APPLYING HERBICIDES ON TOWN ROADS:

How to safely apply to control invasive plants while not increasing costs

WISCONSIN
UNIVERSITY OF WISCONSIN-MADISON

Dr. Mark Renz
Professor and Extension specialist
University of Wisconsin Madison

https://renzweedscience.cals.wisc.edu/

OUTLINE OF THIS PRESENTATION

- Overview the problem with invasive plants
- Discuss management options for invasive plants
  - Overview tools with benefits and risks for each
- Opportunities to overcome obstacles by using PGR applications
- Resources available to help

GOAL: empower you to improve invasive plant management on YOUR ROADS

WHAT IS AN INVASIVE SPECIES?

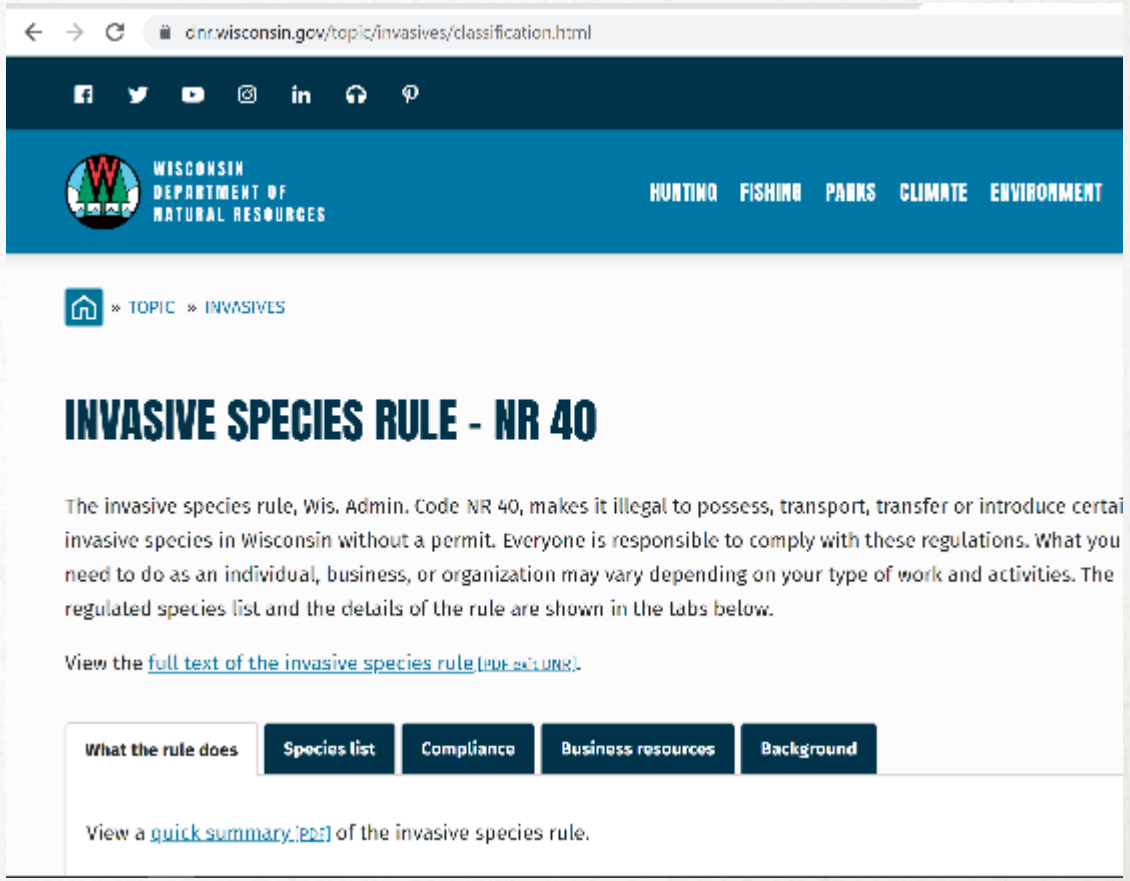
Two main points

1. **Not native to the area**

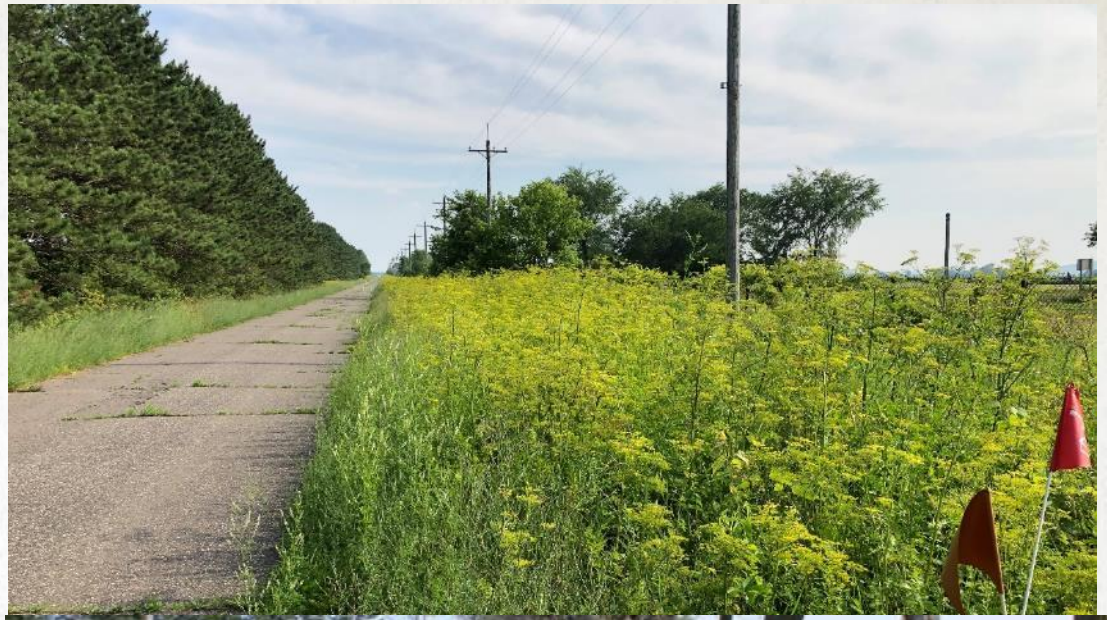
2. **Capable of causing harm**
   - *Environmental*
   - *Economic*
   - *Harm to human health*

LAWS REGULATE INVASIVE PLANTS IN WISCONSIN

- NR40
  - >100 plants; prohibited/restricted
- Noxious weed law
  - Leafy spurge, field bindweed, Canada thistle
- Nuisance weed law
  - Purple loosestrife, multiflora rose
- Local ordinance



FEW ROADSIDES ARE MANAGED TO PREVENT INVASIVE PLANT ESTABLISHMENT IN WISCONSIN



IMPACTS OF INVASIVE PLANTS ON ROADS

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

WHY AREN'T INVASIVE PLANTS BEING MANAGED ON ROADSIDES?

