

Tough to Kill Weeds

- ✱ Perennial weeds

- ✱ Vines (annual and perennial)

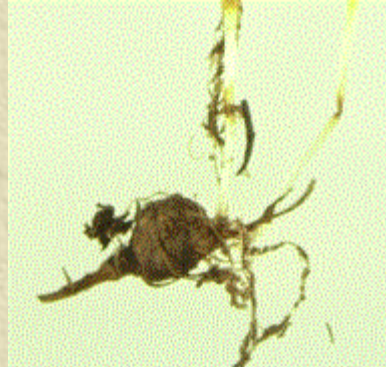
- ✱ Controlled only at certain growth stages

- ✱ Weeds not controlled by glyphosate

Perennial weeds reproduce by:



Bulbs



Tubers



Seeds



Stolons



Rhizomes

Weedy Vines

- ✖ Cannot selectively spray
- ✖ Difficult to hand remove



Virginia creeper



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Ivyleaf Morningglory

Ipomoea hederacea

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



A. Senesac

Optimum timing to treat with Roundup-Pro

Weed Species	% Solution	Suggested application timing for best control
Trumpet creeper	1.5%	Late summer to early fall
Virginia creeper	1%	Late summer to 1 st fall color
Poison ivy	2%	~ full bloom (E. summer)
Mugwort	2%	Late summer to early fall
Japanese knotweed	2%	Late summer to early fall
Greenbriar	3%	early spring (5 leaves)

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.)



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- ✠ 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



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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



R. Uva



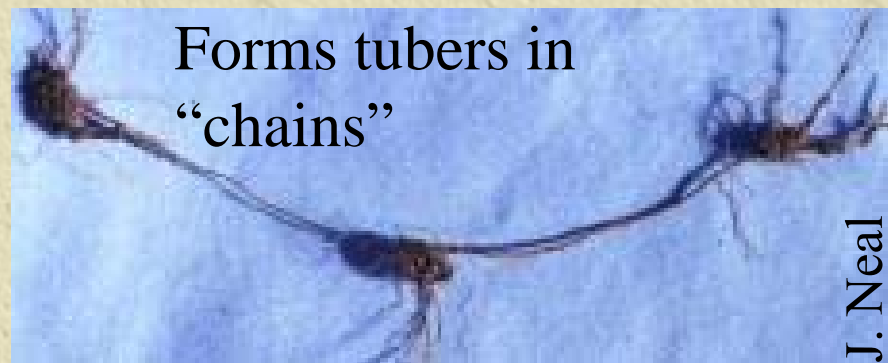
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Purple Nutsedge (*Cyperus rotundus*)

- ✦ 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”



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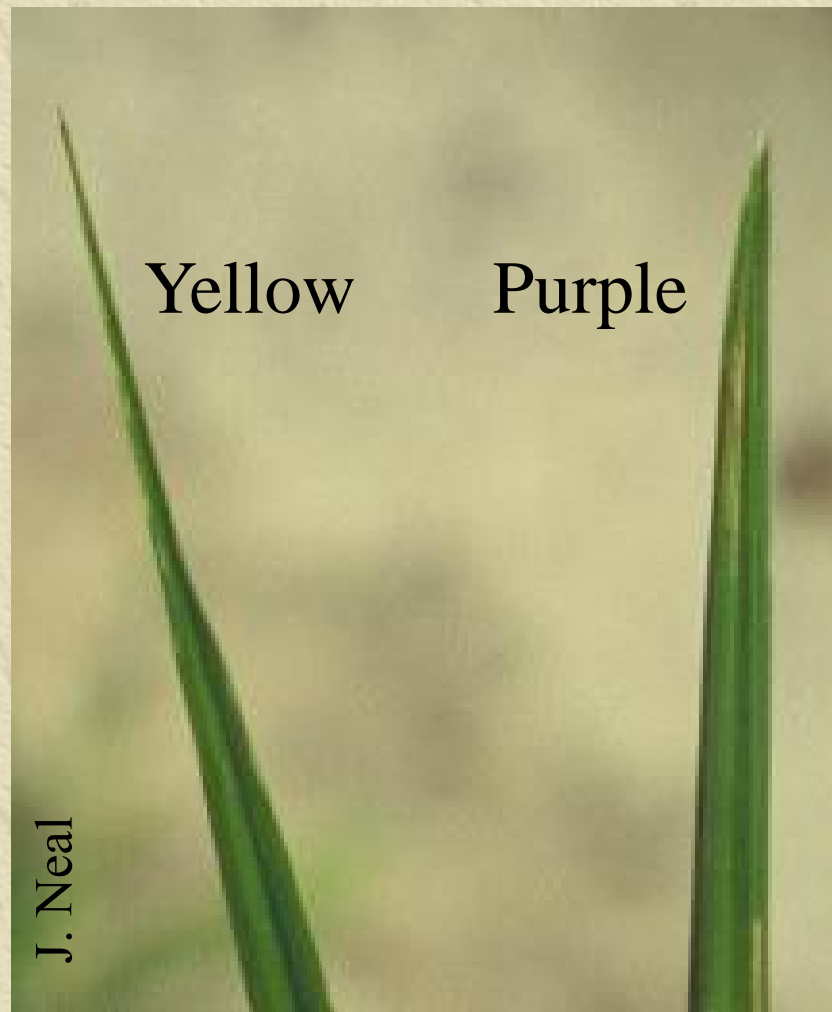


