

APPLYING HERBICIDES ON TOWN ROADS:

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



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<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

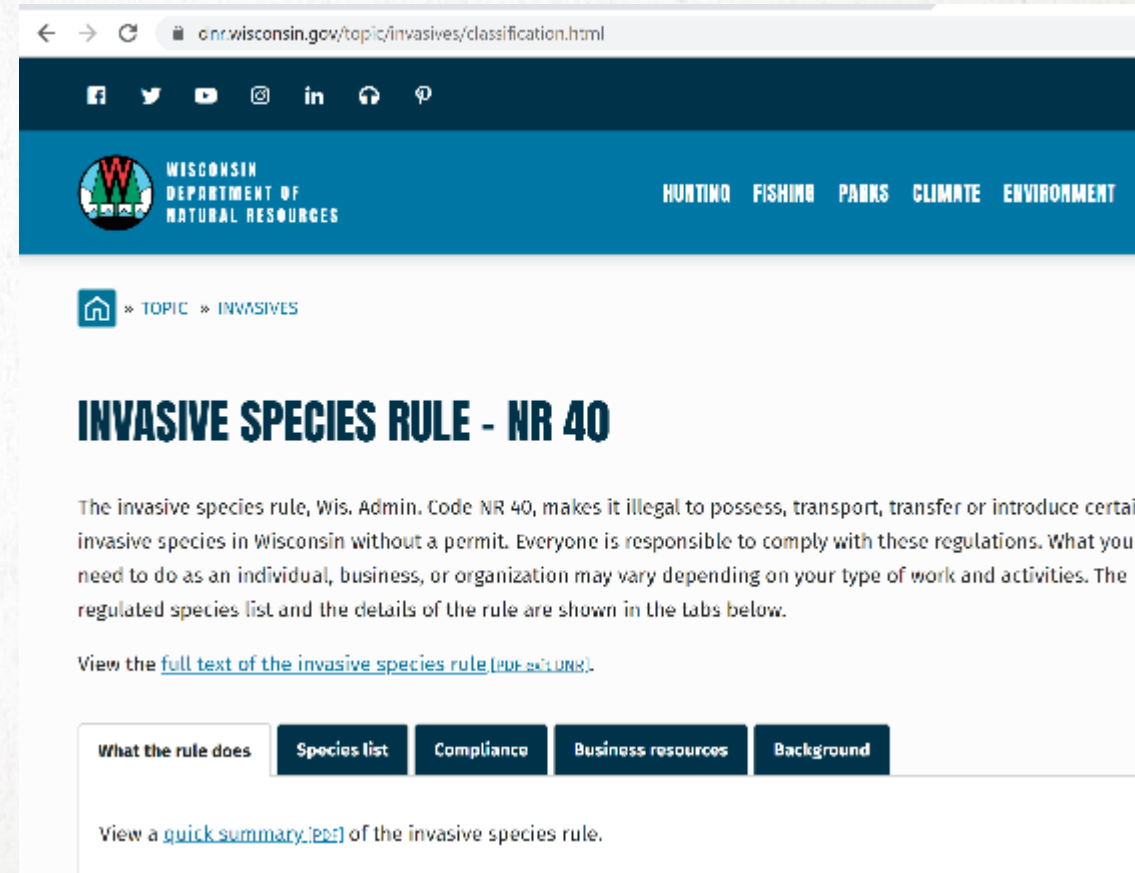
2. Capable of causing harm

- *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



The screenshot shows a web browser window with the URL dnr.wisconsin.gov/topic/invasives/classification.html. The page header includes the Wisconsin Department of Natural Resources logo and navigation links for HUNTING, FISHING, PARKS, CLIMATE, and ENVIRONMENT. Below the header, there is a breadcrumb trail: Home » TOPIC » INVASIVES. The main heading is **INVASIVE SPECIES RULE - NR 40**. The text explains that the rule, Wis. Admin. Code NR 40, makes it illegal to possess, transport, transfer, or introduce certain invasive species in Wisconsin without a permit. It states that everyone is responsible for compliance, and details of the rule and the regulated species list are provided in tabs below. A link is provided to view the [full text of the invasive species rule \(PDF, 243 KB\)](#). At the bottom, there are four tabs: 'What the rule does' (selected), 'Species list', 'Compliance', 'Business resources', and 'Background'. Below the tabs, there is a link to view a [quick summary \(PDF\)](#) of the rule.

