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or

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We have put together information to help you with a Vegetation Management plan to help save money in your budget. Most superintendent's say they have no money to treat invasive's or control brush. View the information, look at the numbers and we can help put a plan in place and it won't cost you more, it will probably save you money.

Invasive weed control can be done with Liquid Mowing PGR (Plant Growth Regulator). This will eliminate at least 1 mowing, depending on your number of mowing's per year. It is difficult to know the actual savings, because variable's with width and intersection sight makes it hard to come up with a per mile cost to mow. Look at Chippewa County's Roadside plan that they presented to their Highway Committee and see if their numbers a similar to yours.

Cutting or mowing brush just creates more problems. What was just a few trees, becomes a thicket with repeated mowing. Controlling brush is the largest cost savings for any Right-of-Way.

We highly recommend that you support with your local CISMA (Cooperative Invasive Species Management Area) financially. They can help with Mapping, Outreach, Training, Education, Public Perception and some control of invasive's for your area.

If you want more information or would like to discuss some of these options, contact us.

## Nutrien Solutions--- Invasive Species Control Recommendations

### Aspen or Cotton wood

7 oz. Milestone or ½ oz. /gal

7oz Method

### Autumn Olive

2 oz Escort XP or 1 tsp./gal

2% Garlon 4 Ultra

### Black locust

5% Transline with Bark **Oil** LT for basal bark

5% Milestone with **Bark Oil** LT for basal bark

16 oz. Transline per 50-gallon water for foliar

14 oz. Milestone per 50 gallons water for foliar –spot spray

2.85 oz. **TerraVue**

### Box Elder

20% Garlon 4-basal or cut surface-with **Bark Oil LT**

2% Garlon – foliar

7oz Method or Milestone

### Buckthorn

Basal/cut stump--Garlon 4 Ultra 20%+ **Bark Oil**

Basal/cut stump--Progeny 25% +**Bark Oil**

Pathfinder II (ready to use Garlon 4 at 18%)

Garlon 4 Ultra @ 5%-Foliar

### Canada & other thistles

7 oz Milestone or .25 oz /gal or 2 oz. **TerraVue**

16 oz Transline or .5 oz/gal

### Cattail

1 qt. Arsenal/Polaris or 1%

10% Rodeo or AquaNeat

### Crown & Cow Vetch

1 p.t Transline or .5 oz./gal

7 oz. Milestone or 1/3 oz. Milestone /gallon

3 oz. Opensight or 2 oz. **TerraVue**

1 oz Escort XP

### Garlic mustard

3% Rodeo/AquaNeat (Glyphosate)

1.5 oz of Oust XP per acre (Stock Solution recipe)

2 oz. Detail per acre

2-3% Garlon

If blooming add ½ oz. Diquat per gal water

### Grecian Foxglove

1 oz Escort XP

3.3 oz Opensight

### Hedge Parsley

1 oz Escort XP or ½ tsp/gal water

### Honeysuckle

7% Rodeo (Glyphosate 53.8%)

10% 41% Glyphosate

25% Progeny with Oil---basal or cut surface

5% Progeny foliar

1% Vanquish foliar

4% Vanquish basal bark

### Japanese Barberry

2-3% Garlon

2 oz Escort XP

### Japanese Knotweed

1% Arsenal/Polaris

½ oz. Milestone/gal DON'T spray before August 1<sup>st</sup>

Spot treatment rate of 5.7 oz. **TerraVue**

4% Vanquish

### Leafy spurge

½ oz. Milestone /gallon- (spot treat only)

8 oz. Method

12 oz. Plateau

### Multiflora Rose

1 oz. Escort XP or 1/2 tsp. per gallon

1-2% Garlon

2% Progeny

### Oriental Bittersweet

20% Garlon 4-basal or cut surface-with **Bark Oil LT**

Pathfinder II (ready to use Garlon 4 at 18%)