Forms tubers in
“chains”

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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 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)



New for
2008

- ✦ 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

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

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 & 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

Herbicide	Tree & Shrub beds	Ground-covers	Annual Flowers	Perennials
Casoron	✓	Few	No	No
Diquat	directed	No	No	No
Finale	directed	No	No	No
Roundup	directed	Wiper	No	No
Scythe	directed	No	No	No
Goal /Basagran	directed	Few	No	No
Fusilade, Vantage, Envoy	✓	✓	✓	✓

Hedge Bindweed

Calystegia sepium



White morningglory-like
flowers & triangular leaves



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



sprouts from
rhizomes in early
spring

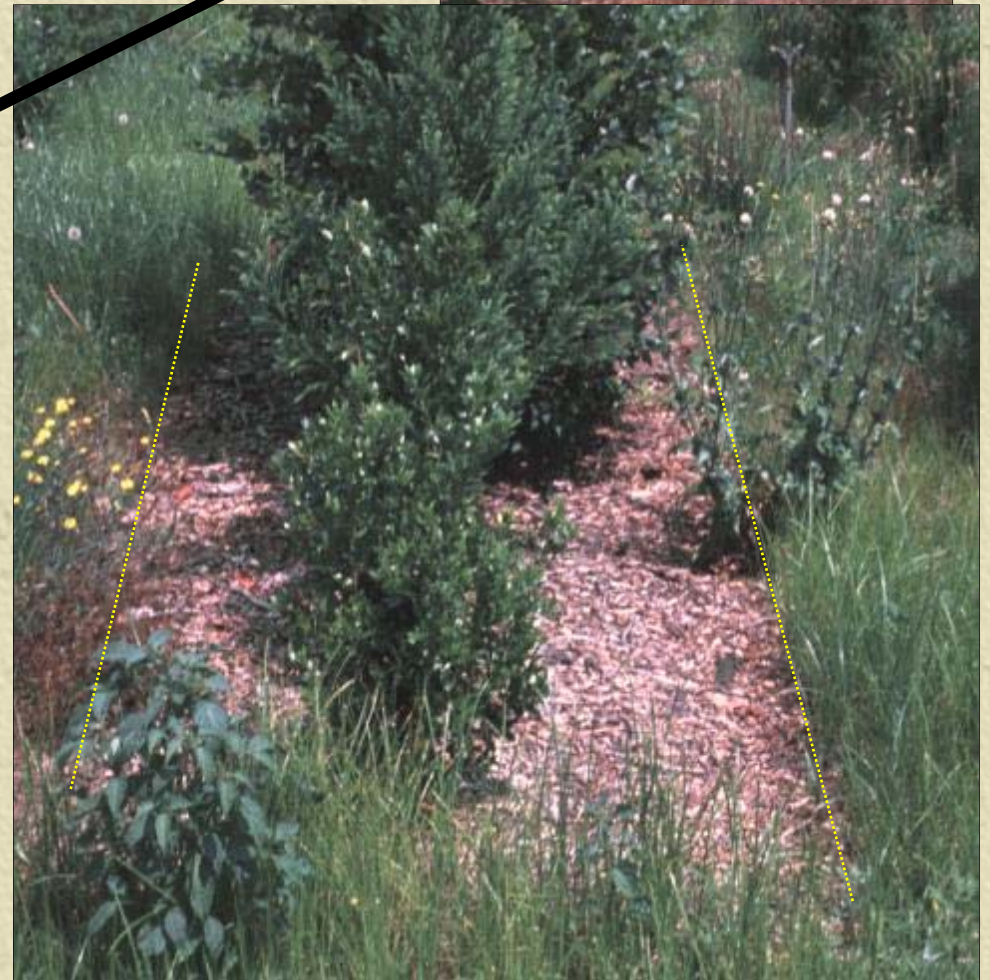
Bindweed Control

- ✦ 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

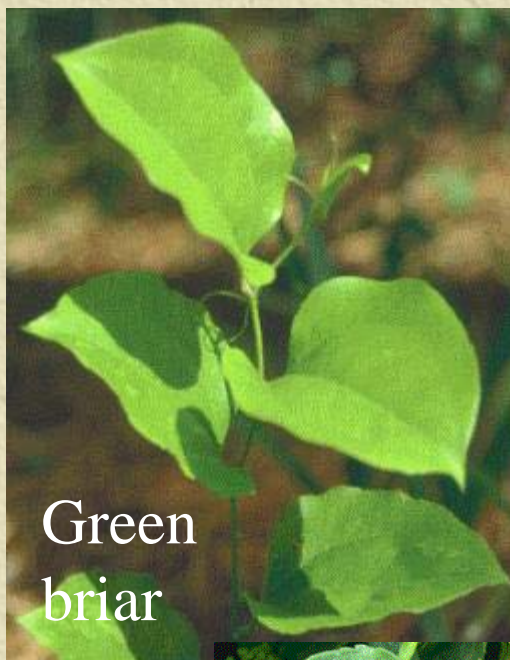
Biobarrier: An Alternative?