Constraints that limit management

1. Knowledge
   - identification/ management
2. Equipment/capacity
3. Funding to implement

Wild parsnip (*Pastinaca sativa*)

FEW TOOLS USED FOR VEGETATION MANAGEMENT ON ROADS

MOWING

HERBICIDE

REMOVAL

MOWING

- Prevents seed production, reduces invasive cover
- Costs to mow
  - $70-150/lane mile or acre*
- Window to mow can be 2-4 weeks
  - Can eradicate **some species** if repeated for 3-4 years
- Need to control populations nearby

*Costs from WI Department of Transportation

HAND REMOVAL

- Removes plants and prevents seed production
  - Best for small populations
- Cost depends on weed density
  - up to $122/A*
- Considerations
  - Can you get volunteers?

*Costs calculated from WI roadside demonstrations

HERBICIDES

HERBICIDE

INDIVIDUAL PLANT TREATMENTS

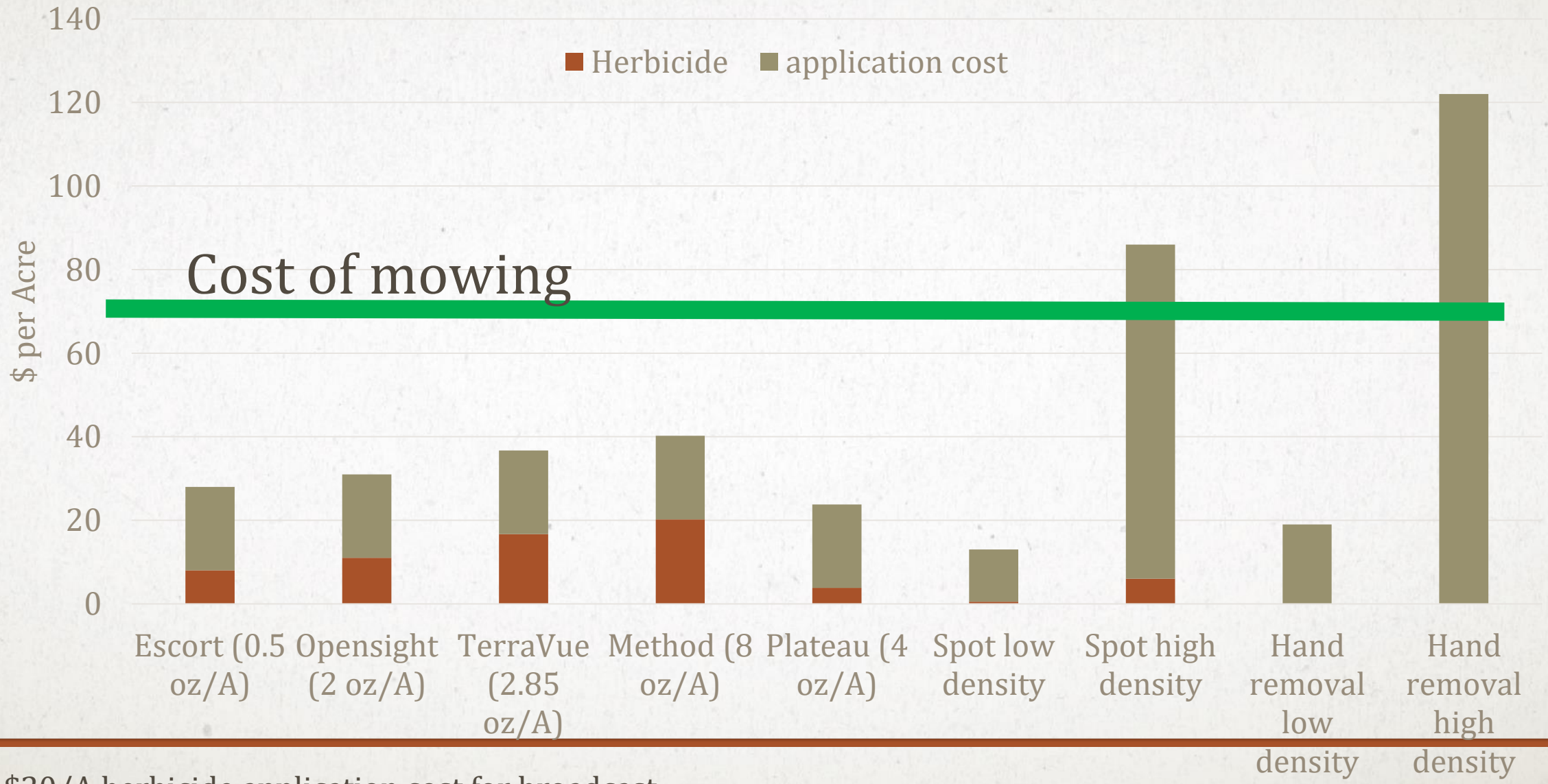
- Best for new populations
  - Kill targeted plant but can miss seedlings/rosettes
- Costs to spray = density dependent
  - $13-87/A *
- Considerations
  - avoids damage to desirable plants, minimizes off-target injury

BROADCASTED TREATMENTS

- Best when populations are widespread
  - Most safe to established grasses
- Costs to spray= $15-75/A
  - Depends on herbicide and if you spray or hire someone
- Considerations
  - off-target injury potential can be high
    - Soybeans, tomatoes, organic growers

*Costs calculated from WI roadside demonstrations

COST OF INVASIVE PLANT TREATMENT METHODS



Assumes $20/A herbicide application cost for broadcast

ENVIRONMENTAL RESTRICTIONS OF HERBICIDES

Herbicide	Active ingredients	Labeled use patterns	Restrictions related to water	Comments
Plateau	Imazapic	Noncrop (roadside) Natural areas	Do not apply directly to water or surface water	Can injure plants via physical drift and run-off
Escort	Metsulfuron	Noncrop (roadside) Natural areas	Do not apply directly to water, or surface water	Can injure plants via physical drift and run-off
Opensight	Metsulfuron + Aminopyralid	Noncrop (roadside) Natural areas	Do not apply directly to water, or surface water	Can injure plants via physical drift and run-off
TerraVue	Florpyrauxifen + Aminopyralid	Noncrop (roadside) Natural areas	Do not apply directly to water, minimize incidental spray to surface water	Can injure plants via physical drift and run-off