2% Garlon – foliar

### Phragmites

2qt. Arsenal/Polaris or 2%

10% Rodeo or AquaNeat

### Poison Ivy

1-2% Garlon

2% Progeny

### Prickly ash

20% Garlon 4 Ultra for basal bark

1-2% Garlon for foliar

1.5 oz Escort per 50 gallons water

### Purple Loosestrife

2% Garlon 3A

2% Aqua Sweep

2% Rodeo

1.25% Vastlan

### Reed canary grass

12 oz Plateau

2 oz Oust XP

1-2% Intensity

10% Rodeo late Season

All products should include **MSO** surfactant or **Liberate\*\***

### Spotted knapweed

2/3-pint Transline

5 oz Milestone or .25% solution

### Sumac

1-2% Garlon

5% Milestone with Bark Oil

7 oz Milestone per 50 gallons water for foliar

### Sweet Clover

2/3 pt Transline

5 oz Milestone or 2 oz. **TerraVue**

1 oz Escort XP

### Tansy

1 oz. Escort XP

### Teasel

1 pt Transline

7 oz. Milestone or 2 oz. **TerraVue**

1 oz Escort XP or 1/2 tsp per gal

### Wild Chervil

1 oz. Escort XP or ½ tsp. /gal.

3.3 oz. Opensight early season or 2 oz. **TerraVue**

Add 1 oz. Detail during late flowering for seed suppression

### Wild parsnip

1 oz. Escort XP or ½ tsp. /gal.

3.3 oz. Opensight early season (rosettes) or 2 oz. **TerraVue**

Add 1 oz. Detail during late flowering for seed suppression.

### Wild Carrot or Queens Anne's Lace

1 oz. Escort

3.3 oz Opensight or 2 oz. **TerraVue**

### Note

1% solution equals 1.28 oz

2% solution equals 2.3 oz

# Nutrien Solutions



If recipe sheet states product in ounces, that is the rate per acre. If product is listed as a %, that is amount to mix in one gallon water. When using rate per acre, one must calibrate your sprayer before application. Each herbicide recommended for an individual weed, is to be used separately and not all herbicides recommended are to be mixed together. All mixtures should include a surfactant, like MSO with Leci-Tech, *Activator 90* or *Liberate* (can all be used in Aquatic sites) to help herbicide penetrate the leaf surface.  
<sup>1</sup> All products or rates recommended by **Rick Schulte: Nutrien Solutions** and **Lee Shambeau: 4 Control**: other rates or products are possible to use on these species. Read and follow all label instructions.

Sites for Labels & MSDS's  
[www.cdms.net/LabelsMsds/LMDefault.aspx](http://www.cdms.net/LabelsMsds/LMDefault.aspx)

Nutrien Ag Solutions  
[www.nutrienagsolutions.com](http://www.nutrienagsolutions.com)

For registered products and applicators in Wisconsin  
[www.kellysolutions.com/wi/](http://www.kellysolutions.com/wi/)  
for registered products and applicators in Minnesota  
<http://www.kellysolutions.com/MN/>

Weed Identification Tool  
<http://www.weedid.wisc.edu/weedid.php>

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Site for Invasive Plants Association of Wisconsin <http://www.ipaw.org/>  
Site for Midwest Invasive Plant Network <http://www.mipn.org/>

**To order 2 qt Sprayers or to order herbicides on-line**  
[www.4-control.com](http://www.4-control.com)  
or call **888-454-1121**



## Introducing Esplanade® Advancing Weed Control

### Welcome to the next generation in weed control.

Developed specifically for the Industrial Vegetation Management market, Esplanade® is advancing weed control:

- Provides greater efficacy as compared to other pre-emergent products, controlling more than 75 grassy & broadleaf weeds including those tough resistant ones (Kochia, Mareetail, Russian Thistle, Pigweed).
- Delivers superior residual control you can trust, which means greater productivity and fewer retreatments.
- Requires less active ingredient on the ground delivering value for you and your customers, giving you a more sustainable option.

