

Managing creeping perennial weeds



THE UNIVERSITY
WISCONSIN
MADISON

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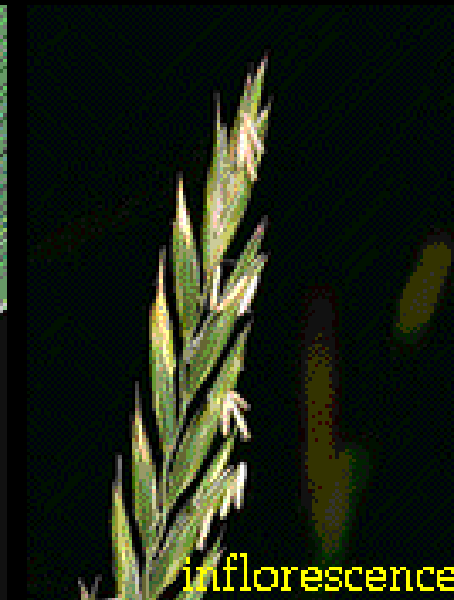
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Why are creeping perennial weeds difficult to control?

- Have stored energy available for:
 - Faster growth compared to crop
 - Earlier emergence
 - Tolerance to management methods
- Perennial structures can result in vegetative spread





Why you don't want to let perennials go unmanaged

- Canada thistle (creeping perennial)
- 1 root fragment planted in a soil box and let grow for a little over one year



Shoot and root growth next year

644 ft of roots and 336 ft of shoots



SIZE MATTERS

- Which would you rather manage?



Building Blocks for Perennial Weed Management

Scout Routinely

- Accurate weed id
- Early detection
- Timely treatment
- Follow-up scouting

**THIS WILL PREVENT PERENNIALS FROM
STORING ENERGY MAKING MANAGEMENT
MORE DIFFICULT**

Management options for perennials

- Many tools are available, often integrating tools works best
 - Tillage
 - Spreads creeping perennials
 - Mowing/grazing,
 - can suppress if timed correctly
 - Competition
 - Herbicides
 - Biological control
- Timing is the key

