclopyr (Brush-B-Gone & others)** in the spring on new growth. This is a brush killer so use carefully around ornamentals

- **Clipper applications with Roundup or triclopyr**
Selective Methods to Use Non-Selective Herbicides

- **Directed applications**: Avoid spraying green tissues
- **Wipers**: rope, paint roller, or sponge type devices. Just wipe the weeds when they are taller than the ornamentals
- **Clippers**: wet clippers in Roundup-Pro and clip the weed

Do not use Roundup-Pro over ornamentals
Selective Methods to Use Non-Selective Herbicides

**Directed applications:**

**Wipers:** rope, paint roller, or sponge type devices. Just wipe the weeds when they are taller than the ornamentals.
What to do with vines?
Klip-Kleen Clippers or Dip ‘n Clip

5 to 10% v/v Roundup-Pro or Brush B Gone in water

Clip close to the ground

Works with other systemic herbicides
Controlling Hard to Kill Weeds

- Sanitation – prevent introduction and spread
- Select the right tools – herbicides or other options
- Treat at the best time
- Don’t give up. Most of these weeds require multi-year efforts
Identification and Control of Nutsedges in Landscape Plantings
See Horticulture Information Leaflet Number 647

Study Questions:
1. Describe three strategies for controlling yellow nutsedge in woody landscape plantings: (ie: PRE, POST Selective, POST non-selective). Be specific – products, application timing, and frequency of application).
2. Of the herbicides discussed in lecture: which preemergence and postemergence herbicides are effective on:
   - Yellow nutsedge only
   - Yellow nutsedge and purple nutsedge
3. In a planting of annual bedding plants what can be done to control yellow nutsedge?
4. In a planting of annual bedding plants what can be done to control purple nutsedge?
Study Guide Questions

Know the recommended control options for: mugwort, Florida betony, and bamboo

Image is effective pennywort. Why is it not widely used in landscape beds?

Optimum time to apply glyphosate for: English ivy, trumpet creeper, Johnsongrass
Study Guide Questions

Woody weeds are controlled by what two postemergence herbicides?

Describe three selective ways of using glyphosate for weed control.

Dodder and morningglory are both summer annual weeds. How do their control measures differ? Why?