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

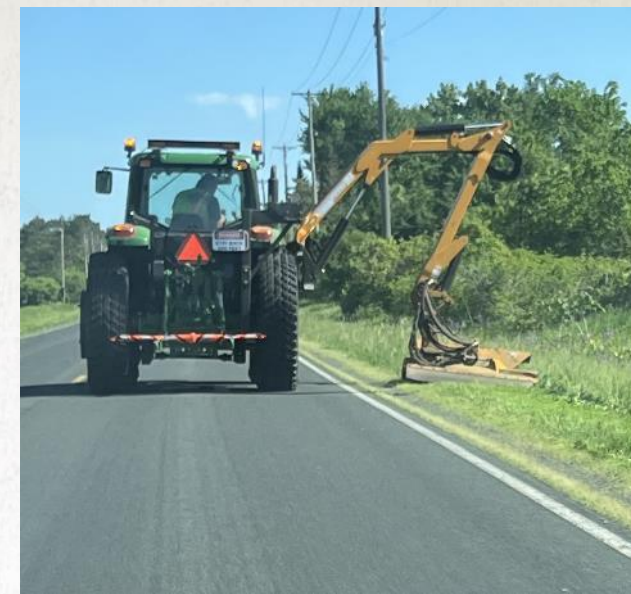


REMOVAL



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

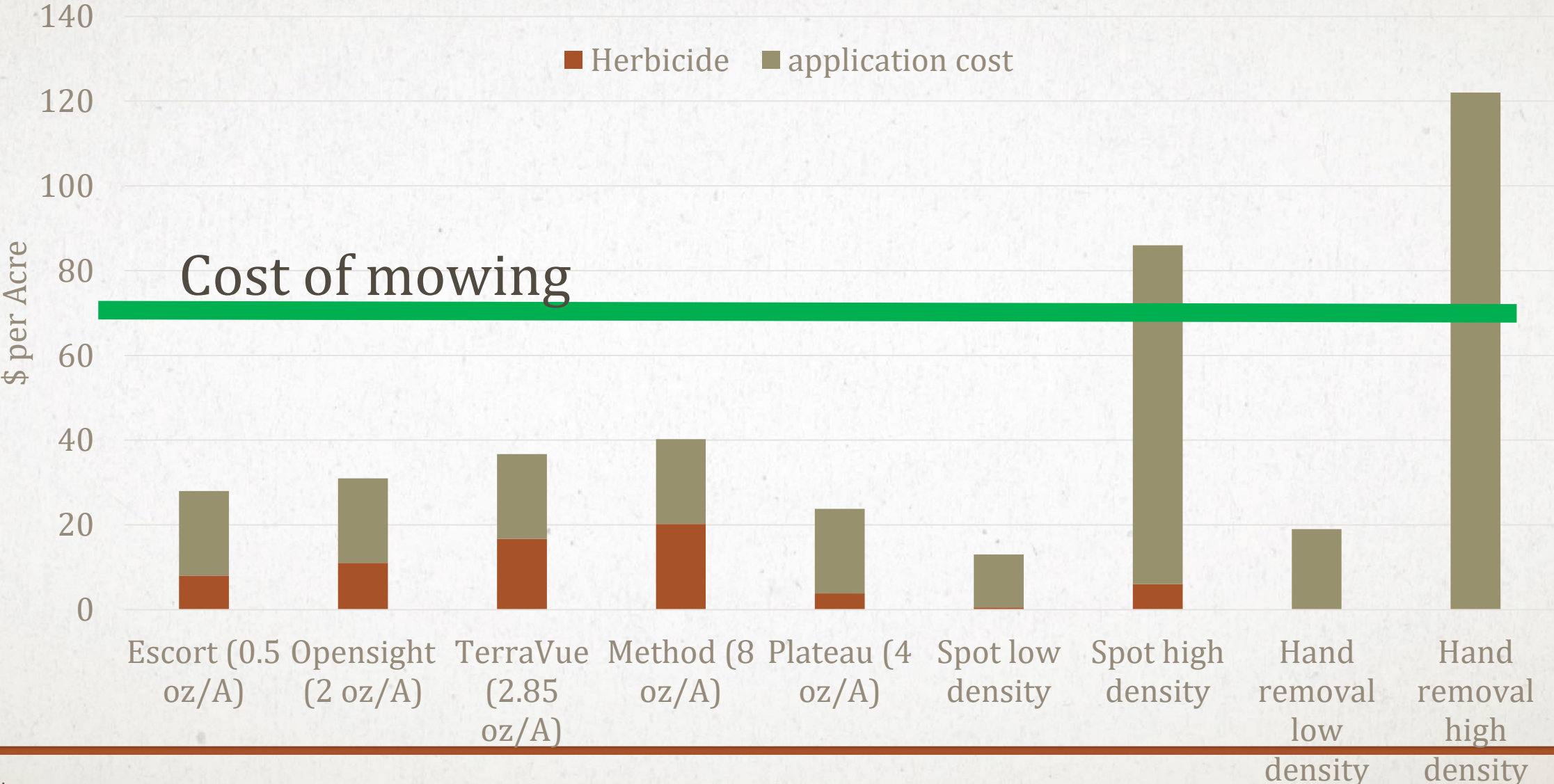
INDIVIDUAL PLANT TREATMENTS