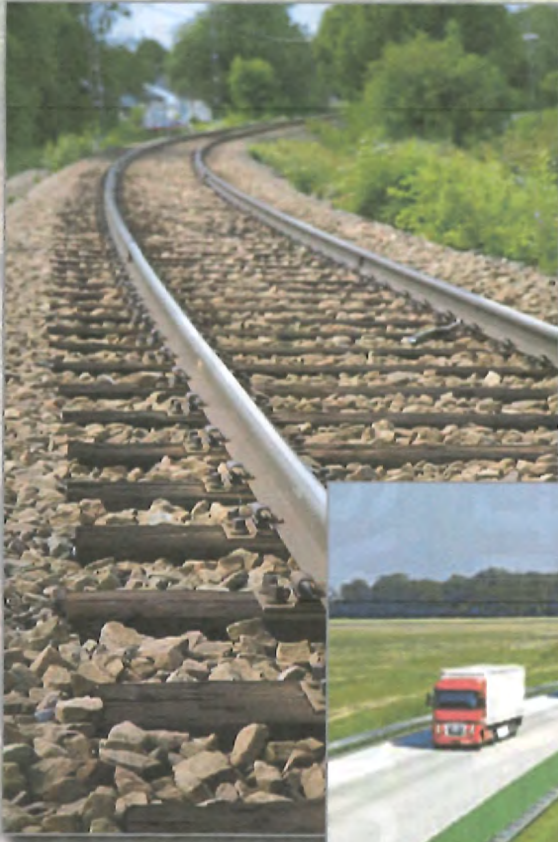


Esplanade®  
Advancing Weed Control

# A little innovation goes a long way.



EsplAnade<sup>®</sup>  
Advancing Weed Control



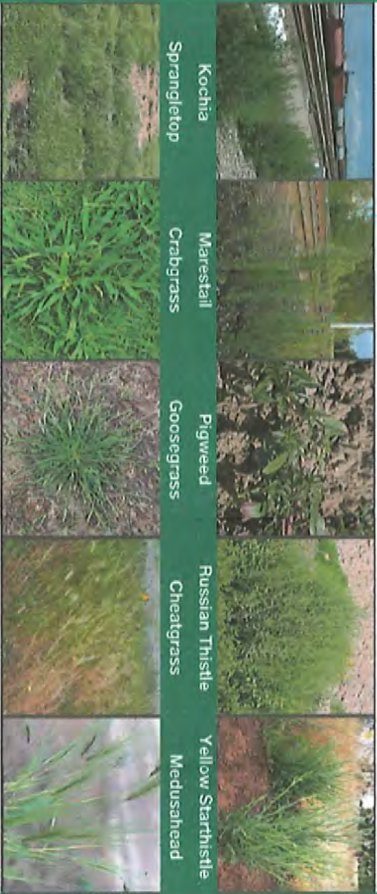
**Advancing  
Weed Control**



EspiAnade

### Broad-Spectrum Efficacy

Espianade® delivers broad-spectrum control of over 75 weeds species, even the tough ones



Espianade® treatments provide excellent long-term control, even on tough weeds like Kochia, Yellow Starthistle, Russian Thistle and Cheatgrass.



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 Milestone and Dimension are registered trademarks of Dow AgroSciences LLC



EspiAnade

### Unsurpassed Long Lasting Control

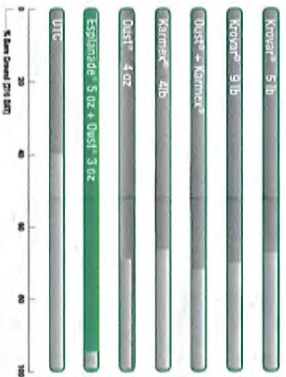
Espianade® controls weeds for up to 8 months. Its long lasting pre-emergent performance includes:

- High & low rainfall environment
- Northern & Southern bare-ground applications
- Warm-season turf weeding applications
- Year around application

Espianade® outperforms competitors in long term bareground studies.

