MANAGING VEGETATION ON ROADSIDES/TRAILS

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INVASIVE PLANT MANAGEMENT ON ROADSIDES

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INVASIVE PLANTS ASSOCIATION OF WISCONSIN

DEVELOP A PLAN TO MAXIMIZE LONG-TERM CONTROL

Keys to developing a successful management plan

1. Determine which species to manage
2. Map locations
3. Prioritize management and conduct control
4. Manage populations near roads/trails

Conduct for multiple years (3-4 minimum)

WHAT IS AN INVASIVE SPECIES?

Two main points

1. **Not native to the area**

2. **Capable of causing harm**
   - *Environmental*
   - *Economic*
   - *Harm to human health*

EXAMPLES OF IMPACTS ON ROADS/TRAILS

- **Harm to human health**
- **Impact infrastructure**
- **Prevent establishment of desired vegetation**
  - Pollinators
  - If not established erosion increased
- **Source for spread**

ROADS AND TRAILS ARE HIGHLY SUSCEPTIBLE TO INVASION

- Frequently disturbed
- Propagules spread along roads
- Intersect many properties

FEW TOOLS AVAILABLE FOR LARGESCALE USE

MOWING

HERBICIDE

REMOVAL

PREVENTION IS THE BEST MANAGEMENT TOOL

- Don’t mow when seeds are present on the plant
  - If mow clean equipment
- When construction, try to make sure inputs are weed-free
- Inspect new constructions next year
  - manage new infestations found

MOWING

- How it works: prevents seed production
- When to mow: species specific
  - Correct timing reduces the # mowing
- Costs to mow
  - $70-150/lane mile (1.2 acres)
- Considerations
  - mowing time is 2-4 week timeframe

HOW DOES MOWING CONTROL BIENNIALS/SHORT-LIVED PERENNIALS?

HOW DOES IT WORK?

Timely mowing does two things

1. Prevents the initial growth from producing viable seeds
2. Is done late enough in the season or multiple times to prevent resprouting plants from producing viable seeds

WHAT HAPPENS TO THE PLANTS

- Biennials/monocarpic perennials die after they flower
  - Teasel, Wild Parsnip
- Perennials will persist for multiple years after flowering
  - Wild chervil
  - Spotted knapweed

