

Intentional Vegetation Management for tree growth and early seral dependents



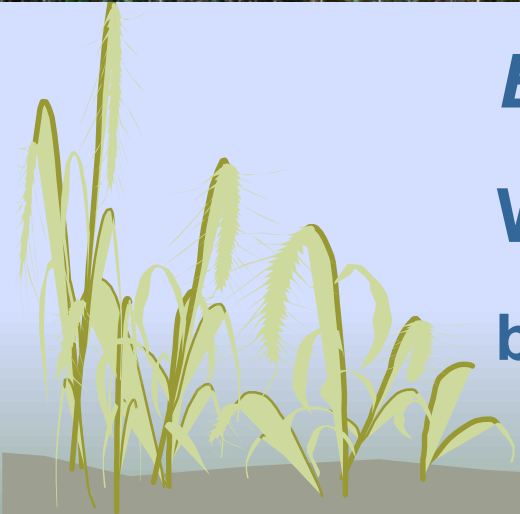
WILBUR-ELLIS®



Bruce P. Alber, CF

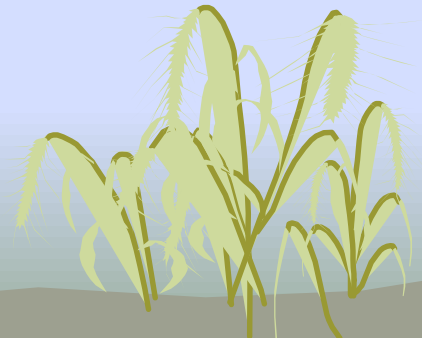
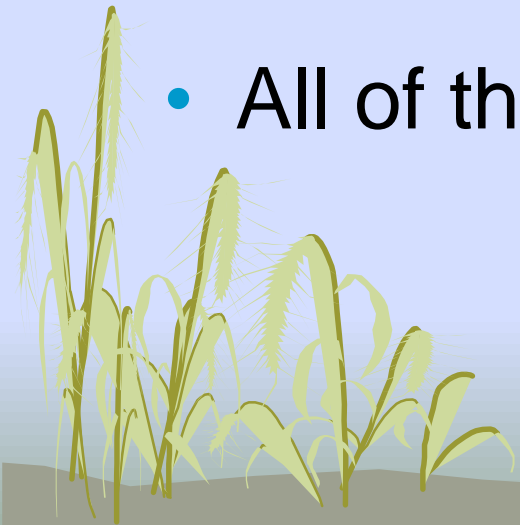
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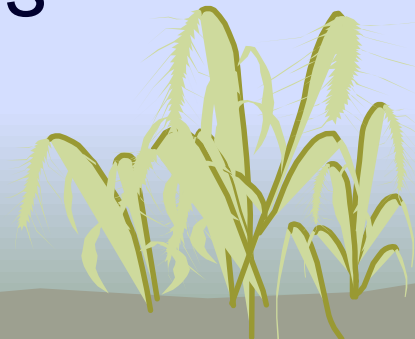
What are your objectives?

- Kill weeds or brush?
- Noxious weed control?
- Grow conifers for reforestation?
- Maximize wildlife habitat?
- All of the above?



Who else uses herbicides?

- The Nature Conservancy
 - Glyphosate and imazapyr – Japanese Knotweed
- Washington State Dept. Fish and Wildlife
 - Glyphosate and imazapyr – Spartina in Willapa Bay
- National Park Service, National Wildlife Refuges – controlling invasive weeds