- 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

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

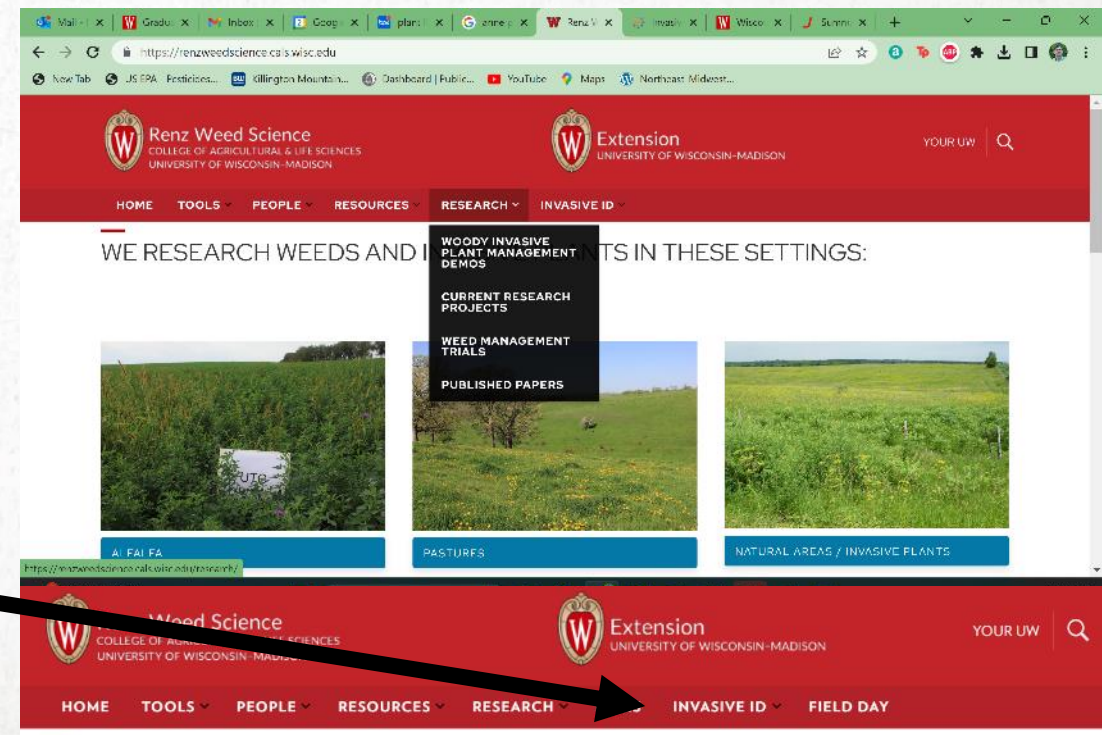
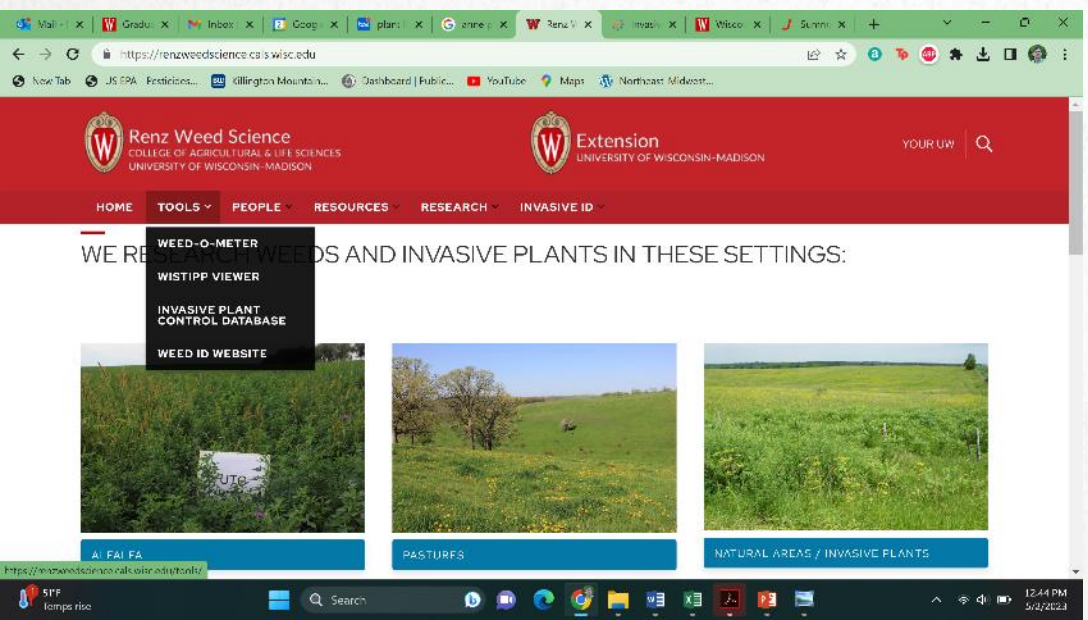
HERBICIDE ATTRIBUTES