Field estimates of translocation

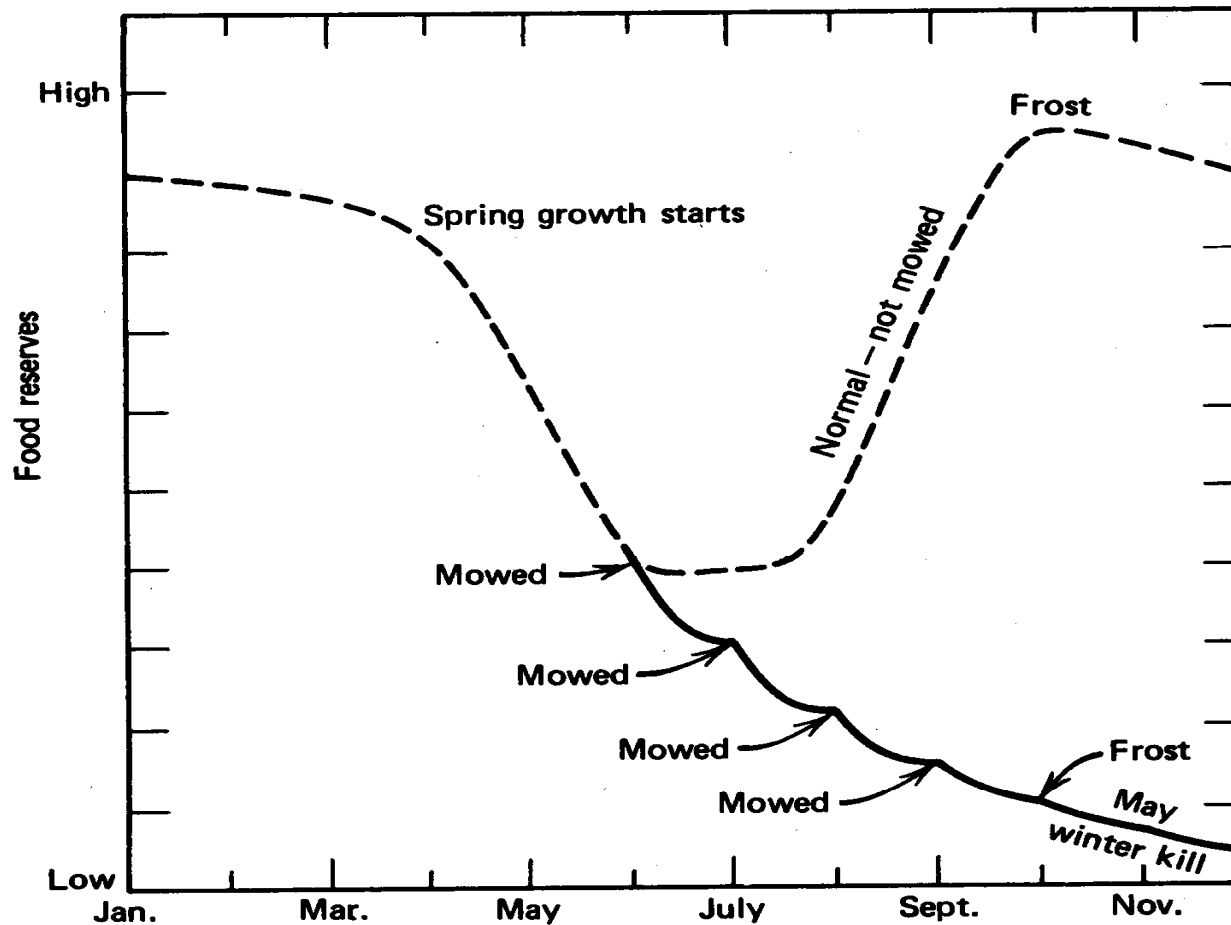
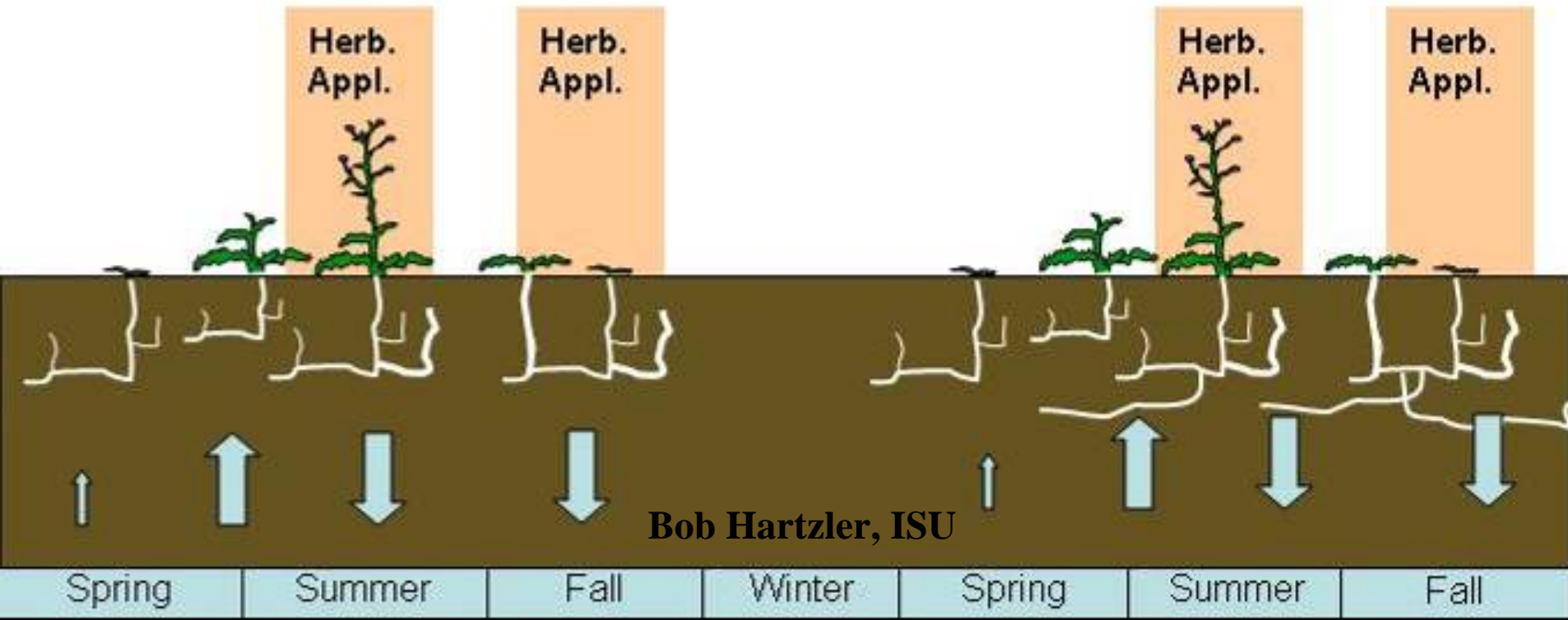