To work need to repeat until plant dies and prevent seed production

HOW LONG

PREVENT SEED PRODUCTION

Species specific

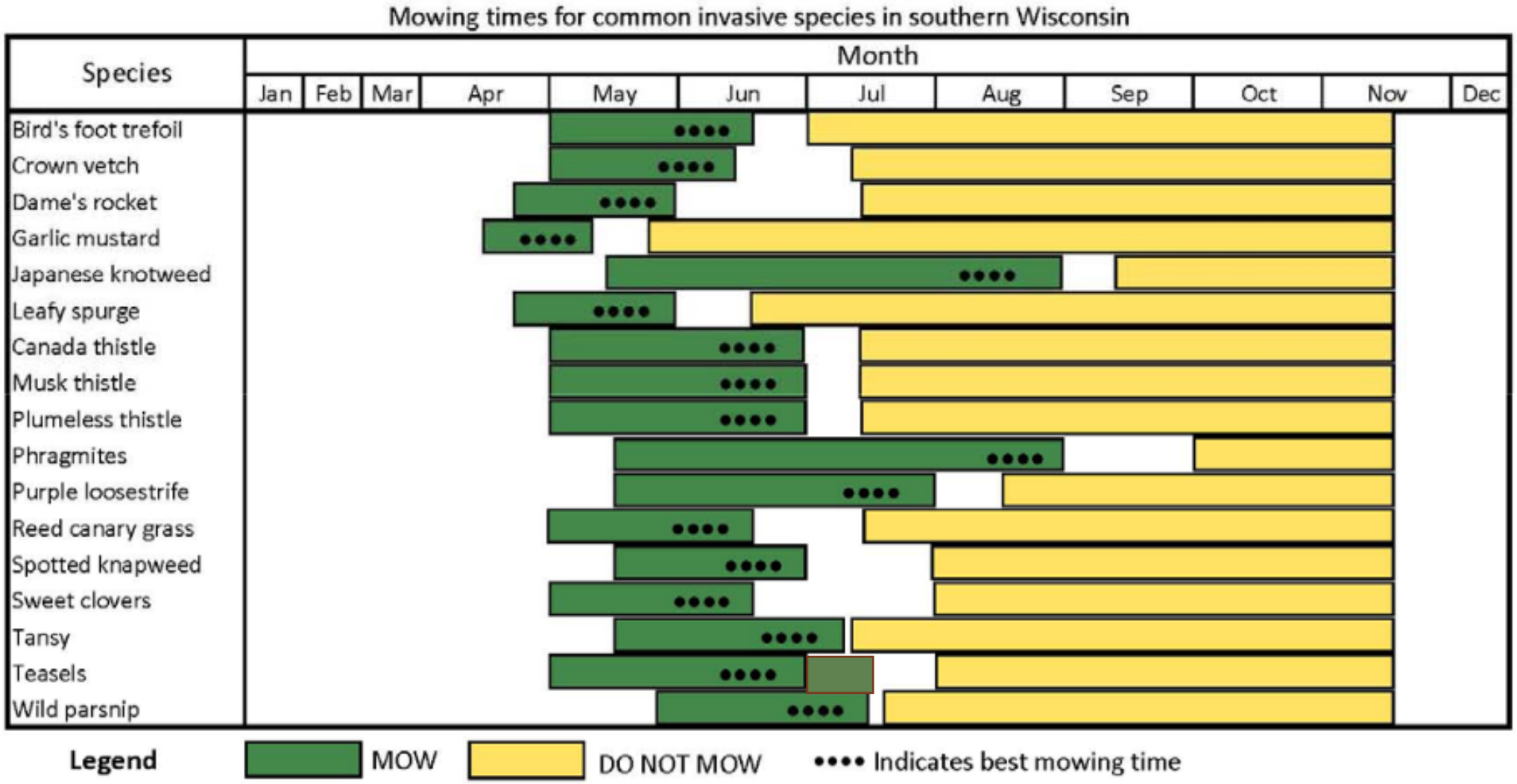
- Wild Parsnip: 2-4 years
- Teasel: < 6 years, most in first 2 years
- Wild Chervil: 1-3 years (?)
- Spotted knapweed: 5-7 years

KILL ADULT PLANT

Species specific

- Wild Parsnip: once it flowers
- Teasel: once it flowers
- Wild Chervil: 2-3 years (?)
- Spotted knapweed: 5-7 years (?)

GRAPHIC OF MOWING TIMINGS



SPECIFIC INFORMATION ON FACSTHEETS

WILD PARSNIP

When secondary seedheads flower

Late June – Early July

TEASEL

Just prior to petal emergence

Early July

WILD CHERVIL

Unknown, sometime between flowering and green fruit

Late May – Early June

WHAT HAPPENS IF YOU MOW EARLY?

MOWED 6/14
PICTURE TAKEN 6/25

- Plants readily resprout and flower
- Mowing as late as possible to reduce resprouting
  - Some species if timed correctly only need 1 mowing per year (wild parsnip) others may need multiple mowings

WHAT HAPPENS IF YOU MOW LATE?

- Spread seed to along roadside
  - Teasel dispersal on roadsides
    - Most seed 10-30 ft but some > 50 ft
    - In Illinois, population spread 800% if mowed within two years
- Illegal with regulated species

I HAVE BEEN MOWING ON-TIME BUT POPULATIONS PERSIST WHY?

- Eliminate seed production from area mowed for 3-4 years

- Ensure seed from nearby infestations doesn't land in area

HERBICIDE (BROADCAST)

- How it works: kills plants
  - Prevents seed production for 1-2 yrs
- When to spray: species specific, flexibile
- Costs to spray= $12-65/A*
  - $2-35/A = + application costs ($10-30/A)
- Considerations
  - Follow label restrictions, off-target injury

* 1 acre = 1.2 miles road (10 ft swath)

HERBICIDE (INDIVIDUAL PLANT TREATMENT)

- How it works: kills plants
  - Prevents seed production for 1 year
- When to spray: species specific, flexibility
- Costs to spray= depends on weed density
  - Demonstrations ranged between $13-87/A*
- Considerations
  - Can avoid damage to desirable plants, minimize off-target injury, and sensitive areas