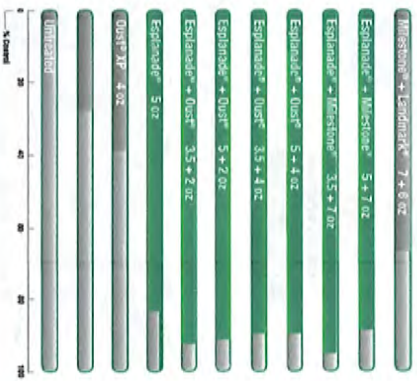
#### Bare Ground Results 215 days after treatment

Tampa, Florida, 2009



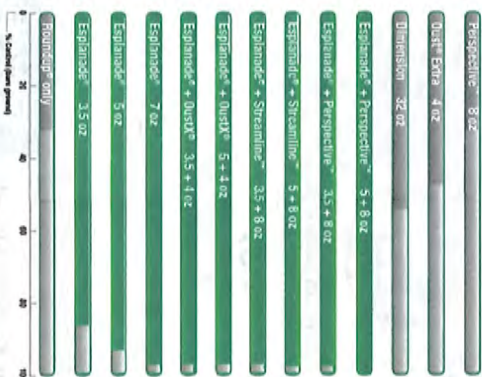
#### Bare Ground Results 6.5 months after treatment

Weed California, 2011



#### Bare Ground Results 3 months after treatment

Apost North Carolina, 2011



## Convenient Packaging



Treats  
64 Acres



Treats  
6.4 Acres

## Odorless Formulation Minimizes Public Concern



## Non-Staining To Surfaces Without Leaving Residue Behind



## Esplanade® Sustainability

- Esplanade® is a Cellulose Biosynthesis Inhibitor (CBI)
- The most active CBI discovered to date
- A new mode of action to use in resistance management programs
- Controls tough resistant weed suspects like Kochia, Marechal, and Russian Thistle



Esplanade® 3- Persistent controlling Kochia on rail

## EsplAnade

### Strong User Benefits

Esplanade® delivers user benefits to help you do your job everyday. It requires minimal personal protection equipment. Esplanade® is also easy to transport, mix and apply.

### Easy to Transport, Mix & Apply

**Diuron 80 DF**

**400**

25 pound bags  
of standard product  
(10 pallets  
10,000 lbs.)

**EsplAnade**

**20**

2.5 gallon jugs  
of Esplanade®  
10 cases of Esplanade  
(450 lbs)

### Minimal Personal Protection Equipment Required

**Diuron 80 DF\***

**20**

25lb bags  
cover 64 acres  
@ 8lbs per acre

**REQUIRED PERSONAL PROTECTION EQUIPMENT**

- NIOSH approved Dust filter filtering respirator
- Long sleeved shirt
- Chemical resistant, water proof gloves
- Chemical resistant apron
- Long pants
- Shoes plus socks

**EsplAnade®**

**1**

2.5gal container  
covers 64 acres  
@ 5.0oz per acre

**REQUIRED PERSONAL PROTECTION EQUIPMENT**

- Long sleeved shirt
- Chemical resistant, water proof gloves
- Long pants
- Shoes plus socks

\* PPE based on the USEPA Reregistration Eligibility Decision (RED) for Diuron, September 30, 2003



# Right-of-Way Vegetation Management

Chippewa County Highway Committee – July 22, 2020  
Chad Gudis, Patrol Division Superintendent  
Brian Kelley, Highway Commissioner

## Overview

- Control of Invasive Vegetation
- Plant Growth Regulators (PGR's)



## Control of Invasive Vegetation – Summary

- Reasons to control invasive vegetation
- Target plant species
- Current known locations
- Treatment Options

## Control of Invasive Vegetation

- Reasons to control invasive vegetation
  - State Statute 66.0407
  - NR 40 (WI Admin. Code)
  - Harmful to human health
  - Prevents establishment of desired vegetation
    - Pollinators
    - Erosion

June 8, 2020

Chippewa County Highway Department,

Wild chervil is spreading aggressively in the Town of Auburn, Chippewa County. We have been working with 4-Control out of Menomonie, WI to spray the Town of Auburn township roads to control its spread. We noticed Chippewa County road ditches in the Town of Auburn are heavily infested with wild chervil and it is spreading to croplands which will choke out crops and desirable forage and hay species. Once wild chervil is established, it can be difficult and expensive to eradicate. With the Town of Auburn working to eradicate it before it becomes a devastating problem in our Township, we ask Chippewa County to also be diligent in controlling the spread of wild chervil.