Figure 3-3. Food reserves of a perennial unmowed plant compared with reserves of a repeatedly mowed plant. From *Weed Science Principles and Practices*. Ashton & Monaco 1982

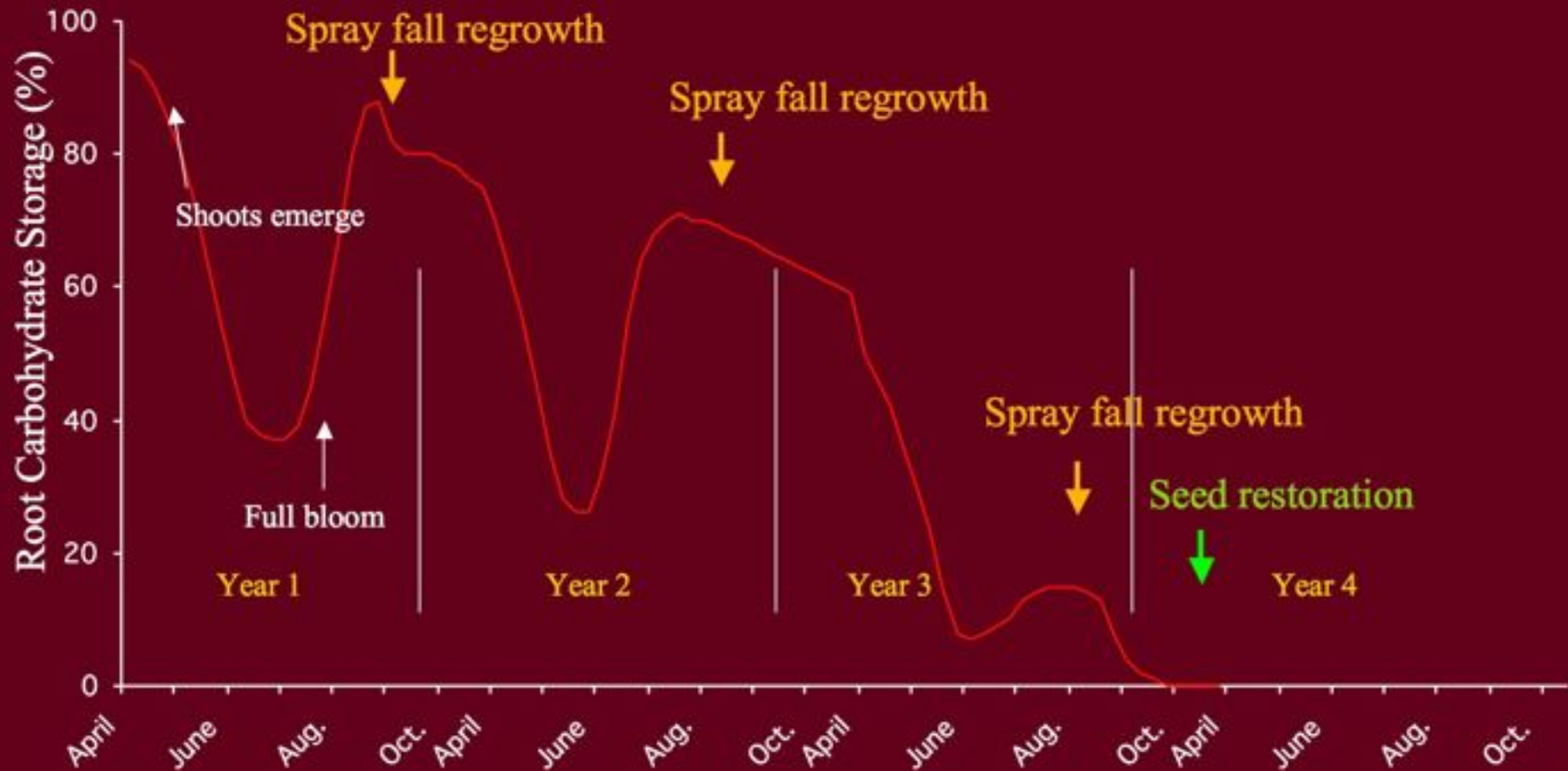
Herbicide applications

- Timing of application *is critical*
- One application will rarely eradicate a population,
- Use systemic herbicides: Flowerbud stage or fall regrowth