* 1 acre = 1.2 miles road (10 ft swath)

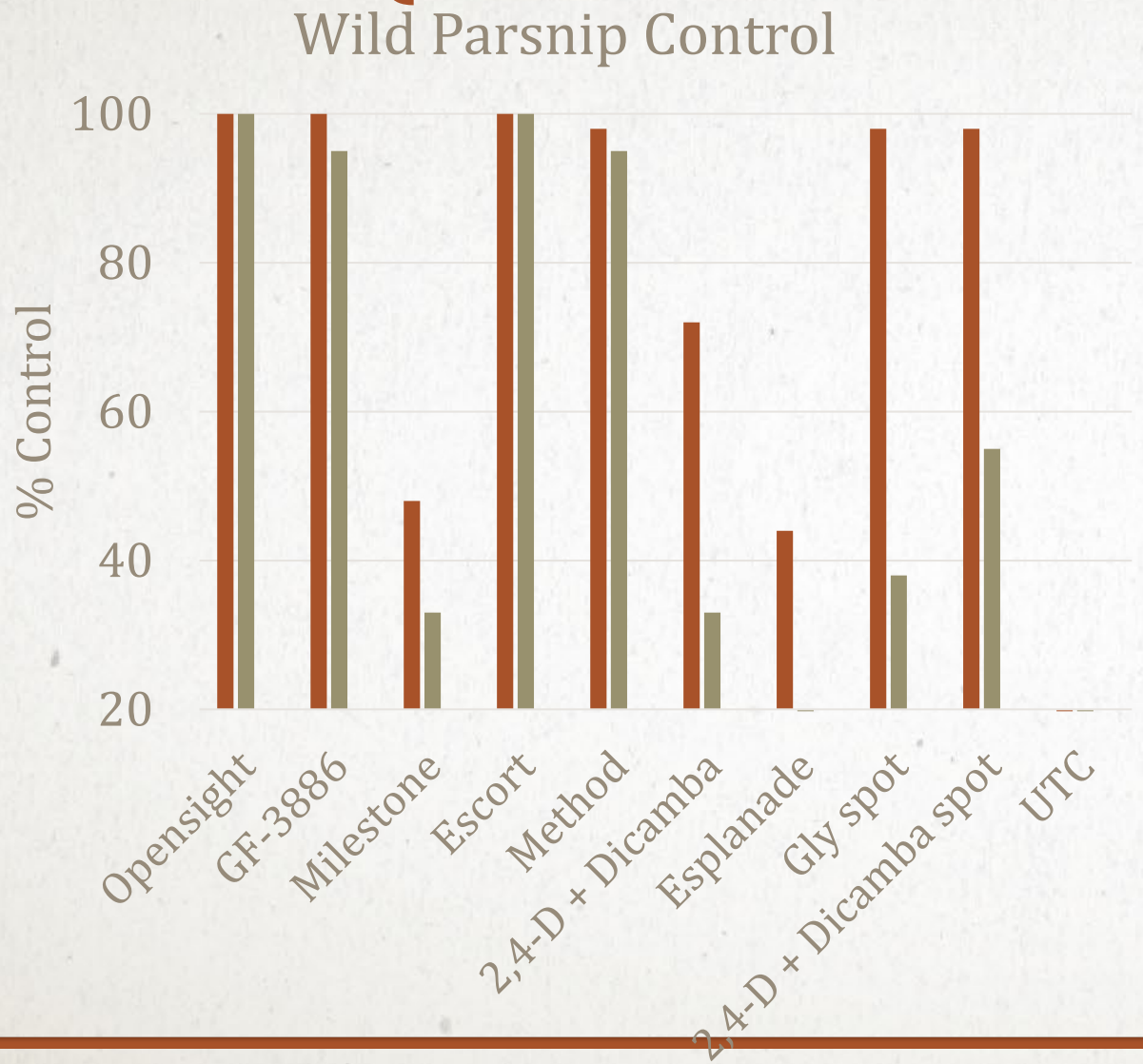
HERBICIDES

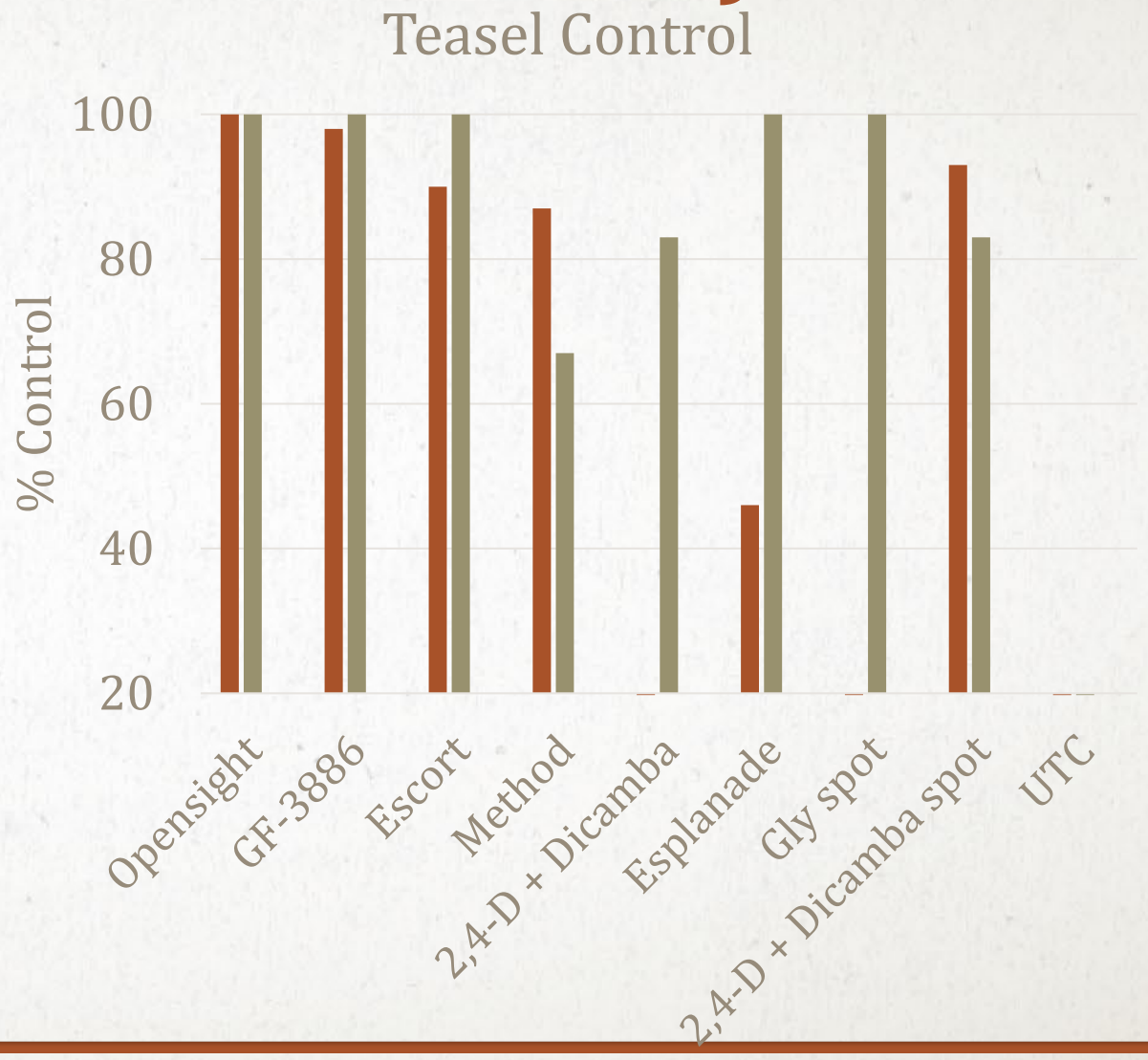
Herbicide	Active ingredient
Opensight	Metsulfuron + aminopyralid
Escort	Metsulfuron
Milestone	Aminopyralid
Method	Aminocyclopyrachlor
Esplanade	Indazaflam
2,4-D	2,4-D
Banvel	dicamba
Roundup Pro	Glyphosate
Plateau (PGR)	imazapic