Louise Cody, Town of Auburn Chairperson

*Louise Cody*  
Ben Dachel, Supervisor 1

James Dennis Henry, Supervisor 2

*James Dennis Henry*

## Control of Invasive Vegetation

(cont'd)

### Non-Native Target Species

Wild Chervil



Wild Parsnip



## Control of Invasive Vegetation

(cont'd)

### Non-Native Target Species

Japanese Knotweed



Spotted Knapweed

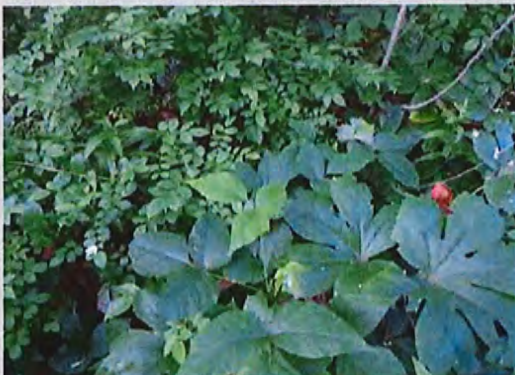


## Control of Invasive Vegetation

(cont'd)

### Other Target Species

Poison Ivy



Stinging Nettles



# Control of Invasive Vegetation

(cont'd)

## Noxious Weeds

Canada thistle



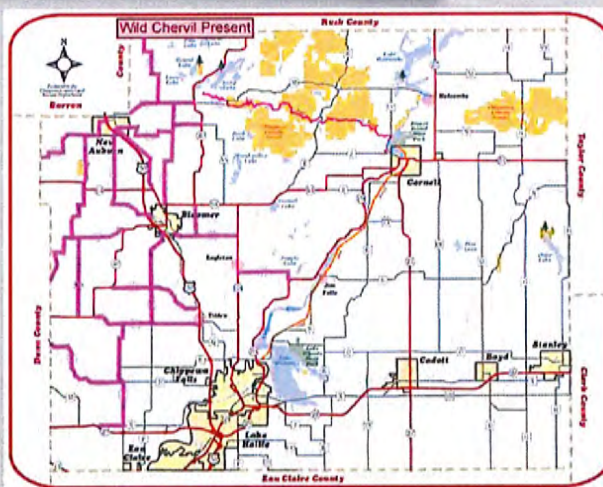
Leafy Spurge

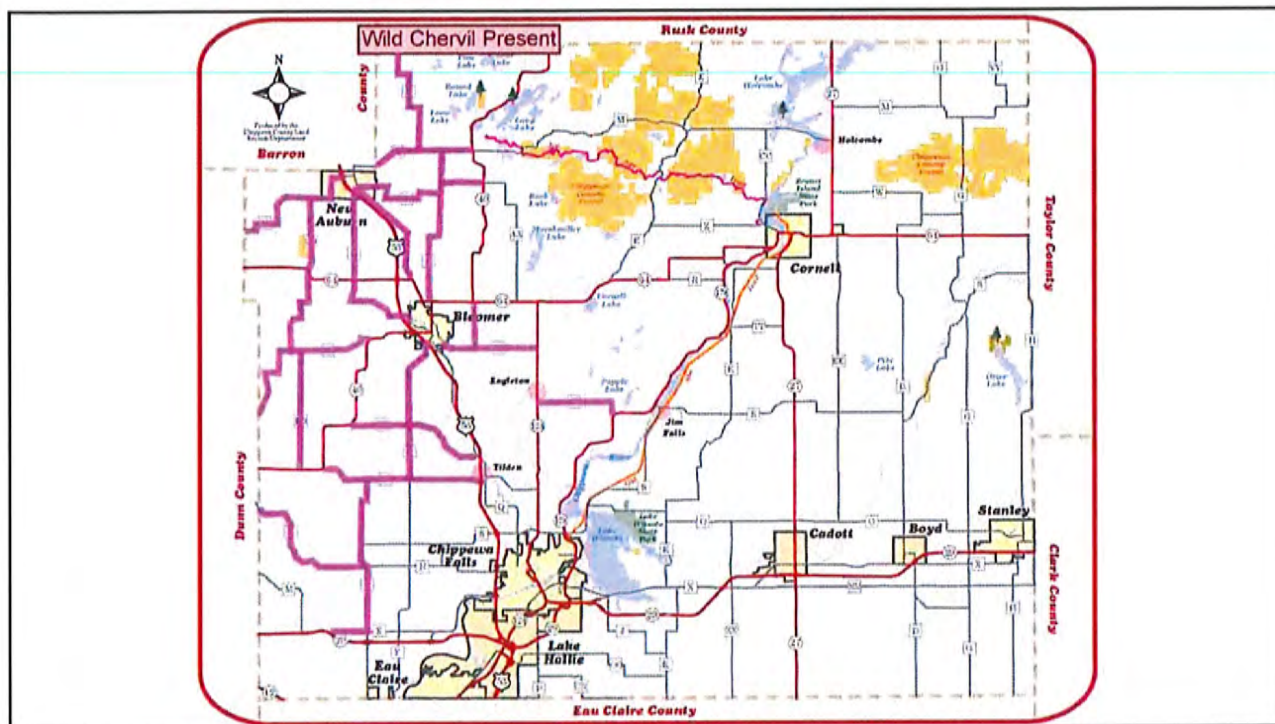


# Control of Invasive Vegetation

(cont'd)

- Current areas in County ROW where wild chervil is being monitored and spot treated
  - Also present throughout State & Town ROW's