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://renzweedsience.cals.wisc.edu/>

WE RESEARCH WEEDS AND INVASIVE PLANTS IN THESE SETTINGS:

RESOURCES FOR ROW INVASIVE PLANT MANAGEMENT



INVASIVE PLANT MANAGEMENT ON ROADSIDES



Invasive plants are plants that didn't evolve in the local plant community AND cause harmful impacts. To avoid negative impacts populations are being actively managed nearby.

NOTE: This space is provided for updating the public on methods and projects happening in your area. Add info as needed for your community.




Renz Weed Science
COLLEGE OF AGRICULTURAL & LIFE SCIENCES
UNIVERSITY OF WISCONSIN-MADISON

Extension
UNIVERSITY OF WISCONSIN-MADISON
YOUR UW

HOME
TOOLS
PEOPLE
RESOURCES
RESEARCH
INVASIVE ID

RIGHTS OF WAY INVASIVE SPECIES MANAGEMENT FACTSHEETS

In 2019 the Renz Lab conducted workshops and herbicide trials in five Wisconsin counties, focusing on cost-effective invasive plant management in roadside rights of way.

The following table of factsheets contains best management practice recommendations and data gathered from those herbicide trials, summarizing data from all five counties in addition to factsheets that discuss county-specific takeaways.


Show entries Search:

Factsheet Title		Link
1-Page Summary Report	wild chervil	PDF
Full Summary Report	teasel, wild parsnip, wild chervil	PDF
Brown County Factsheet	teasel	PDF
Chippewa County Factsheet	wild chervil	PDF
Kenosha County Factsheet	teasel	PDF
Portage County Factsheet	wild parsnip	PDF
Waukesha County Factsheet	wild parsnip	PDF


RESOURCES

- Invasive Plant Management Factsheets
- Pastures
- Alfalfa And Switchgrass Management
- Presentations
- Agricultural Weed Identification Factsheets
- CRP Weed Management Factsheets
- Invasive Plant Identification Videos
- Rights Of Way Invasive Species Management Factsheets


Common invasive plants




Phragmites




Knotweeds




Teasels



Wild parsnip



Canada thistle



Leafy spurge

Why plants are managed along roadsides:

- **SAFETY:** to optimize visibility for drivers and increase safety for roadside personnel and emergency responders.
- **ACCESS:** For emergency vehicles, right of way managers, and user groups like ATV
- **ECOLOGY:** Limits the spread of invasives to natural areas, while promoting native pollinators, and waters infiltration.
- **MAINTENANCE:** Important for erosion control and long-term infrastructure upkeep.

Resources are available to identify, map and treat invasive species through the Wisconsin First Detectors Network.