HERBICIDES

Herbicide	Active ingredient	Selectivity	Soil Residual
Opensight	Metsulfuron + aminopyralid	Safe to established grasses	months – a year
Escort	Metsulfuron	Safe to established grasses	Months
Milestone	Aminopyralid	Safe to established grasses	Up to 1 year
Method	Aminocyclopyrachlor	Safe to established grasses	Can be > 1 year
Esplanade	Indazaflam	Safe to **some** established grasses	Up to 1 year
2,4-D	2,4-D	Safe to established grasses	Days
Banvel	dicamba	Safe to established grasses	Weeks
Roundup Pro	Glyphosate	Non selective	None
Plateau (PGR)	imazapic	Safe to **some** grasses	months

RESULTS 1.5- 2 MONTHS AFTER TREATMENT (SMALLSCALE DEMONSTRATIONS)





BROADCAST APPLICATIONS IN SPRING CAN PREVENT SEED PRODUCTION FOR 2 YEARS FOR WILD PARSNIP

HOW DO I DETERMINE WHICH HERBICIDE TO USE AND WHEN?

- What to use
  - What stage to apply
  - What rate and method of application
  - Any restrictions
  - costs
- Concerns to be aware of
  - Applications near water
  - Weather conditions
  - Potential for drift/persistence
- Look at resources
  - Factsheets
  - labels
- Ask for help from experts
  - Can give critical info on

HERBICIDE LABELS: CRITICAL THAT YOU READ!

OPENSIGHT

Environmental Hazards

Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwater or rinsate.

ESCORT

ENVIRONMENTAL HAZARDS

Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment washwaters or rinsate. This herbicide is injurious to plants at extremely low concentrations. Nontarget plants may be adversely effected from drift and run-off.

PLATEAU

ENVIRONMENTAL HAZARDS

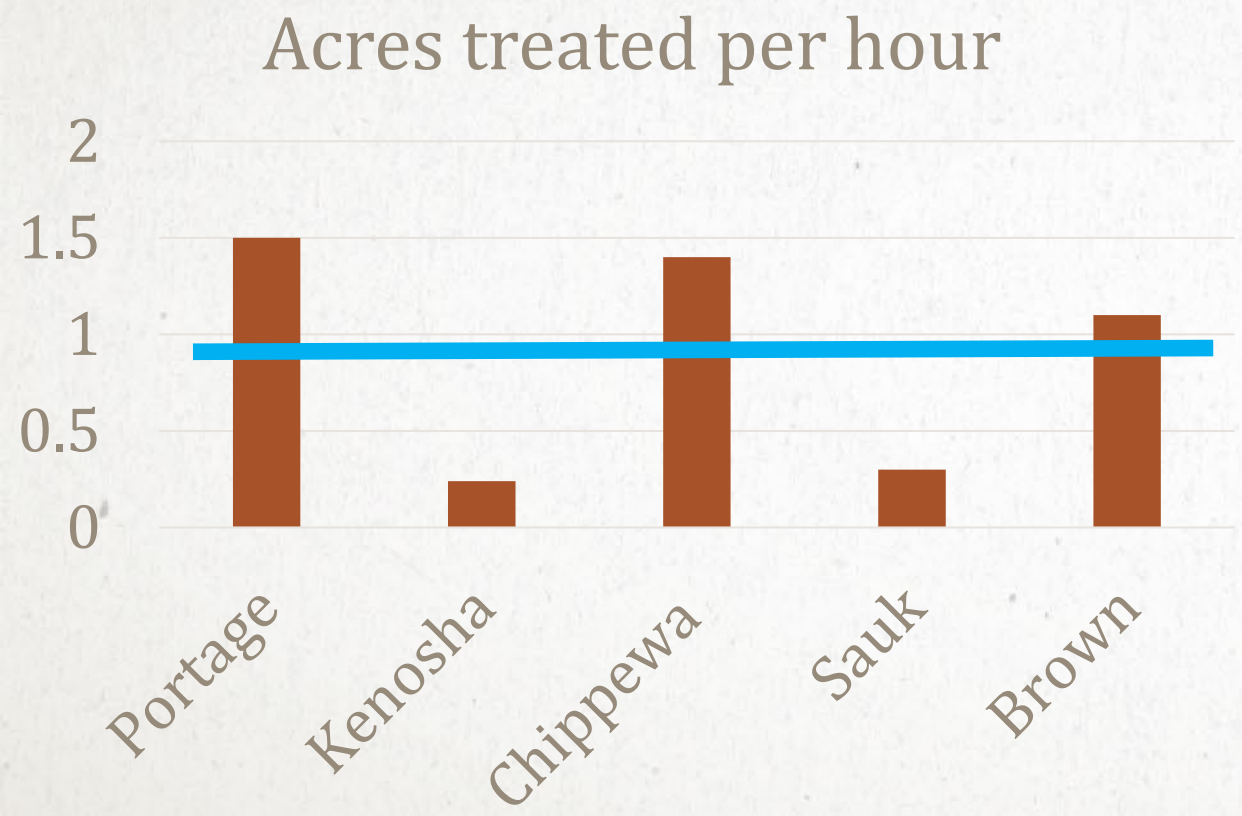
For terrestrial use only. **DO NOT** apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark.