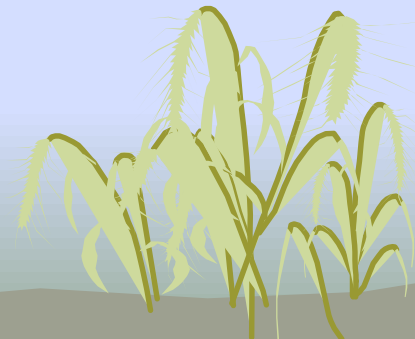
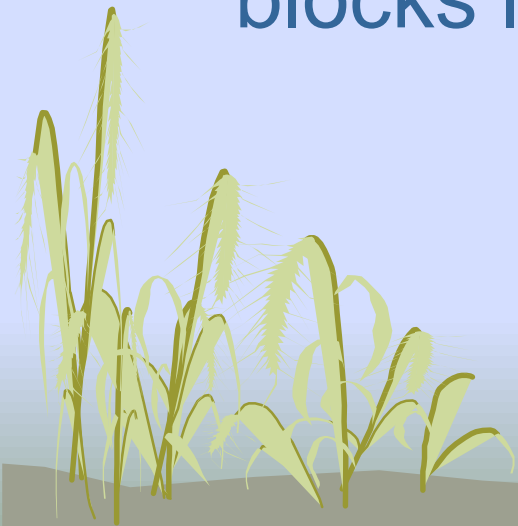
Imazapyr to control Spartina in Willapa Bay, Washington



Why we do what we do:

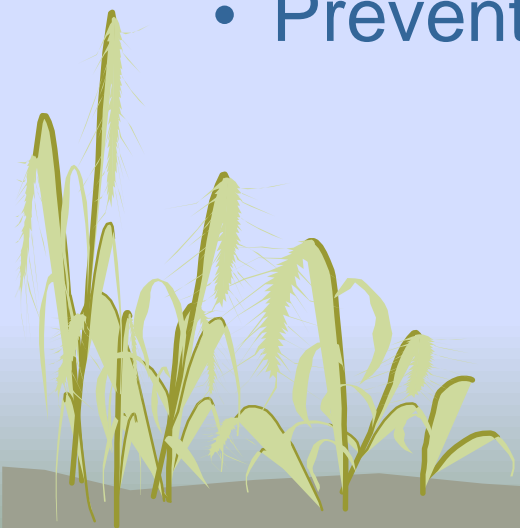
Prevent weeds, grow bigger trees

- First year weed free is most important
- Herbaceous weeds are very competitive!
- Overtopping brush damages seedlings, blocks light



Why spray?

- Weed prevention benefits last throughout the early years and beyond
 - Grow trees faster above the animal browse
 - Grow trees faster to capture the site from competing vegetation
 - Prevent brush and tree seed germination



Hand Cutting

Hazards: Cuts, noise, vibration, exhaust



Turn 400 stems into 4000?



Good timing for alder cutting



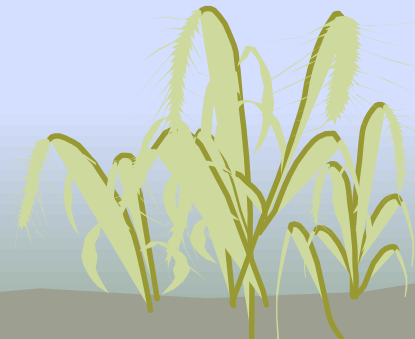
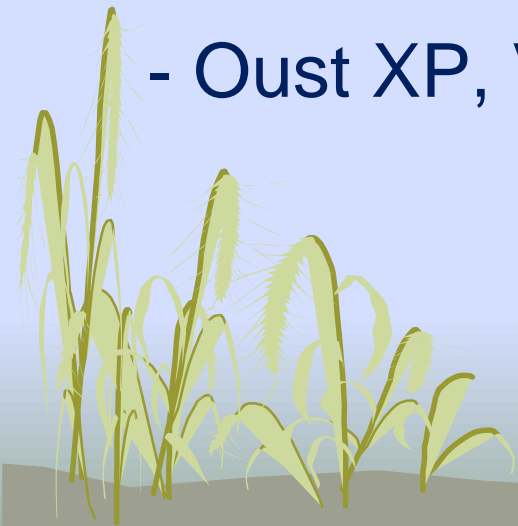
Chemical Weed control terminology