Scan the QR code below for access to the online digital version of this document. Underlined sections provide hotlinks to contacts and additional info.

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

Visit: fyi.extension.wisc.edu/WIFDN Contact: WIFDNcoordinator@gmail.com

This fact sheet was developed by WIFDN with support from USDA's PPA Sec. 7722 Funding. Photo credits: all photos courtesy of WIFDN.



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)

Right-of-Way & Natural Areas

A safe use and certification guide for Wisconsin pesticide applicators

Commercial Category 6.0

9th Edition



Steve Tomasko
Glenn Nice
Mark Renz

Wisconsin Pesticide Applicator Training Program
University of Wisconsin-Madison, Division of Extension

← See the back cover for exam and contact information

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

State of Wisconsin requirement:

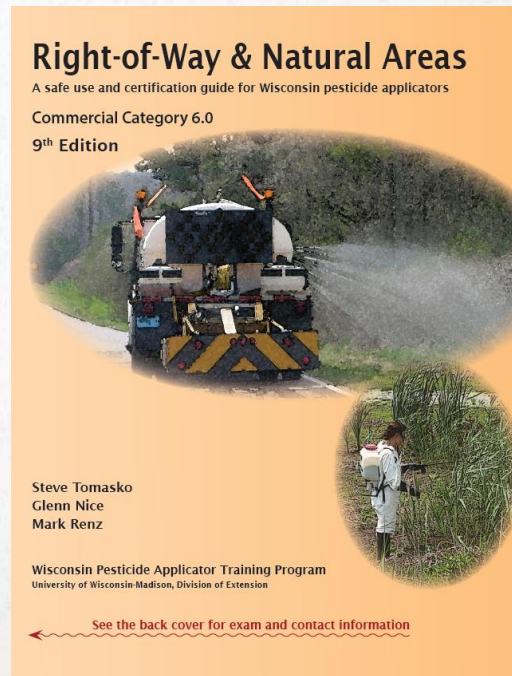
An individual needs to be certified if:

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

YOU DO NOT NEED to be certified if:

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

Many employers REQUIRE certification as part of their requirements



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**



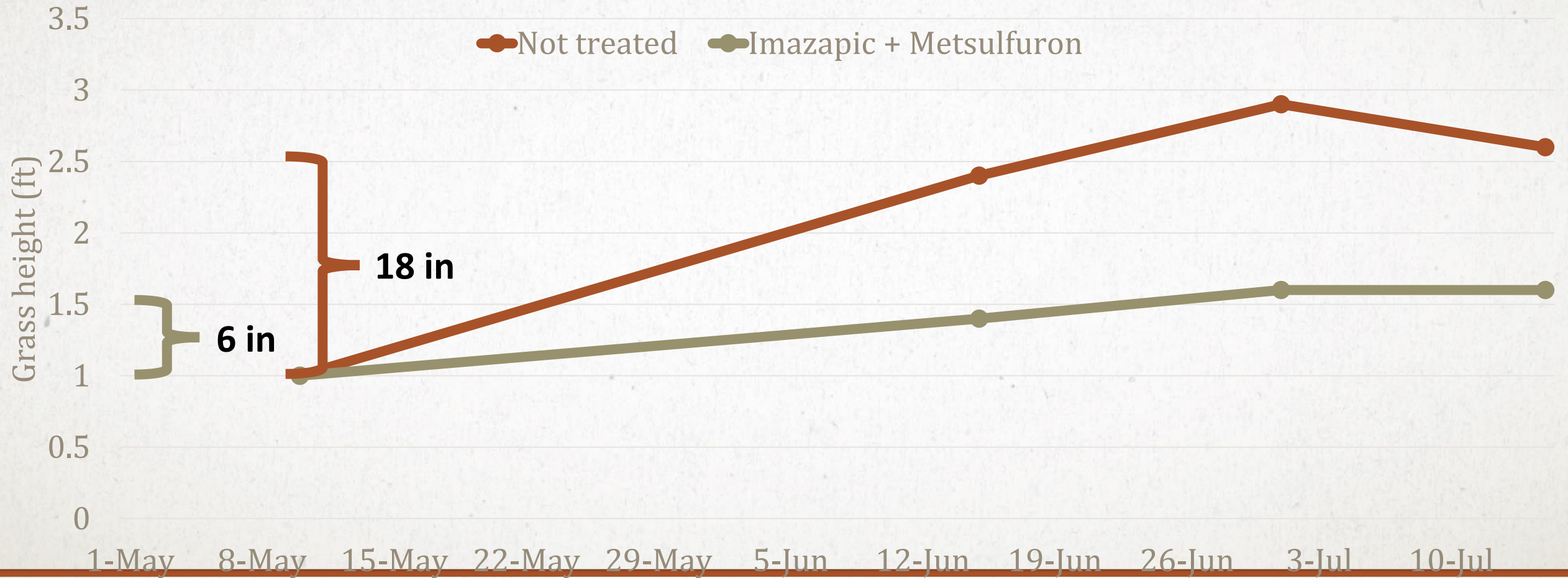
Plateau at 4 fl oz/A + Escort at 0.75 oz/A + MSO