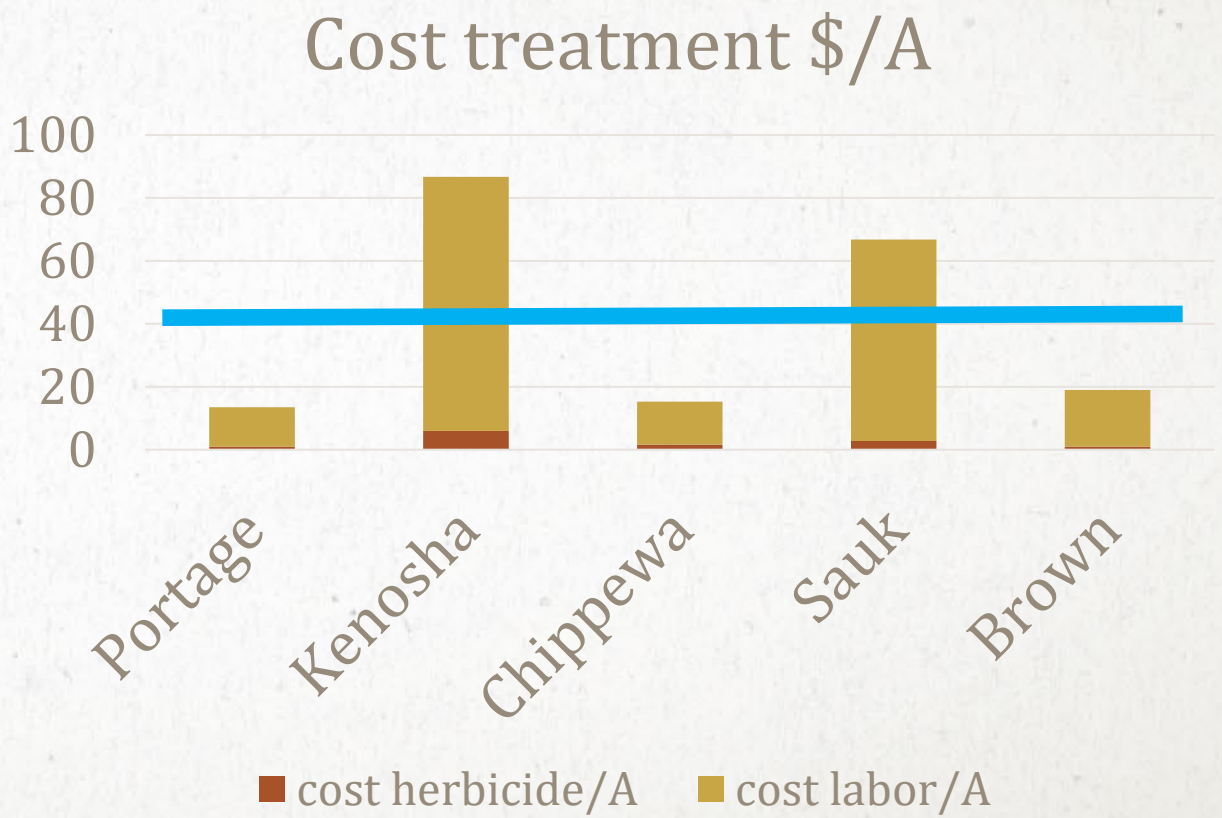
DO NOT contaminate water when disposing of equipment wash-waters or rinsate.

