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
Hard to control summer annual vine
Germinates early summer
Butterfly-shaped cotyledons
Deeply 3-lobed, alternate leaves

Ivyleaf Morningglory
Ipomoea hederacea
Optimum timing to treat with Roundup-Pro

<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
- Germinate in fall or early spring
- Climbs by tendrils

*Fabaceae* = Legume Family
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?
- Dacthal is back.
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
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

Yellow or reddish brown turning black

Yellow Nutsedge

Yellow fading to tan
Yellow nutsedge control

- Preemergence control 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
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.

New for 2008
Freehand – weeds controlled
POST Yellow Nutsedge Control

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

Sedgehammer: directed applications around woody ornamentals
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 applications @ 14 day interval.
🌟 Directed applications around woody ornamentals
🌟 Injury reported on Rhododendron, sycamore and taxus
Sedgehammer (halosulfuron)

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

- Apply to young nutsedge; reapply in 6 weeks
Sedgehammer (halosulfuron)

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

NOT Pennant or Basagran
Sedgehammer will require 3 applic. at ~4 to 6 week intervals
Image requires 3 applications but injures many ornamentals
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 & Manage 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.
- **Biobarrier**: Treflan impregnated fabric can hold back purple and yellow nutsedge.
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
Biobarrier: An Alternative?

Geotextile fabric impregnated with trifluralin

Prevents most weeds from growing through the fabric
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?
Hard to control Weeds, cont.
Perennial broadleaf weeds

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

- Perennial w/ 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!
- If these options are not possible – Fumigate
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
Casoron (diclobenil) cont.

- **Weeds controlled**: most herbaceous perennials and winter annuals including: dandelion, red sorrel, clover, mugwort, Fl. Betony, etc.
- **Weeds suppressed**: bindweed, nutsedge, quackgrass, and other perennial grasses
- **Weeds not controlled**: most woody weeds such as black locust sprouts, mulberry, catbriar, brambles and late germinating summer annuals

Apply in late fall or early winter ****
# Postemergence Herbicide Use Sites

<table>
<thead>
<tr>
<th>Herbicide</th>
<th>Tree &amp; Shrub beds</th>
<th>Ground-covers</th>
<th>Annual Flowers</th>
<th>Perennials</th>
</tr>
</thead>
<tbody>
<tr>
<td>Casoron</td>
<td>✔</td>
<td>Few</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Diquat</td>
<td>directed</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Finale</td>
<td>directed</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Roundup</td>
<td>directed</td>
<td>Wiper</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Scythe</td>
<td>directed</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Goal /Basagran</td>
<td>directed</td>
<td>Few</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Fusilade, Vantage, Envoy</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
</tbody>
</table>
Hedge Bindweed
*Calystegia sepium*

- herbaceous perennial
- trailing vining stem
- spreads by creeping roots

White morningglory-like flowers & triangular leaves

Sprouts from rhizomes in early spring
Bindweed Control

- Herbaceous perennial: late summer is optimum time to apply Roundup-Pro.
- Multiple years treatment will be required
- Casoron provides suppression through early summer
- Lontrel not very effective
Biobarrier: An Alternative?

Geotextile fabric impregnated with trifluralin

Prevents most weeds from growing through the fabric
Woody weeds – not well controlled by Casoron or glyphosate
Poison ivy  
(Toxicodendron 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