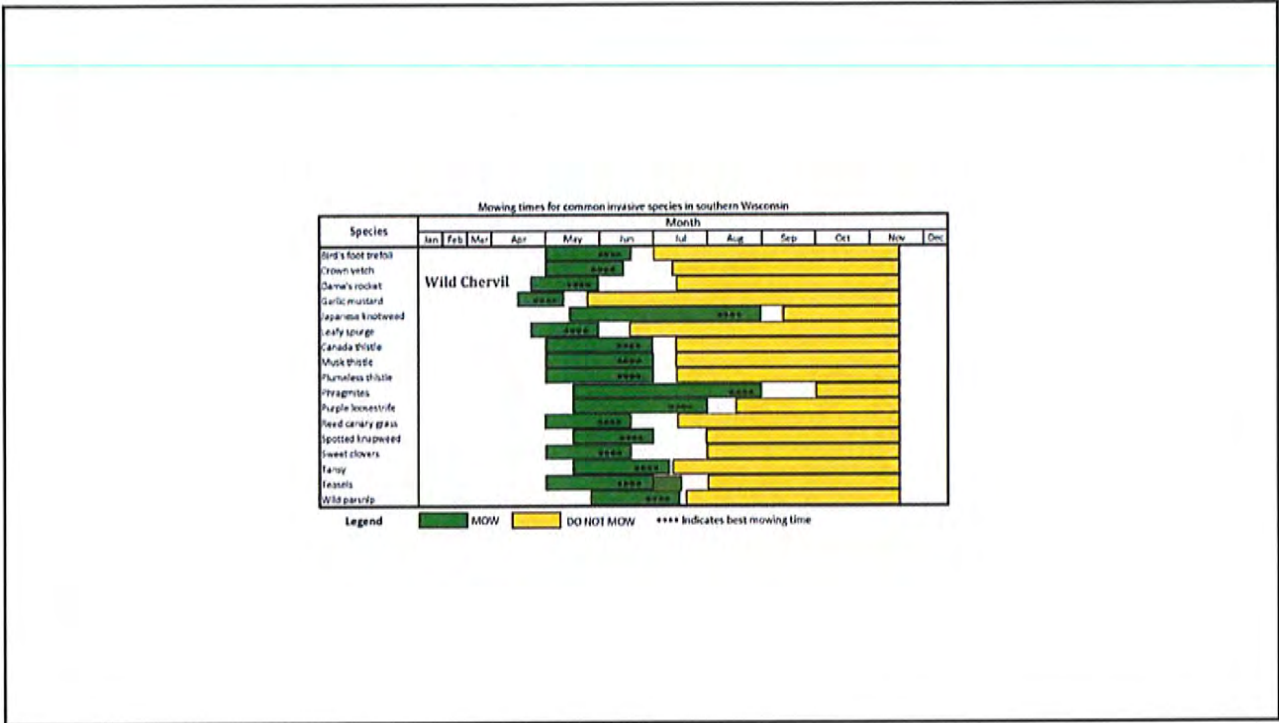




## Control of Invasive Vegetation (cont'd)


- Treatment Option 1 – Mowing
  - Invasive vegetation may be eradicated by mowing 3-4 consecutive years
  - Proper timing required (2-4 week window)
    - Currently mowing once per year in the summer
    - Wild chervil seeds in the early spring before mowing is feasible
    - We do not mow entire ROW
  - Mowing costs:
    - Approx. \$60-\$125/acre
      - \$73,953 in 2018
      - \$63,579 in 2019
  - Equipment wear & tear with mowing

Tractor Revenues	2013	(\$72,232.14)
	2014	(\$137,248.13)
	2015	(\$39,505.88)
	2016	(\$25,187.02)
	2017	(\$123,200.97)
	2018	(\$213,670.37)
	2019	(\$30,691.86)



## Control of Invasive Vegetation (cont'd)

- Treatment Option 2 – Spot Treatments w/ Herbicides
  - DNR-approved herbicides
  - Reactive approach to treating invasives already present
  - Applied costs vary greatly
  - Application factors:
    - Invasive plant density
    - Staff training
    - Overspray (drift)



## Control of Invasive Vegetation

(cont'd)

- Treatment Option 3 – Plant Growth Regulators (PGR's) with herbicide
  - DNR-approved herbicides
  - PGR slows invasive plant growth to increase effectiveness of summer mowing
    - Seeds are not yet present during mowing operations
  - Proactive approach to treating invasives before they develop
    - Very effective on Wild Parsnip and Wild Chervil
  - Applied costs
    - Approx. \$20-30/acre, depending on product and width
  - Application factors
    - Overspray (drift)
    - Training
    - May be effective for up to 2 years

