Use of Herbicides to Control Woody Weeds

Scott Oneto
University of California
Cooperative Extension
Tuolumne County
Herbicides used for woody weed control in CA

- Glyphosate
- Triclopyr
- Imazapyr
Glyphosate

- Post emergent
  - Only kills emergent plants
- Non selective
- Most effective when applied to live tissue
- Available in many concentrations to homeowners
Glyphosate

- Products Available Over-the-Counter
  - Roundup, Roundup Pro, Roundup Concentrate
  - Honcho, Gly Star, Gly Pro
**Triclopyr**

- **Post emergent**
  - Only kills emergent plants

- **Selective (Broadleaf)**

- **Formulations**
  - Amine
    - Water soluble
    - Most effective when applied to live tissue
  - Ester
    - Oil soluble

- **Limited availability to homeowners**
Triclopyr

- **Products Available Over-the-Counter**
  - Ortho Brush B Gon Poison Ivy Killer Concentrate
  - EasyGone Brush Killer
  - Roundup Poison Ivy & Tough Brush Killer Plus (glyphosate and triclopyr)

- **Products Available by Permit**
  - Garlon 3A, 4, 4 Ultra
  - Pathfinder

8% ai

44% ai

61% ai
Imazapyr

- Post & Pre emergent
  - Kills emergent plants and prevents seed germination
- Non-Selective
- Limited availability to homeowners
Imazapyr

- **Products Available Over-the-Counter**
  - Ortho GroundClear Complete Vegetation Killer
    (glyphosate and imazapyr)

- **Products Available by Permit**
  (Operator Identification Number) Available through Ag Dept
  - Chopper
  - Arsenal
  - Habitat
Application Techniques for Woody Weeds

- **Foliar**
  - Spray-to-wet
  - Low volume “Drizzle”

- **Directed**
  - Stem injection
    - Hack-n-Squirt
    - E-Z-Ject
  - Basal bark
  - Cut stump
  - Wipe-on
Spray-to-Wet

- Traditional Method
  - Low Concentration / High Volume
  - All stems and leaves should glisten
  - Avoid runoff
  - Apply at 1% - 2% active ingredient
Low Volume or “Drizzle”

- **New Method**
  - High concentration/Low volume
  - Apply as a light sprinkle “drizzle”
  - Apply at 8% - 10% active ingredient
Low Volume or "Drizzle"
Low Volume or “Drizzle”
**Stem Injection**

- **Hack - N - Squirt**
  - Wound is made in the trunk with a hatchet
  - Herbicide is placed in wound
Hack - N - Squirt Application
Hack - N - Squirt Application

- 1 hack for every 3” trunk diameter
- Apply 1ml of undiluted herbicide/hack
  - Hypo Hatchet Tree Injector
Stem Injection

- E-Z-J ect
  - Uses a lance to inject herbicide capsules into woody shrubs and trees
Lance is placed against base of plant.

Metal teeth at base are pushed into the tree.

With a thrust, brass capsule is injected into tree.

1 capsule for every 3” in trunk diameter
E-Z-Ject Application
Basal Bark Application

- Basal portion of the plant is sprayed with herbicide solution
- From ground up 12”
- Apply at 8% - 10% active ingredient of triclopyr (ester) or imazapyr
- Efficacy improved with the addition of an adjuvant (methylated seed oil)
Cut Stump Application

- Tree or shrub is cut down leaving a stump
- Stump is treated with a herbicide solution
- Apply at 8% - 10% active ingredient
Wipe-on Application

- Uses a moistened sponge or rope to apply herbicide directly to plant foliage
- Effective on groundcovers, vines, seedlings, and resprouts
- Apply at 8% - 10% active ingredient
Which one to use?

- **Timing**
  - **Glyphosate**
    - Late Summer to Early Fall
    - Apply before leaves lose their green color
  - **Triclopyr or Imazapyr**
    - Spring or Early Fall
    - In spring apply after full leaf expansion

- Avoid applying herbicides in the middle of summer and/or during hot weather
Precautions & Follow-up

- Always follow the pesticide label.
- A single application may not always give 100% control, and retreating may be necessary.
Drizzle Application

- Herbicides used
  - Roundup Pro
    - 10% - 20% solution
  - Chopper or Garlon 4
    - 10% - 20% solution
  - Garlon 3A
    - 10% - 20% solution
Hack - N - Squirt Application

- Herbicides used
  - Roundup, Chopper, Garlon 4, or Garlon 3A
    - 1 hack per 3-4 inches in diameter
    - 50% to Undiluted product
    - 1 ml herbicide/hack
E-Z-Ject Application

- Herbicide used
  - Imazapyr (Copperhead)
    - Each capsule contains 1 ml of herbicide
    - 1 capsule / 3-4 inches in diameter
Basal Bark Application

- Herbicides used
  - Chopper or Garlon 4
    - 20% in oil carrier
Herbicides used

- Roundup Pro
  - 50% solution (in water)
- Chopper or Garlon 4
  - 25% - 50% solution (in oil carrier)
- Garlon 3A
  - 50% solution (in water)
Wipe-on Application

- Herbicides used
  - Roundup
    - 25% - 50% solution in water
  - Chopper or Garlon 4
    - 25% - 50% solution in oil carrier and water
Woody Plant Control Provided by Garlon 4 Ultra versus Garlon 4

GF-1529 = Garlon 4 Ultra
XRM-4714 = Garlon 4
Questions to Answer...

- What is the weed?
- How does it propagate?
- Does it have any characteristics that may make some control techniques difficult?
Control Strategies

• Non-Chemical
• Chemical
Mechanical Control

... the cutting or uprooting of weeds

- Hand pulling
- Weed Wrench
Mechanical Control

- Lopping
Mechanical Control

- Mowing / brush cutter
Mechanical Control

- Mastication
  - Rotary
  - Flail or fixed tooth
Mechanical Control

Bulldozing
Cultural Control

...the manipulation of the environment by non-mechanical means to control weeds

- Burning
Cultural Control

- Grazing
Chemical Control
Spraying Woody Weeds
**Glyphosate**

- **Post emergent**
  - Only kills emergent plants
- **Non selective**
- **Formulation**
  - Water soluble
  - Not effective on basal bark method
- **Contains a surfactant**
- **Available over the counter**

- 2% ai
- 18% ai
- 41% ai
Imazapyr

- Post & Pre emergent
  - Kills emergent plants and prevents seed germination
- Non-Selective
- An esterified seed oil should be added to increase efficacy
- Not available over the counter
  - Need an Operator Identification Number from County Ag Office
Triclopyr

- Post emergent
  - Only kills emergent plants
- Selective (Broadleaf)
- Garlon 4
  - An esterified seed oil should be added to increase efficacy
- Garlon 3A
  - A non-ionic surfactant should be added to increase efficacy
- Not available over the counter
  - Need an Operator Identification Number from County Ag Office
- Ortho Brush B Gon

61% ai
44% ai
8% ai
Garlon 4 Ultra

- Formulated in methylated seed oil
- Increased performance on woody species
- Reduced VOC (emission potential) for regulated states such as California
- Now registered in California