Canada Thistle Carbohydrate Flow

BMP 7 Pre-restoration Management





Male



Female

Canada thistle seed biology

Seed (achenes) characteristics

- 1 to 104 seed per head
- 50% of flowers bore seed
- 50% avg. germ., 10 to 70% range
- Seed germination varied
 - Some seed germinated in fall
 - Able to survive winter, bloom next season
 - Some germinate the next spring
 - These bloom the following year
- 80% of seed falls within 5 ft of mother plant
 - Seed moves direction of prevailing wind



Canada thistle root biology

- Perennial roots
 - Produced plants from 1/8” to 1/4” fragments
 - Shoots from 1/2” lengths and 1/8” dia. likely to survive winter
- Two types
 - Lateral roots
 - Buds can develop along entire length
 - Vertical descending roots
 - Buds can develop along entire length
 - (6 to 9 ft, 18 ft reported)
 - Few to no fibrous secondary roots

Control Options For Canada Thistle

- Mechanical
- Biological
- Cultural
- Chemical



Insects for Biological Control

Product	Quantity	Price
Canada Thistle Stem Gall Fly <i>Urophora cardui</i>	105	\$100.00
Canada Thistle Stem Mining Weevil <i>Ceutorhynchus litura</i>	105	\$150.00
Thistle Defoliating Beetle <i>Cassida rubiginosa</i>	105	\$90.00

1. Several native *Cirsium* spp. may also be injured by these agents
2. Suppression has been minimal in controlled studies

Bacteria for biocontrol?
Pseudomonas syringae



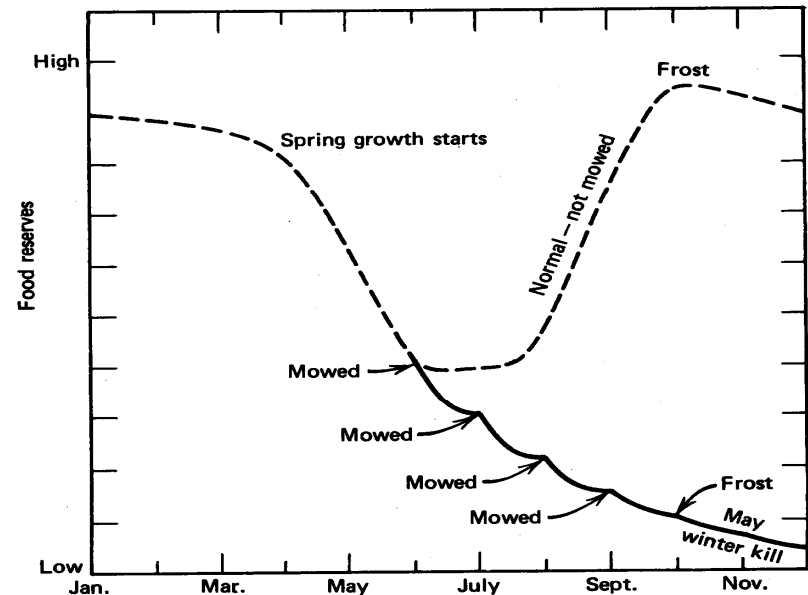
Check (top left)
plus 4 degrees
of control

Jurg Hiltbrunner

Grazing options

CANADA THISTLE

- Specific to the animal species and method it was raised
- Extremely low palatability to many animals
- Best results have been grazing plants early just after emergence
 - Reduces growth
 - Promotes grass growth



Mechanical removal/mowing

- 3-4 cuttings per year for 3 yrs eliminated stands
- Integrating 2 cuttings per year for 3 years along with competitive perennial grasses controlled >90%
- Some studies have indicated just a lack of expansion of populations from repeated cuttings