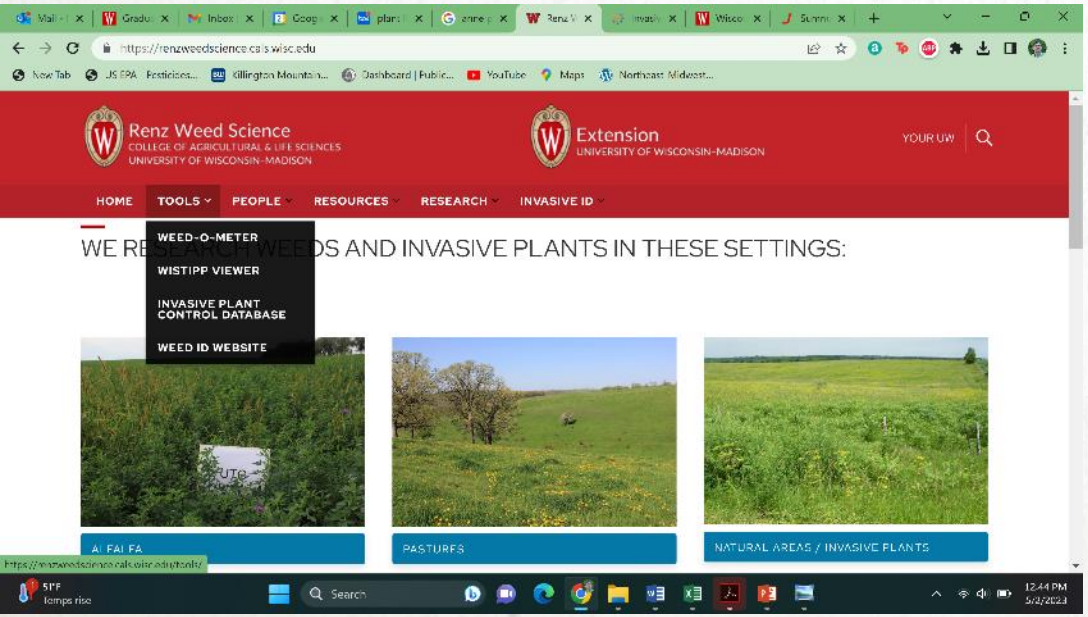
HERBICIDE ATTRIBUTES

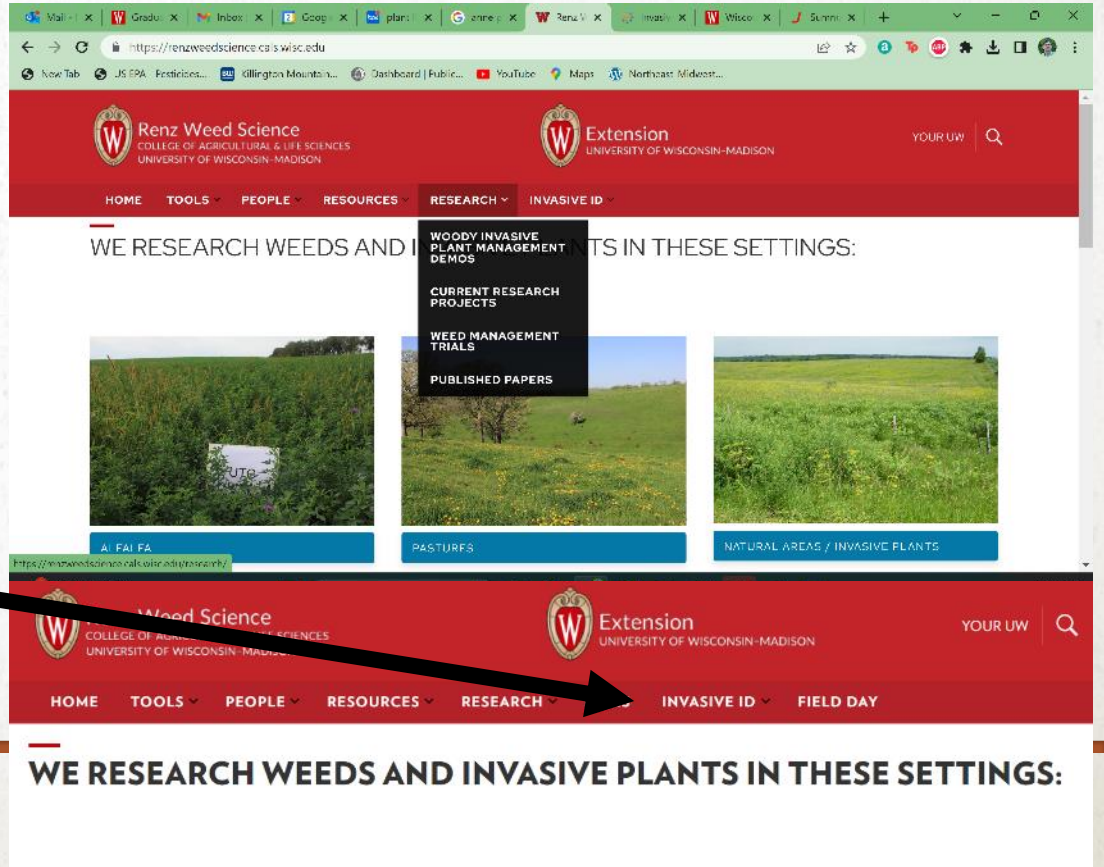
Herbicide	Active ingredient	Selectivity	Soil Residual
Opensight	Metsulfuron + aminopyralid	Safe to established grasses	months – a year
Escort	Metsulfuron	Safe to established grasses	Months
Milestone	Aminopyralid	Safe to established grasses	Up to 1 year
Method	Aminocyclopyrachlor	Safe to established grasses	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

HOW DO I DETERMINE WHICH HERBICIDE TO USE AND WHEN?

- Based on invasive plant species
- Time of year you want to apply
  - Spring vs summer vs fall
- Location specific information
  - Soil type, near water, drift to ag crops
- Cost
  - $1-$20 per acre depending on products
- Resources available to help
- **Ask for help from experts**
  - Extension resources
  - Herbicide companies
  - Other land managers