- Foliar herbicide

- controls weeds/brush through leaves
- Accord XRT II, Rodeo, Garlon 4 Ultra

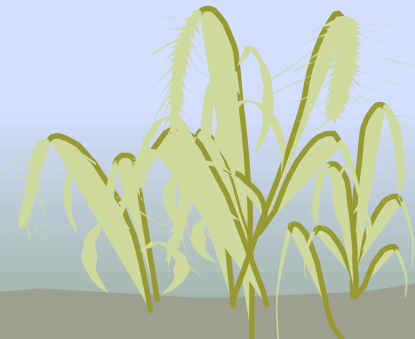
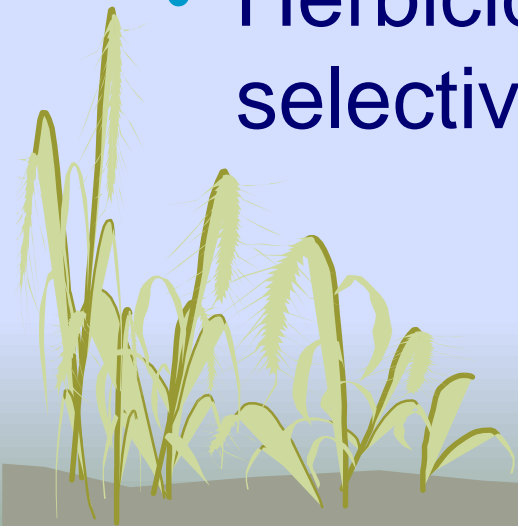
- Soil active herbicide

- taken up by the roots and kills germinating seeds
- Oust XP, Velpar, Atrazine, Westar



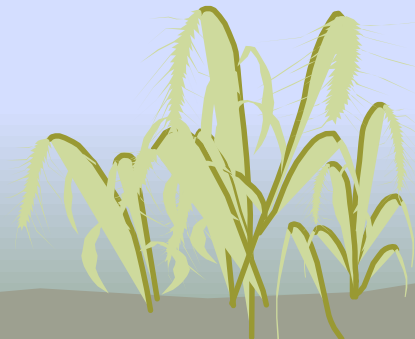
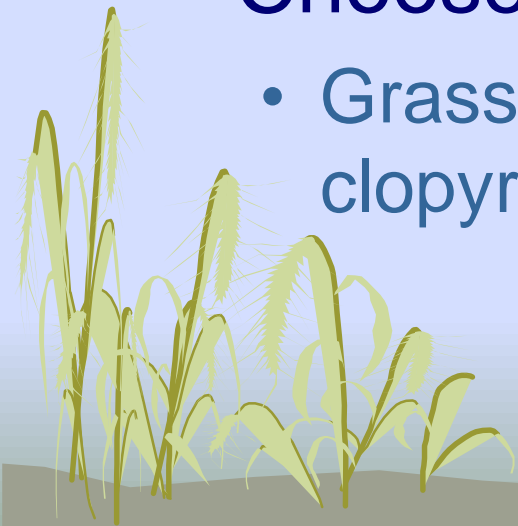
Herbicide selectivity

- Some herbicides control mostly grasses, others control mostly broadleaf weeds and brush.
- Herbicide physical characteristics are selective: foliar uptake or soil uptake
- Herbicide molecules can be very selective! Transline (clopyralid)



Herbicide selectivity

- Placement of the molecule
 - Soil active: clings to the top 1-3 inches of soil
- Apply only to the target weed or brush
 - Foliar, basal spray, hack and squirt
- Choose a selective herbicide
 - Grass selective, broadleaf selective, or clopyralid



Spraying types

- **Broadcast:** An even spray across a large area. Can be a strip sprayed or complete coverage.
- **Spot Spray:** An individual spray such as a circle or square around a tree. An individual brush plant.
- **Basal spray:** individual plant control by spraying the bark of brush species

Broadcast spray



WILBUR-ELLIS®



Broadcast spray



WILBUR-ELLIS®





WILBUR-ELLIS®

Broadcast spray





WILBUR-ELLIS®

Broadcast spray





WILBUR-ELLIS®

Waving wand broadcast



07/24/2009

Ideas to Grow With®

Spot Spray



Spot spray for herbaceous weeds

- Don't circle the tree with herbicide
- More herbicide at the center of the tree, less on the outside of the circle
= damage to tree!