WHAT ABOUT SPOT TREATMENT VS BROADCAST?

- Both are effective
- Selectivity is greater with spot trt
- Herbicide use
  - Consistent with broadcast
  - Varies depending on plant density
- Application costs
  - Consistent with broadcast
  - Varies depending on plant density

COSTS FOR SPOT TREATMENT LARGESCALE DEMONSTRATIONS





REMOVAL (SEVERING ROOT)

- How it works: kills annual, biennial & some simple perennials
  - Prevents seed production (1 year)
- When: anytime before flowering
- Costs= depends on weed density
  - Demonstrations were $122/A*
- Considerations
  - Can you get volunteers to do?

* 1 acre = 1.2 miles road (10 ft swath)

IN REALITY YOU WILL NEED AN INTEGRATED APPROACH TO MANAGEMENT…..

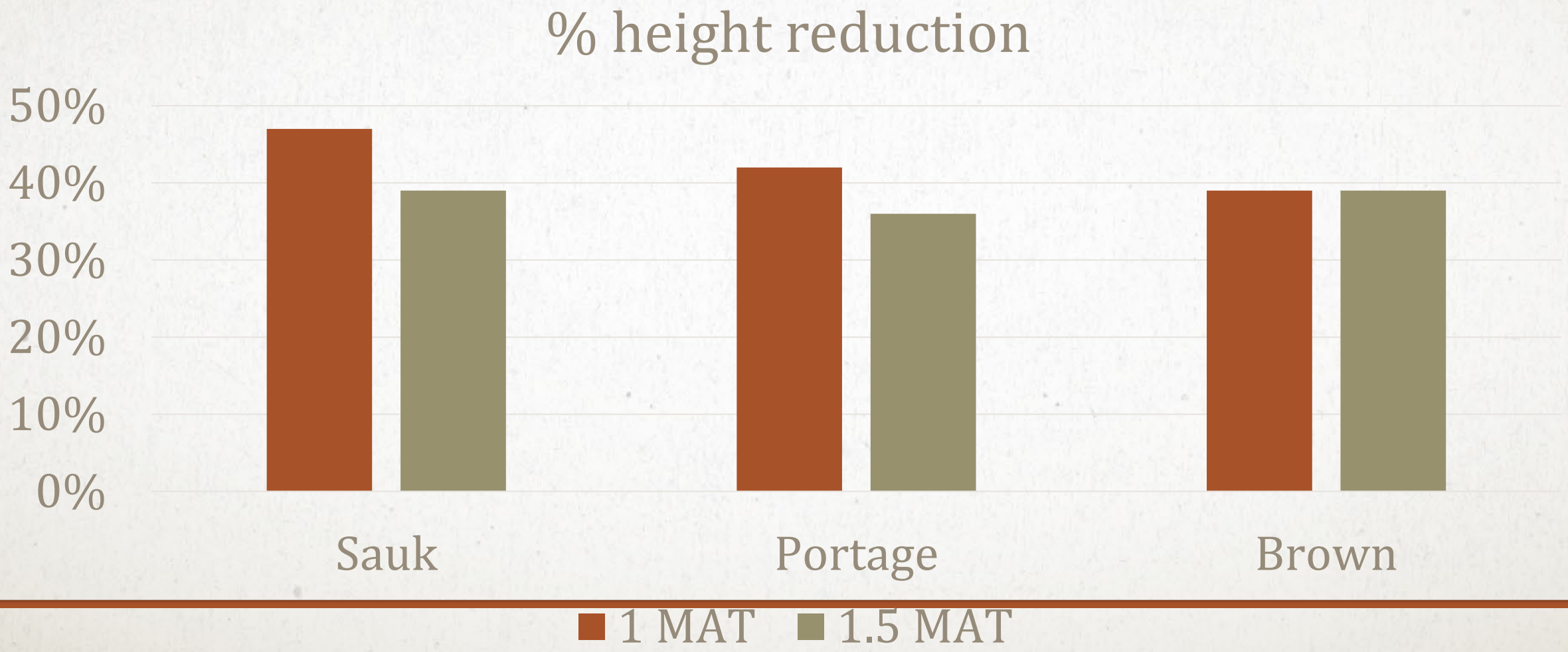
ALL COST MORE MONEY

USING PGRS CAN REDUCE MOWING COSTS

- Use plant growth regulating herbicides to **reduce** grass growth $20-40/A
  - Plateau (4 fl oz/A), Escort (0.75 oz/A) = $10/A
  - Application cost = $10-20/A
- Will reduce # of mowing in a season
  - Don't need to mow until July/August
- Also have activity on some invasive plants
  - Wild parsnip, wild chervil