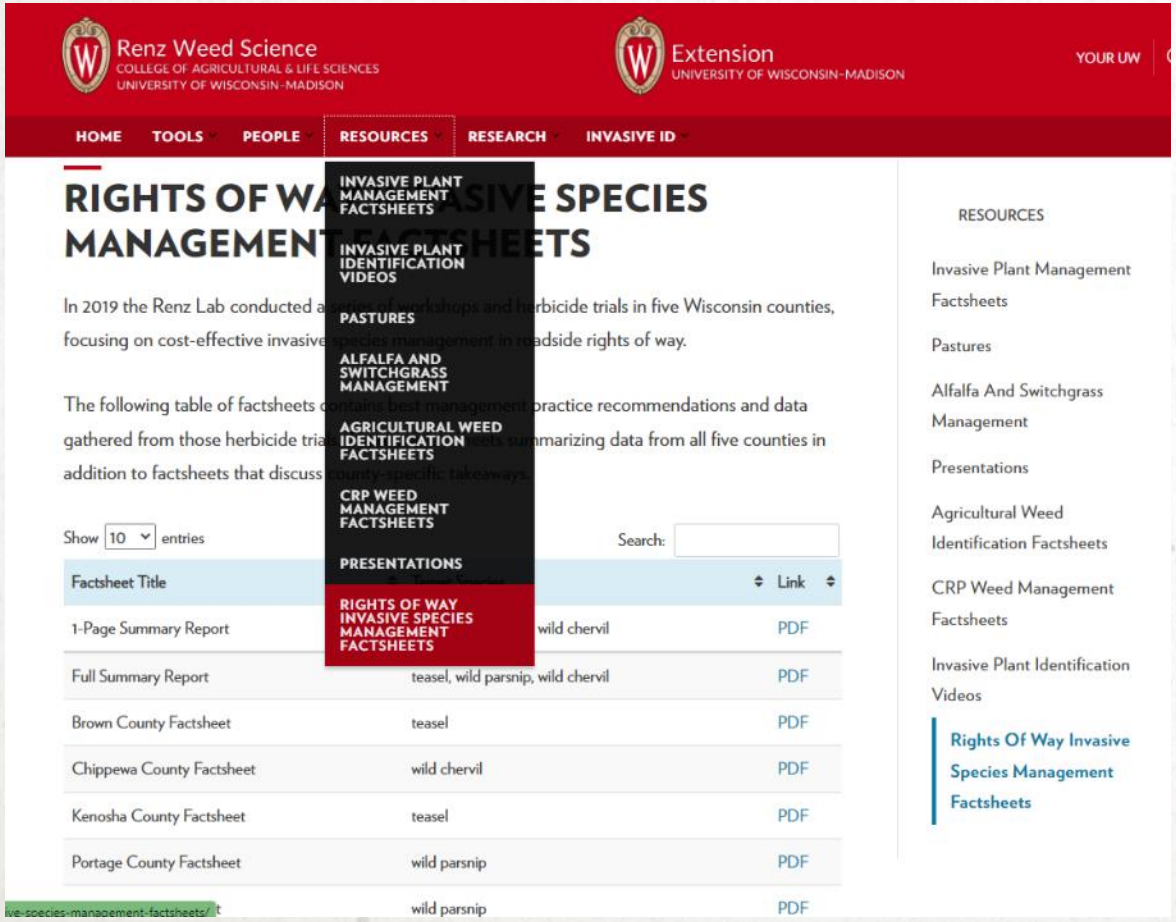
VISIT WEBSITE FOR INFORMATION ON IDENTIFICATION, DISTRIBUTION AND CONTROL





https://renzweedscience.cals.wisc.edu/

RESOURCES FOR ROW INVASIVE PLANT MANAGEMENT



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WHERE CAN I GET TRAINING ON SAFE PESTICIDE APPLICATION?

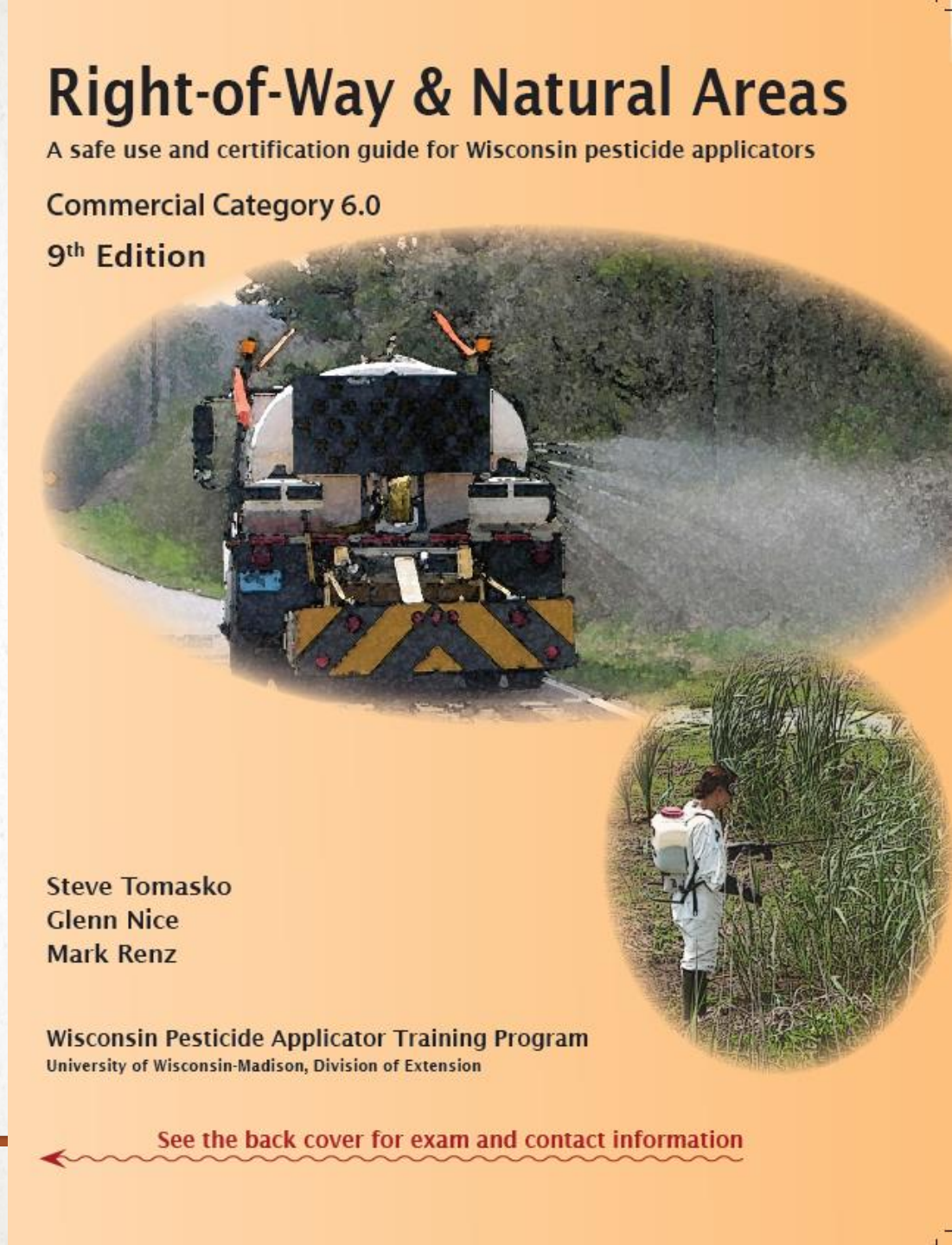
University of Wisconsin Pesticide Applicator Training Program

https://fyi.extension.wisc.edu/pat

1. Printed manual ($53)
2. PDF of manual ($40)

training opportunities:

1. In person training ($35)
2. Online training ($60)



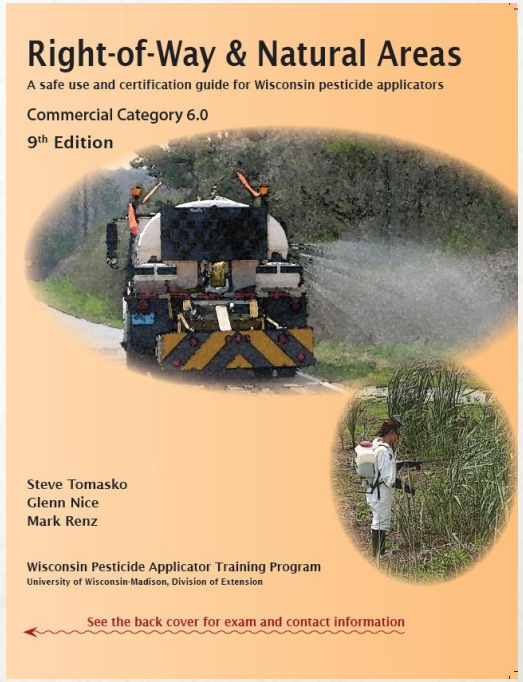
IF APPLYING PESTICIDES TO ROADSIDES DO I NEED TO BE CERTIFIED (PASS THE TEST)?

State of Wisconsin requirement:

<u>An individual needs to be certified if:</u>

1. They are applying restricted use pesticides
2. Apply pesticides on other's land on a contractual basis

Many employers REQUIRE certification as part of their requirements



<u>YOU DO NOT NEED to be certified if:</u>

You are applying non-restricted use pesticides to land you own or that their employer owns

INFO IS USEFUL, BUT HOW DO I USE IT IF I DON'T HAVE ANY BUDGET FOR INVASIVE PLANT CONTROL?

- Need to **increase** funding or **reduce** other roadside management cost
  - Will allow for extra funding to control invasive plants
- Increase funding: political action
- Reduce costs:
  - How can we maintain existing services while reducing costs?

ONE OPTION IS TO REDUCE MOWING FREQUENCY

HOW MANY TIMES ARE ROADS NEAR YOU MOWED PER YEAR?

- Once per year = $75-150/A
- Twice per year = $150 – 300/A
- Three per year = $300-$450/A
- Four per year = $450-$600/A

If you could eliminate 1 mowing, would save **$75-150/A**

HERBICIDES CAN REDUCE MOWING FREQUENCY

- Apply herbicide that suppresses grass growth in spring
  - Short term (1-3 months), no visible injury
- Reduce mowing 1-2 X = $75-$300/A
  - Dependent on time of year applied and grass species present
- Cost savings can be used for invasive plant management

LET'S TAKE A LOOK!

- Application 5/10/2019
  - Imazapic + metsulfuron
  - When dandelions blooming
- What plants were present
  - Smooth brome & tall fescue
  - wild parsnip
- Plot size 30 ft wide by 100+ ft long

2 WEEKS AFTER APPLICATION

Plateau at 4 fl oz/A + Escort at 0.75 oz/A + MSO

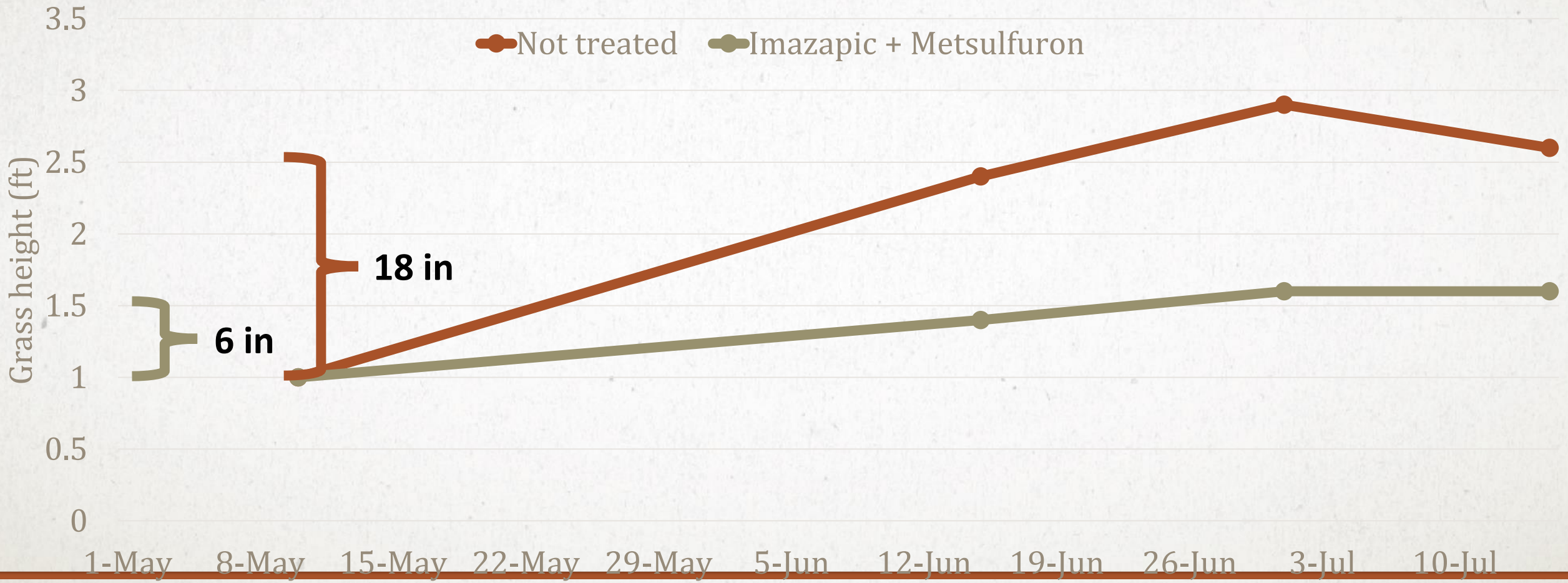
1 month after application

Plateau at 4 fl oz/A + Escort at 0.75 oz/A + MSO

2 months after application

Plateau at 4 fl oz/A + Escort at 0.75 oz/A + MSO

APPLICATION REDUCED GRASS HEIGHT FOR 2+ MONTHS



RESULTING VEGETATION IS MORE THAN JUST GRASS……

HOW CONSISTENT IS THIS RESPONSE?