Meter Jet Spot Spray



Meter Jet

- **Solid cone nozzle makes even 5 foot diameter circle over a tree: tree safety**
- **Dial milliliters per trigger squeeze. (12 ml)**
- **Call us and we'll calculate the amount of herbicide per gallon to mix for you!**
- **Accurate, safer for trees**

Meter Jet results



Percent foliar spray



Percent sprays

- Not with soil active products!
- Rodeo, Accord XRT II, Garlon 3A, Garlon 4 Ultra spraying
- Try to spray “lightly to wet”
 - No need to spray to dripping point
- Easy to do, but easy to over do it!



WILBUR-ELLIS®

Percent Foliar Spray



Percent sprays

- Glyphosate: Rodeo, Accord XRT II
 - Green and growing grasses, broadleaf weeds
 - Typical 1 to 2 % in water, add ¼% surfactant
- Garlon 3A for blackberries, Scotch broom
 - 2 to 3% in water + ¼% SylTac surfactant
- Garlon 4 Ultra
 - 1.5 – 2% in water + ¼% SylTac surfactant

Individual plant foliar spray

2% Imazapyr+ 1/2% Surfactant in water



Percent spray

Imazapyr results on Bigleaf Maple

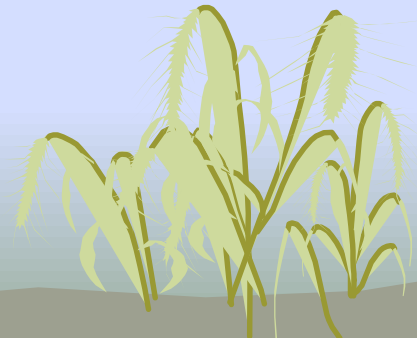
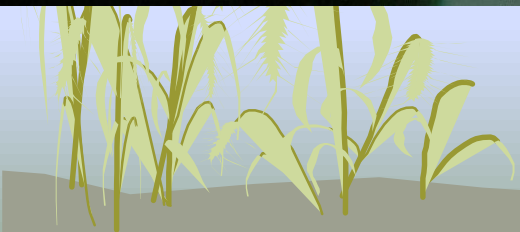


Cut Stump Treatments

Treat the specific plant



- Cut low and flat
- Treat immediately
- Garlon 3A 50:50
- Glyphosate 100% (Rodeo or Accord)



Basal Spraying

- Spray the bark of lower stems of small or resprouting brush with backpack sprayer
 - 25% Garlon 4 + 75% WEB Oil (no water)
 - Lightly spray lower 8-12 inches of stems
 - Spray all around all stems
 - Avoid treating during spring growth or freezing weather

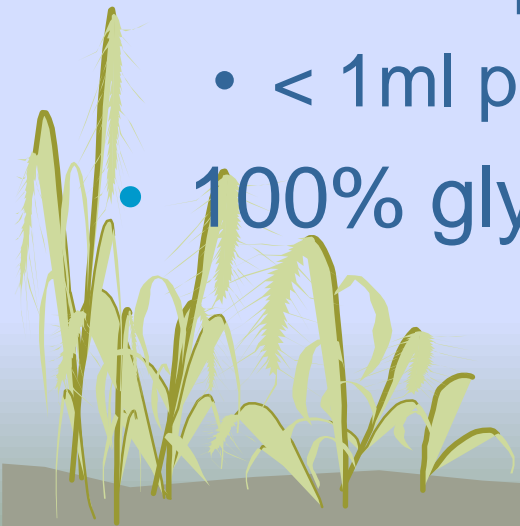






Hack and Squirt

- Controls standing trees
 - Thinning out hardwoods in conifer stands
 - Thinning conifers, leaving them standing dead
- 50:50 Arsenal AC + Water
 - 1 hack per 4-6 inches around a stem
 - < 1ml per hack
- 100% glyphosate for conifers