RESULTS OVER 3 LOCATIONS

APPLIED MIDDLE TO LATE MAY



PLANT GROWTH REGULATOR TREATMENT

BENEFITS

- Can reduce the miles you mow in a year
  - Likely save you $$$$
- Can provide some invasive plant suppression
  - Species specific

CONSEQUENCES

- More pesticide used on roads
  - Negative public perception
- Need to purchase equipment or hire to get accomplished
  - $$$
- Not all locations approved for use
- Long-term repeated application impacts unknown

DEVELOP A PLAN TO MAXIMIZE LONG-TERM CONTROL

Keys to developing a successful management plan

1. Determine which species to manage
2. Map locations
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Conduct for multiple years (3-4 minimum)

SUMMARY

- Tools exist to manage invasive species highlighted
  - Methods and timings are **species specific**
  - All methods have positive and negative aspects
- Develop a plan for management to overcome obstacles
  - Knowledge
  - Resources (time/money/equipment)
  - Public acceptance (herbicides)
- It will take a coordinated approach

RESOURCES TO ASSIST IN CONTROL

University of Wisconsin Extension

- https://renzweedscience.cals.wisc.edu/
  - 49 invasive plant identification factsheets
  - Research summaries
- https://fyi.extension.wisc.edu/wifdn/
  - WISTIP viewer (invasive plant maps)
  - Phenology calendar
  - Other educational resources

MANAGEMENT OF

INVASIVE PLANTS IN WISCONSIN

Brandon Panke and Mark Renz

Invasive plants can thrive and aggressively spread beyond their natural range, disrupting ecosystems. The *Management of Invasive Plants in Wisconsin* series explains how to identify invasive plants and provides common management options. Management methods recommend specific timings for treatment, as well as expected effectiveness. For more information, go to: fyi.uwex.edu/weedsci/category/invasive-plants-of-wisconsin.

A3924-11

Japanese knotweed

(Polygonum cuspidatum)

Japanese knotweed is an herbaceous perennial, growing up to 10' tall. Hollow, reddish, arching, bamboo-like stems are smooth and stout, and they can persist after plant dies back each year. The base of the stem above each joint is swollen and surrounded by a membranous sheath (ocrea).

Legal classification in Wisconsin: Restricted

Leaves: Alternate, egg-shaped to almost triangular, 4–6" long, 3–4" wide. Dark green on upper surface and pale green on lower surface.

Flowers: Blooms in late summer. Flowers are numerous, highly branched, tiny, creamy white or greenish and found where the leaf attaches to the stem (axils), near the tips of stems.

Fruits and seeds: Small, winged, triangular fruits carry very small, shiny seeds.

Roots: Plants arising from seed have a taproot up to 6' deep. Stout rhizomes can reach 65' or more from parent plants and give rise to new stalks. Plants arising from seed and rhizome also have fibrous roots.

Similar species: Giant knotweed (*P. sachalinense*) is also invasive, but grows up to 13' tall with larger leaves. The two species are known to hybridize.

Biological threat:

- Invades upland and lowland sites that are disturbed and undisturbed.
- Poses a significant threat to riparian areas, where it can rapidly spread.
- It tolerates shade, high temperatures, high salinity, and drought.
- It can be transported to new sites as a contaminant in fill dirt or on equipment. During floods, it spreads downstream by shoot fragments, rhizomes, or occasionally by seeds. Escapees from neglected gardens and discarded cuttings are common routes of dispersal from urban areas.
- Although reported to not produce viable seed, several studies have shown that populations of knotweed in the United States can produce viable seed that readily germinate and survive in field conditions.

UW Extension Cooperative Extension

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