- Conducted 7 trials in WI
  - Height suppression ranged from **1-3+ months**
- Currently being used in WI
  - > 20 municipalities/counties over 20,000 road miles
  - Report easier to mow

3 MAT, Sauk County 2019

JUNE 7TH – 1 MONTH

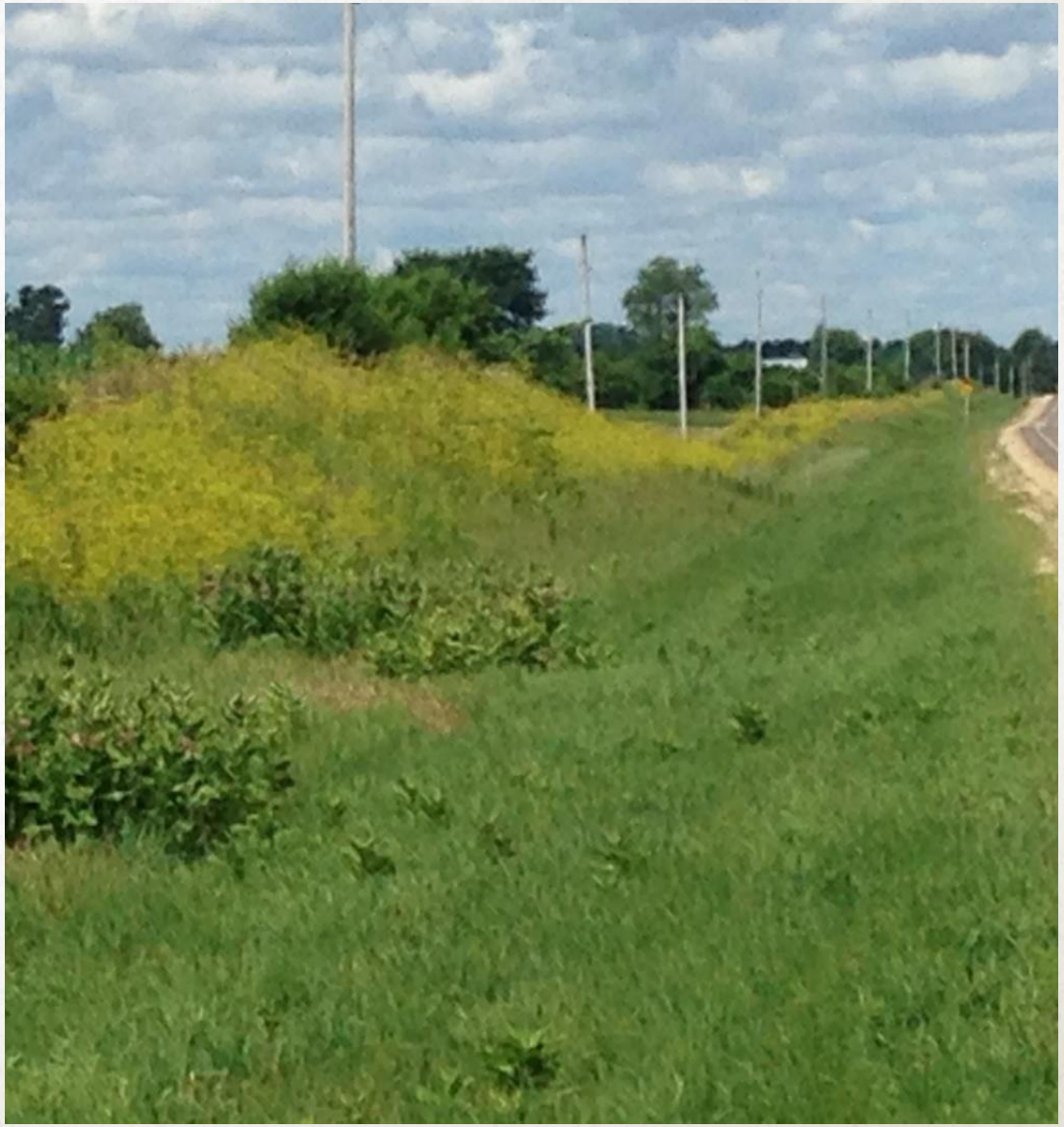
JULY – 2 MONTHS AFTER TREATMENT

Not-treated

Treated

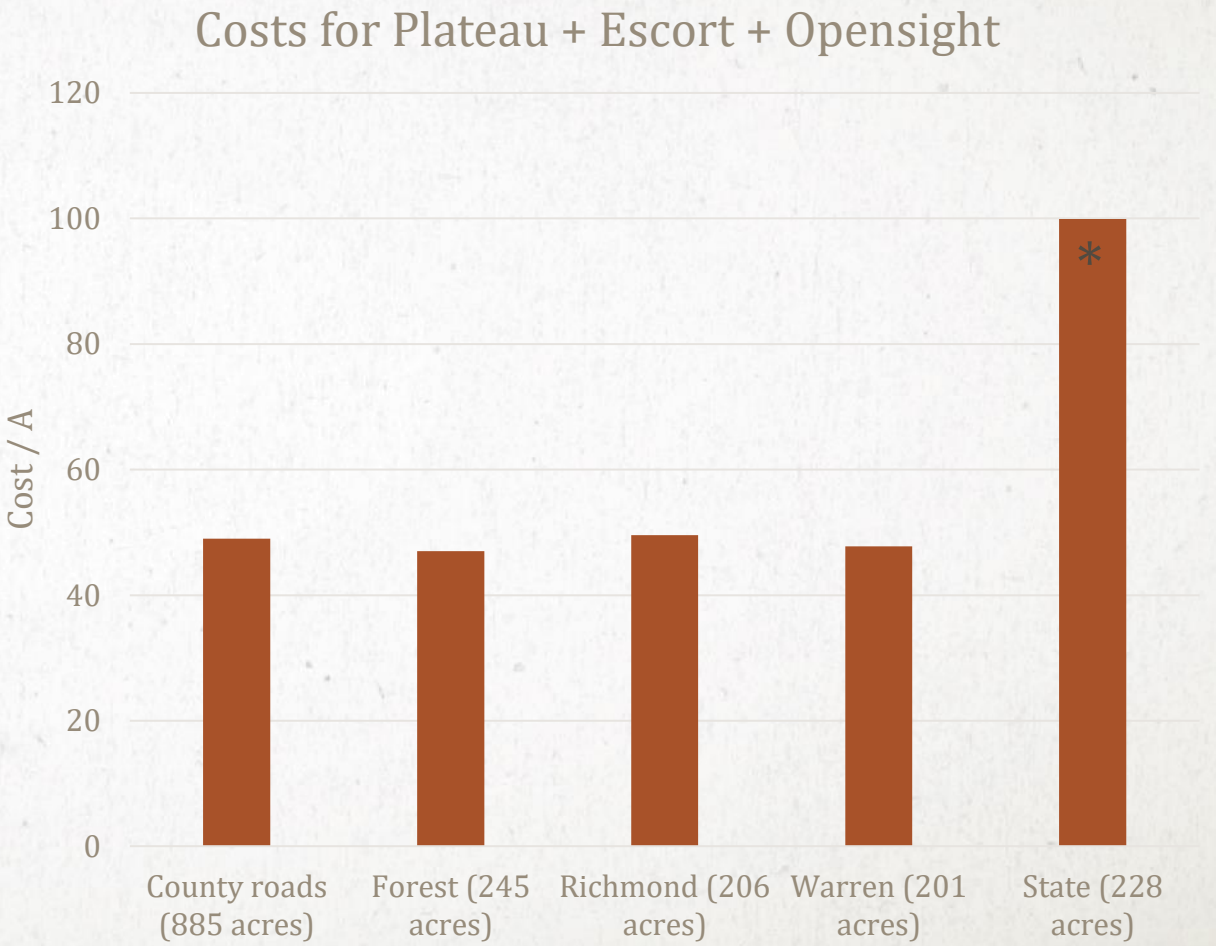
Not-treated

Treated



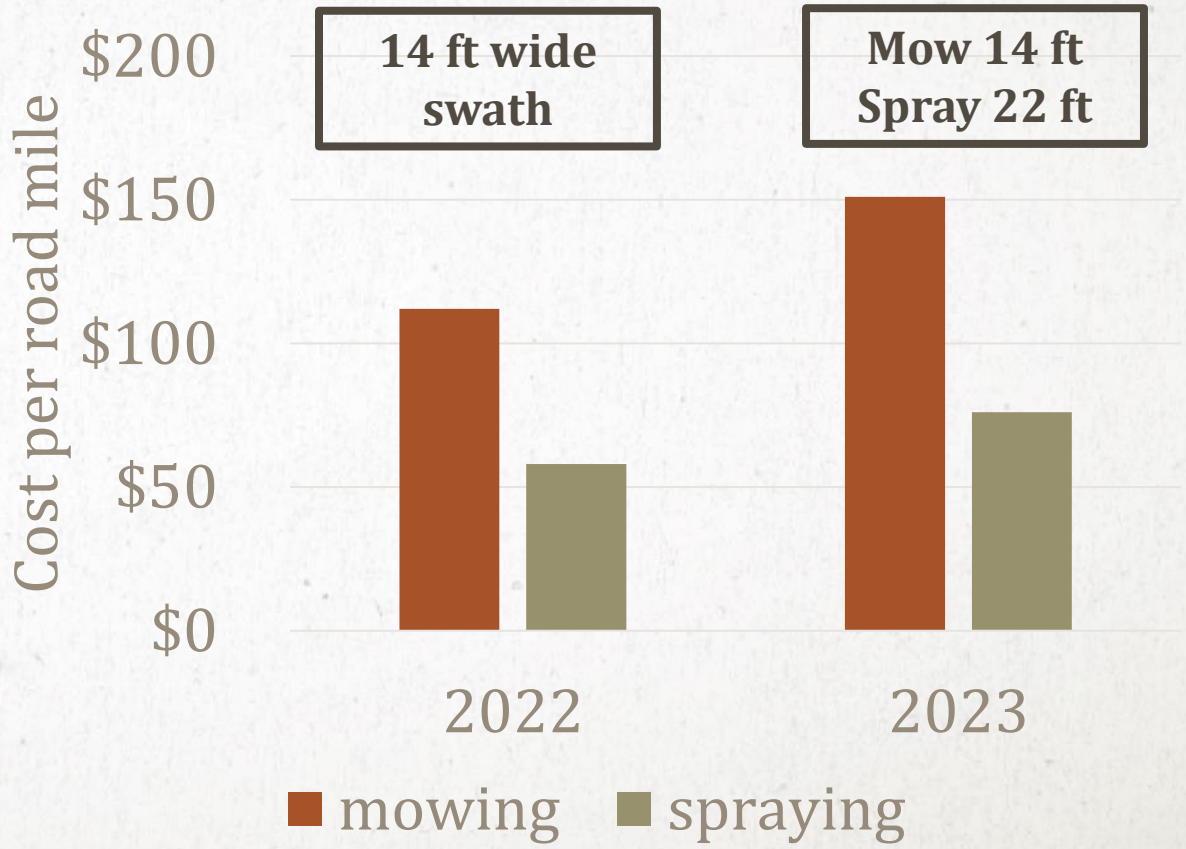
IMPLEMENTED BY SEVERAL MUNICIPALITIES IN WI

ONE COUNTY TREATED 1,700 ACRES



*** Roundabouts slowed travel, increased application costs**

ANOTHER COUNTY ASSESSING COST VS MOWING