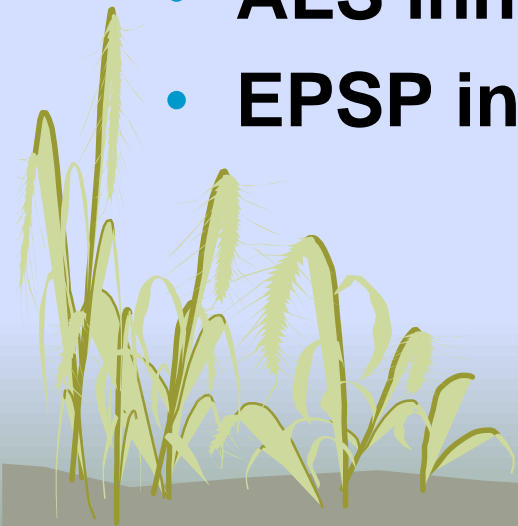






Site of Action: *where the magic happens*

- **Once translocated inside the plant, how does a herbicide control a plant?**
- **Growth Regulators (group 4)**
- **Photosynthesis inhibitors (group 5 & 6)**
- **ALS inhibitors (group 2)**
- **EPSP inhibitors (group 9)**



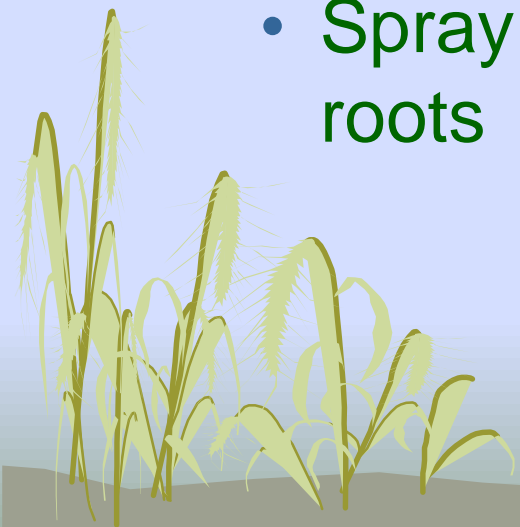
For best brush control

2,4-D, Garlon, Milestone, Capstone

- Spray when the food reserves are low and growth is rapid (Spring) Fall great too!

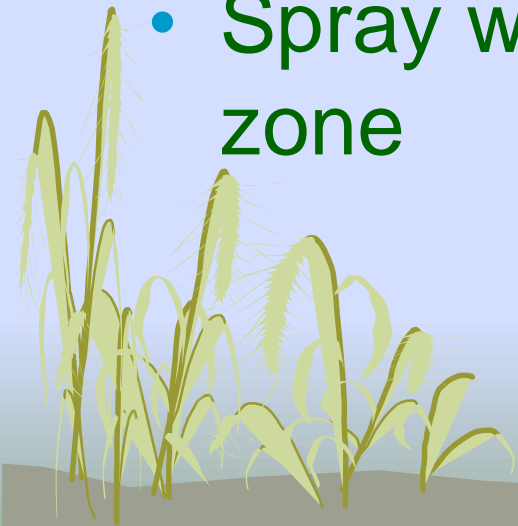
- Glyphosate, Arsenal AC, Escort XP, Polaris

- Spray when the food is moving down to the roots



SU Herbicides

- Oust XP, Telar XP, Oust Extra
 - Work at extremely low doses
 - Move primarily from the roots up in herbaceous weeds
- Spray when weeds are small
- Spray when moisture will move it to root zone



Cover the entire plant, all sides



Questions, comments?

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