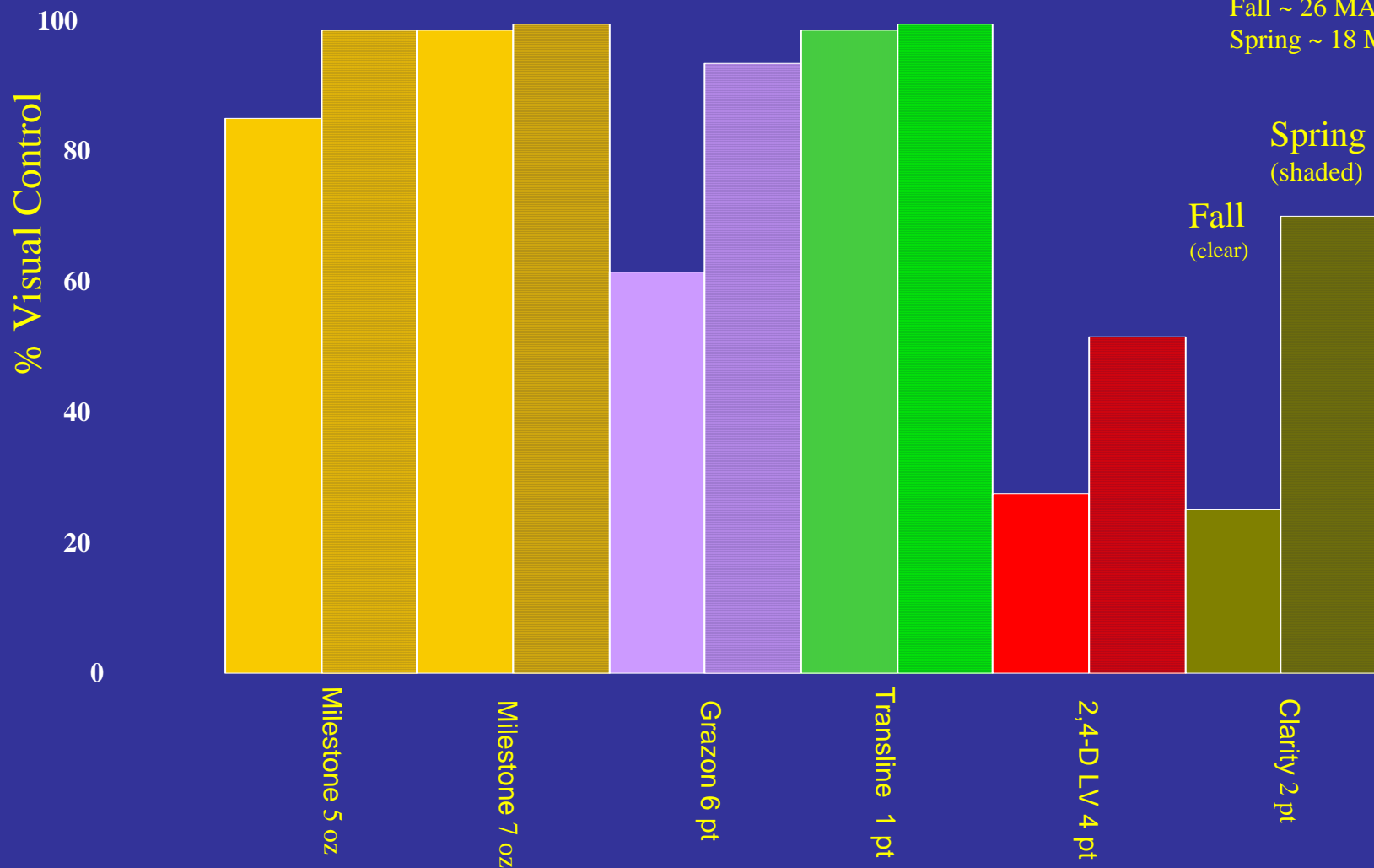
Herbicide	Cost	Selectivity	Soil activity	control
Banvel/Clarity	\$\$	Many broadleafs	Several weeks	Fair
2,4-D	\$	Many broadleafs	Week(s)	Fair
Forefront	\$\$	Many broadleafs	Several months – year(s)	Good-Excellent
glyphosate	\$-\$\$	Not selective	None	Good-Excellent
Milestone	\$\$	Some broadleafs	Several months – year(s)	Excellent
Stinger/ Transline	\$\$\$	Some broadleafs	Several months – year(s)	Good-Excellent