RESPONSES/COMMENTS BY CITIZENS

POSITIVE

- When can you treat my roadside with this treatment?
- Even though I have an organic farm, I want my ditches sprayed to avoid parsnip on my farm
- While I don't like the use of herbicides, this has been a great tool to help fight the spread of parsnip in our community

NEGATIVE

- I don't like pesticides and am concerned about their impact to my health
- Water is nearby/in the ditches, we need to protect our water bodies from pesticides
- Invasive plants provide pollen for pollinators

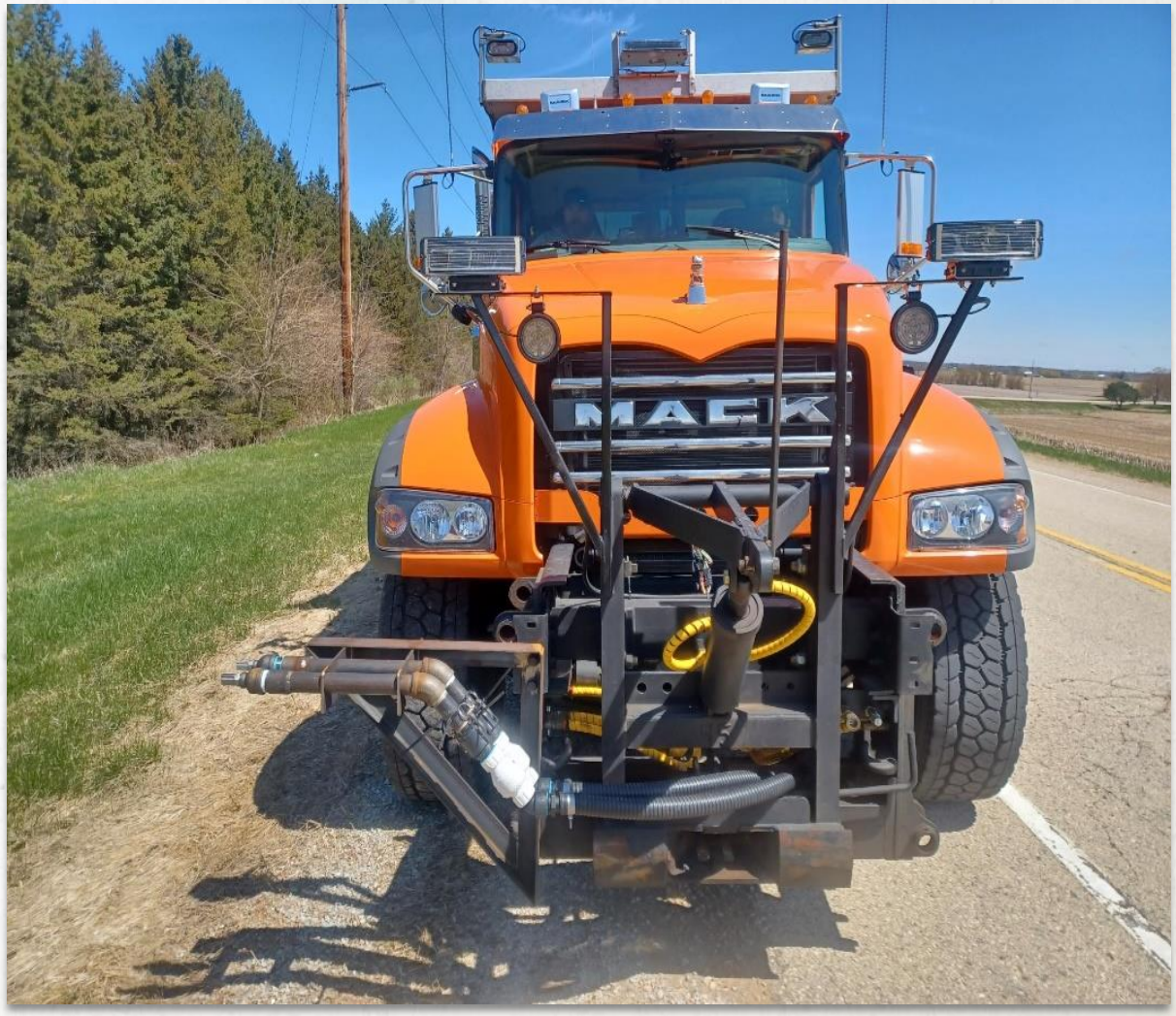
HOW DO YOU USE THIS APPROACH TO IMPROVE INVASIVE PLANT CONTROL?