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



JUNE 7TH - 1 MONTH



JULY - 2 MONTHS AFTER TREATMENT





Not-treated



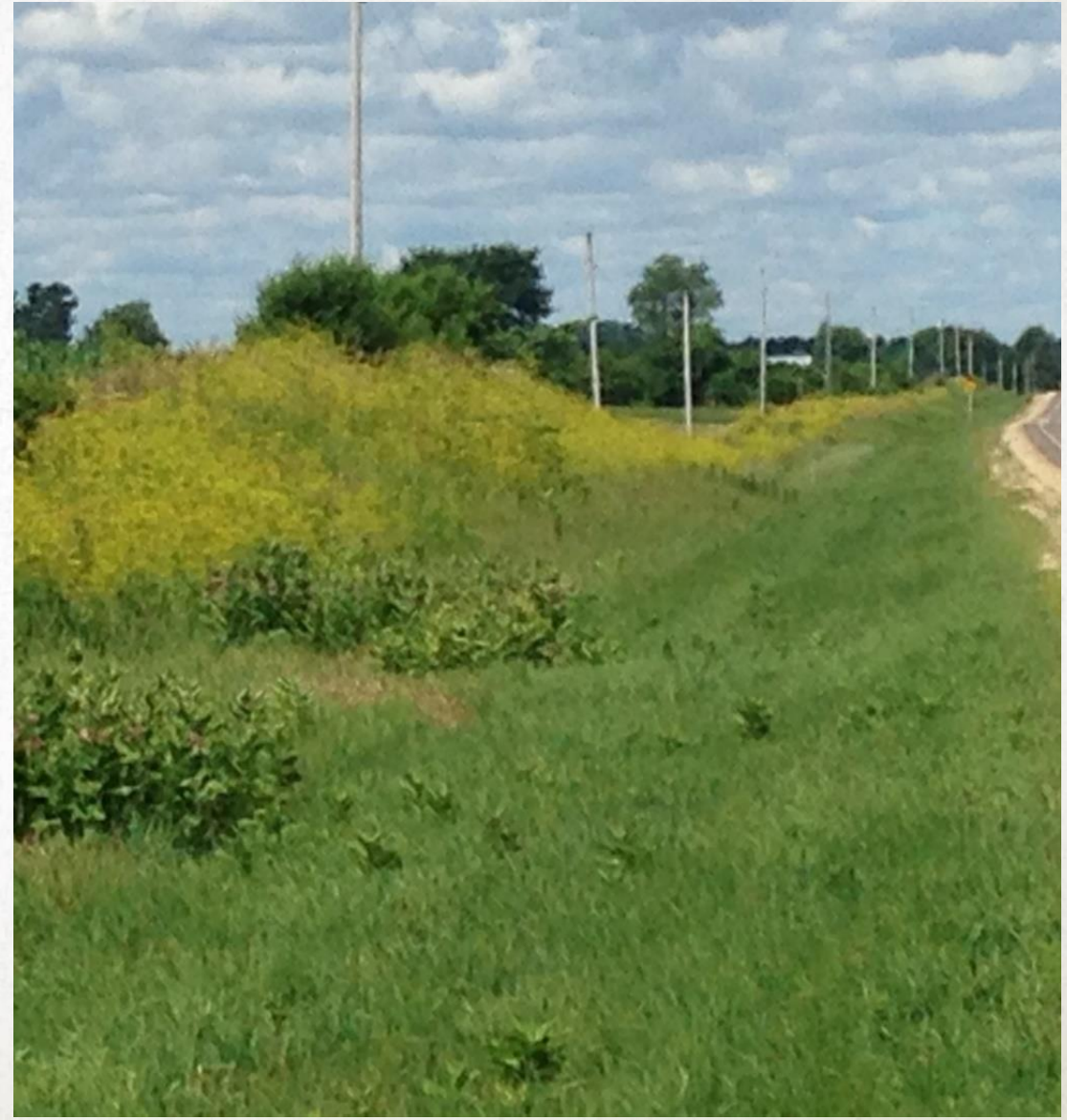
Treated



Not-treated



Treated



IMPLEMENTED BY SEVERAL MUNICIPALITIES IN WI

ONE COUNTY TREATED 1,700 ACRES

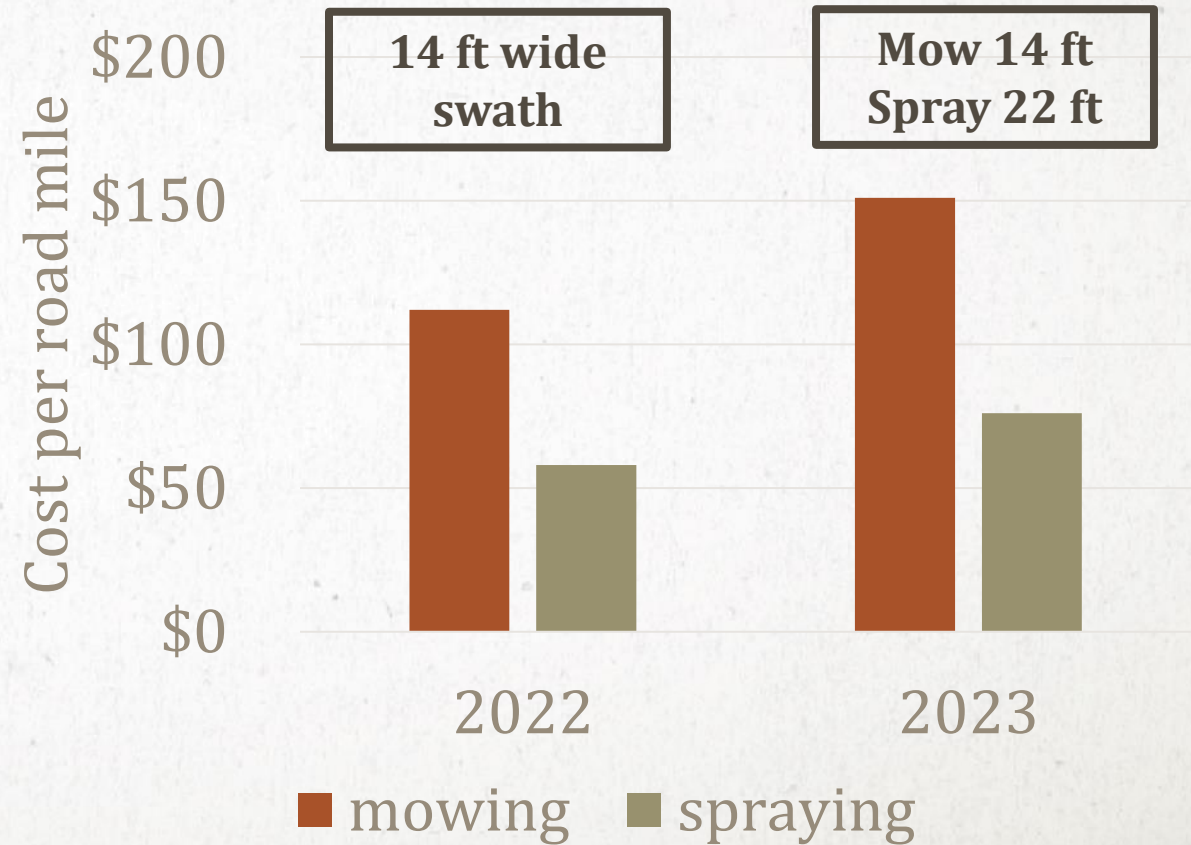


Costs for Plateau + Escort + Opensight



*** 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
-

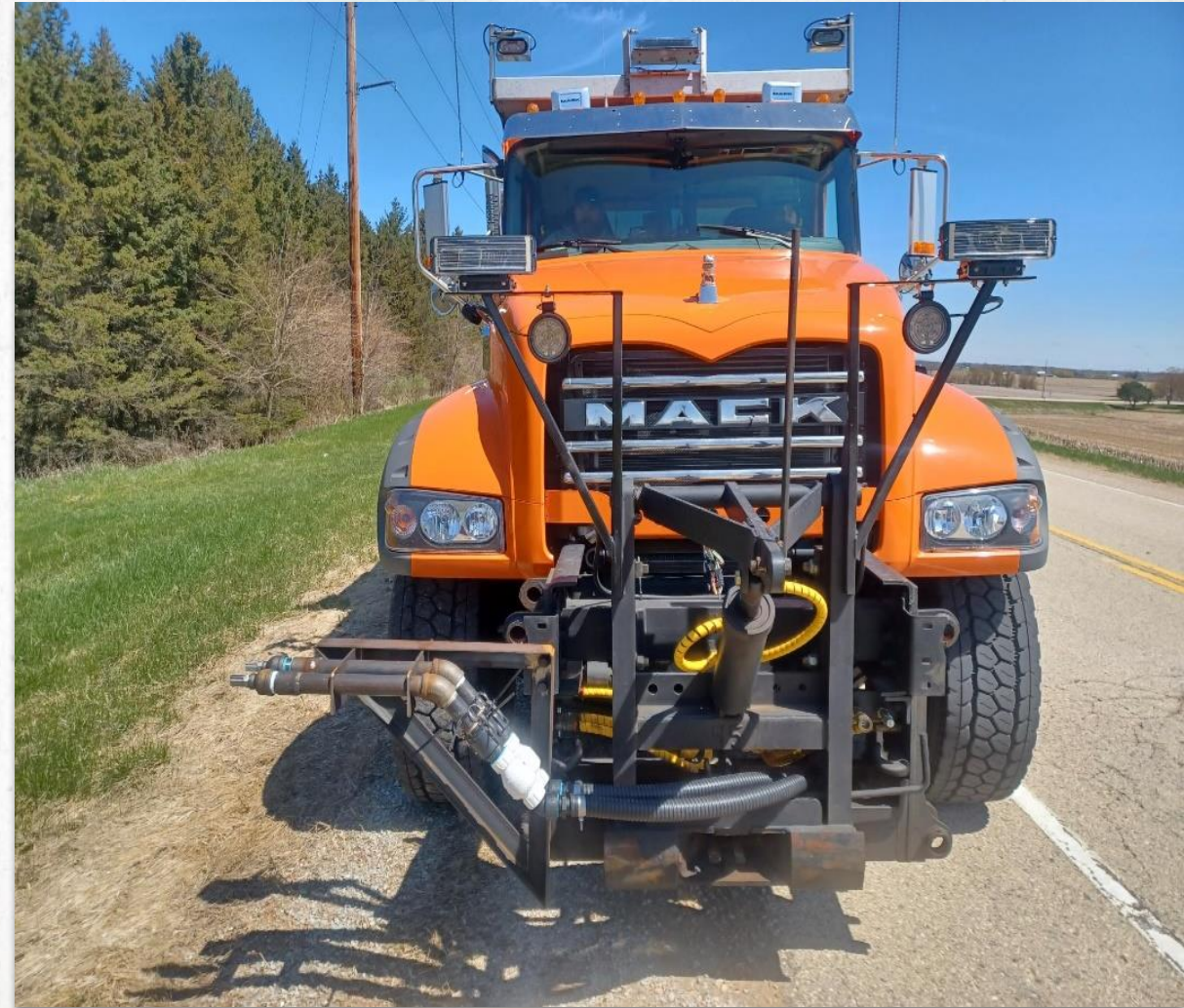
HOW DO YOU USE THIS APPROACH TO IMPROVE INVASIVE PLANT CONTROL?

- 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!



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

INVASIVE PLANT MANAGEMENT ON ROADSIDES



Invasive plants are plants that didn't evolve in the local plant community AND cause harmful impacts. To avoid negative impacts populations are being actively managed nearby.



Mowing is a common management method for invasive plants on Wisconsin roads

NOTE: This space is provided for updating the public on methods and projects happening in your area. Add info as needed for your community.

Common invasive plants



Phragmites



Knotweeds



Teasels



Wild parsnip



Canada thistle



Leafy spurge

Why plants are managed along roadsides:

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



QUESTIONS?

Please ask if you need help with setting up a demonstration

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