Canada Thistle Management DEMO Trial

Spring vs. Fall, Waseca MN 2004 - 2006

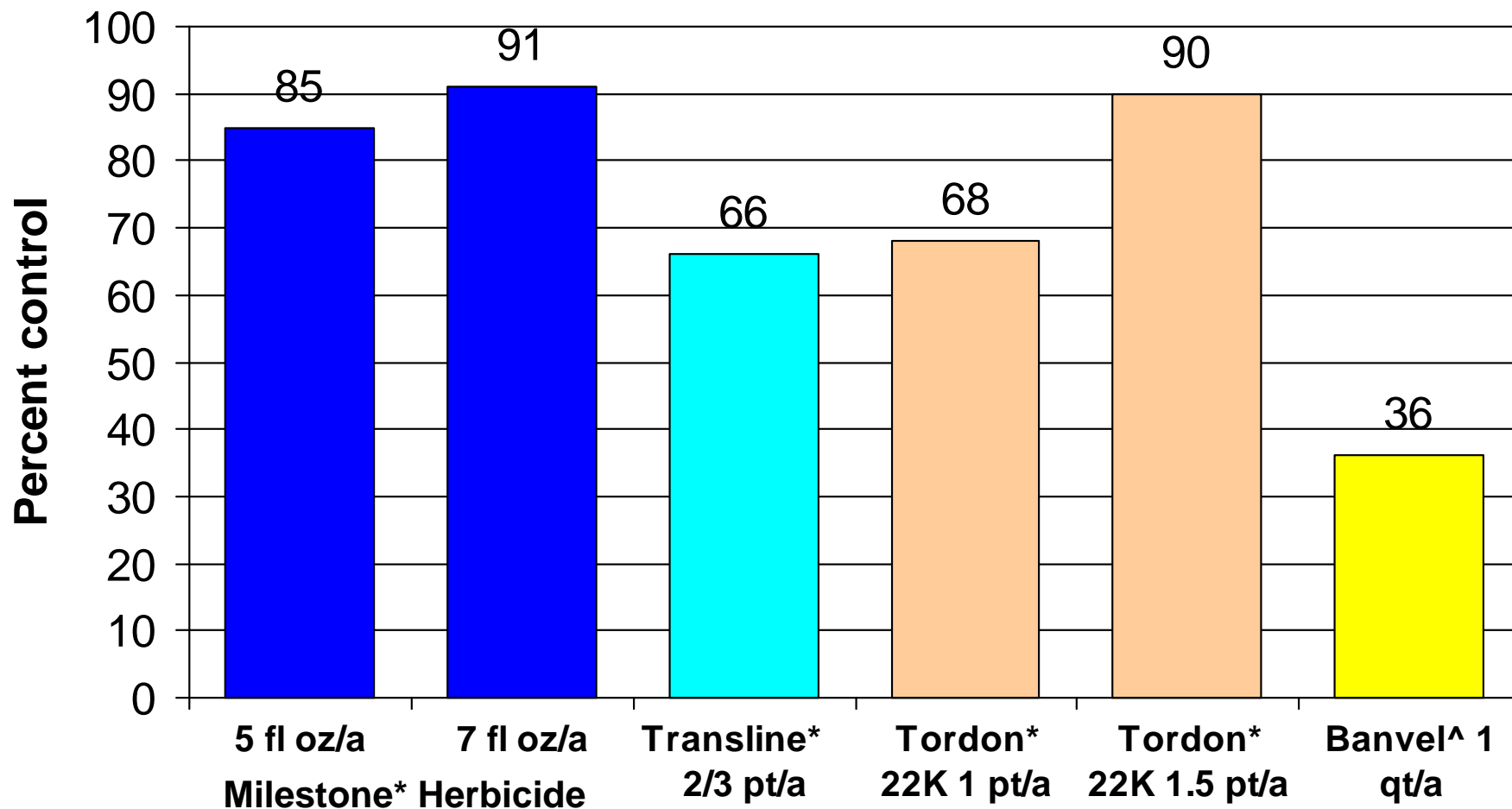
Rated June 6, 2006

Fall ~ 26 MAT
Spring ~ 18 MAT





Control of Canada Thistle with Milestone (Aminopyralid) Pre-bud Applications Evaluated 1 Year After Treatment



Average of 36 trials (CO, MN, MT, ND, SD, NE, OR, VA, SD, OR, WA, and WY)

Resistant plant communities

Results from MN studies

- Establishment of native and CT varied dramatically due to environmental conditions
- Plantings with diverse functional groups helped!
 - Warm season grass only plots were worst
 - Best was mix of warm and cool season grasses
- Early detection of CT plants established was best BMP



Summary

- Prevention and early detection/ rapid response are best tools for managing Creeping perennials like Canada thistle
- Many management tools available, but consider injury to desirable plants before implementing
- Plan to manage for several years to gain control