- Herbicides applied for height reduction **won't control many invasive plants**

- Take cost savings from reduced mowing and
  1. Add herbicide with application for invasive plant control ($5-25/A)
  2. Use saving in time/$$ to conduct separate invasive plant related stuff
     1. Monitor for invasive plants on roadsides
     2. Hire companies to control invasive plants
     3. Assign staff to control invasive plants
     4. Organize volunteers to help

CAN HIRE SOMEONE TO APPLY OR MODIFY EXISTING EQUIPMENT

SPRAY NOZZLE SETUP – FRONT MOUNT



IF APPLYING ON STATE OR FEDERAL HIGHWAYS NOTE RESTRICTIONS FOR HERBICIDES

- Rusty patch bumble bee (RPBB) areas
  - Can only apply herbicide to first 15 ft of roadside
- Karner Blue Butterfly (KBB) and Endangered Species Act (ESA) buffers
  - Only spot treatments allowed between 4/15-8/31
- Where do I find out about where these are located?
- Use this link to access an interactive map to find out!

Christa Schaefer (608) 266-3943 Christa.Schaefer@dot.wi.gov

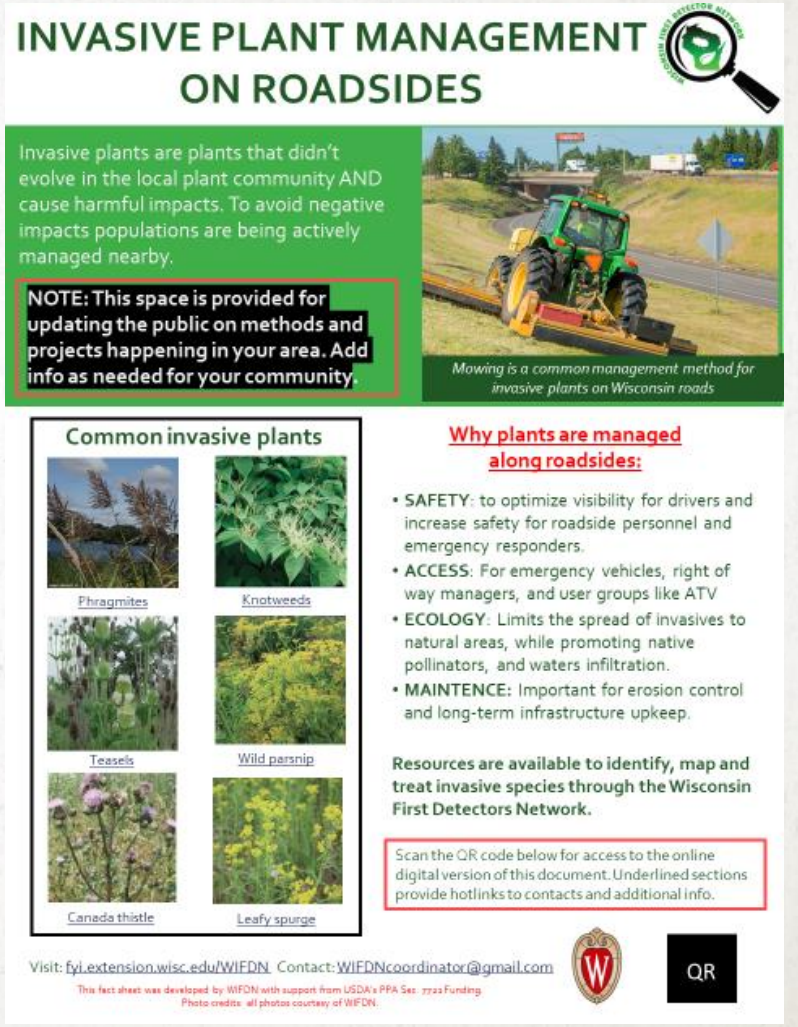
Mark Polega (608) 266-6791 Mark.polega@dot.wi.gov

SUMMARY

- Using imazapic to suppress grass height can consistently reduce mowing frequency **if applied correctly**
  - Imazapic 2-4 fl oz/A + MSO ($5-10/A herbicide + application cost)
  - Apply in May (early May optimal, dandelion blooming)
- Benefits
  - 1-2 Less mowing events (save $$$$)
  - Faster mowing, less accidents and wear on machinery
- Risks
  - More herbicide input to environment
  - Risk of off-target injury: Soybeans, alfalfa
- Recommend integrating it into existing vegetation management

INTERESTED IN EXPERIMENTING WITH THIS? HERE ARE SUGGESTIONS FOR GETTING STARTED

- Conduct a pilot study (start small)
- Bring together stakeholders
  - Hold field day, and discuss
  - Communicate information to local community
- Avoid applying to entire municipality/community
  - Integrate with existing efforts
    - Treat areas you can't mow on-time, heavily infested areas
- Use $$$ saved for invasive plant control/mapping



WHILE THIS APPROACH HAS BENEFITS, STILL NEED TO ELIMINATE THE PROPAGULE SOURCE

QUESTIONS?

Please ask if you need help with setting up a demonstration

Mark Renz mrenz@wisc.edu

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Renz Weed Science

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