- ✦ Geotextile fabric impregnated with trifluralin

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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.



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Greenbriar or Catbriar (*Smilax* spp.)

✠ Several species of semi-evergreen woody vines

✠ Very hard to control

Sharp
prickles



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Climbs by
Tendrils

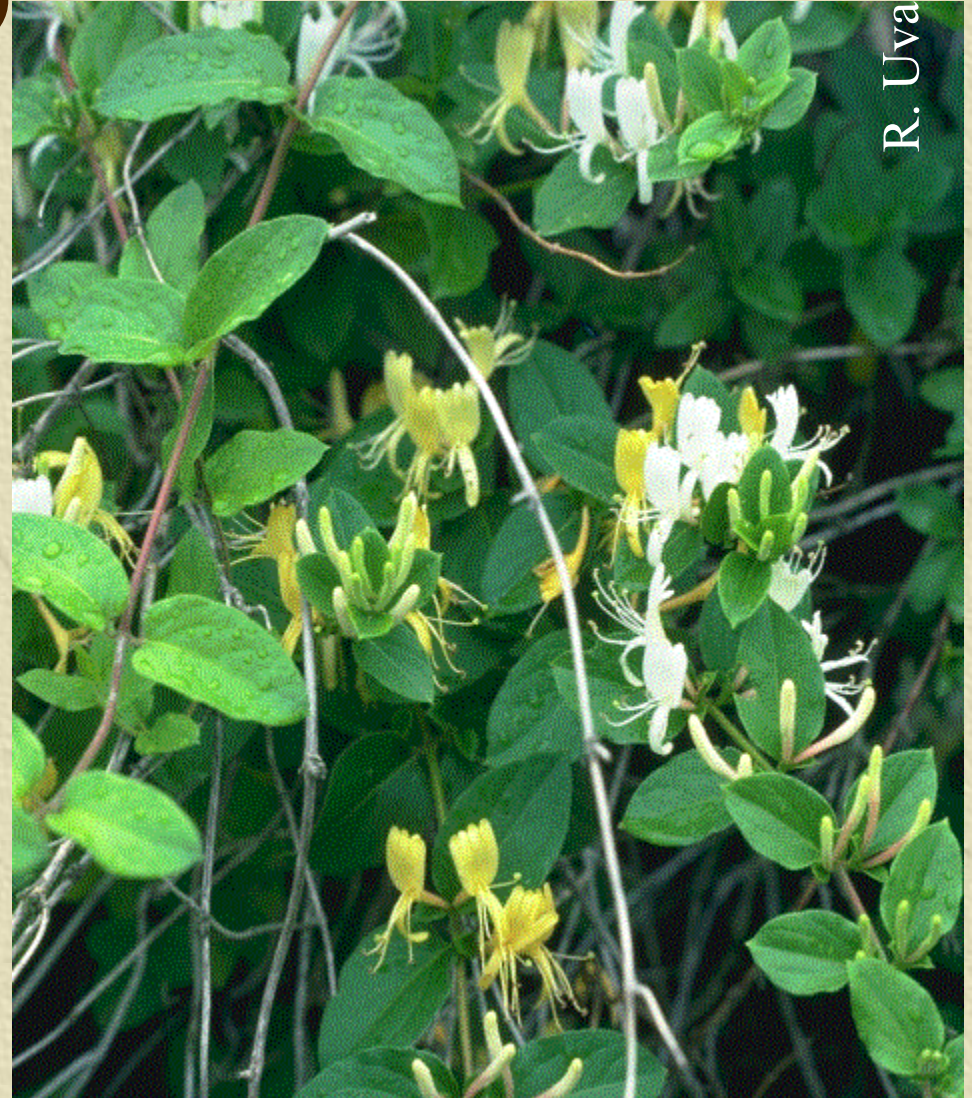


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Japanese Honeysuckle

(*Lonicera japonica*)

- ✦ Imported, semi-evergreen, woody vine
- ✦ Fragrant and attractive flowers
- ✦ Invasive in landscapes and public lands



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Oriental bittersweet (*Celastrus orbiculatus*)

- ✠ Imported woody vine
- ✠ Spreading in public lands and landscapes



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