## Control of Invasive Vegetation

(cont'd)

- Most effective solution is an integrated approach
  - Mowing & Herbicides



Plant Growth Regulators

(cont'd)

CTH B in Town of Tilden

Treated south slopes



Untreated north slopes



Plant Growth Regulators

(cont'd)

- CTH SS in Town of Woodmohr





Plant Growth Regulators

(cont'd)

CTH SS in Town of Woodmohr

Treated north slopes



Untreated south slopes



Plant Growth Regulators

(cont'd)

CTH SS in Town of Woodmohr

Treated north slopes



Untreated south slopes



# Plant Growth Regulators

(cont'd)

## CTH SS in Town of Woodmohr

Looking west @ CTH SS & CTH GG (110<sup>th</sup> Street)



Looking east @ CTH SS & CTH GG (110<sup>th</sup> Street)



# Plant Growth Regulators

(cont'd)

- Application Costs
  - Estimated \$55/lane mile @ 12' wide
    - Herbicides, labor, equipment
  - Approx. \$20,000 annually for 1/2 of the County
  - 5-6 days
  
- Start-up Costs
  - Specialty equipment
    - Approx. \$3,500/truck



## Plant Growth Regulators

(cont'd)

- Benefits
  - Eradication of invasive vegetation
  - Reduced mowing
    - Lower overall costs
    - Less equipment wear and tear
  - Improved site vision
    - Reduced animal hits
    - Improved site distances at driveways/curves/intersections/etc
  - Improved access & safety for:
    - First responders
    - Maintenance workers
    - Adopt-a-Highway volunteers

## Plant Growth Regulators

(cont'd)

- Future Plans
  - Monitor existing test sites
    - Leave test sites un-mowed and re-evaluate in Fall 2020
    - Leave test sites untreated in 2021 and re-evaluate in Fall 2021
  - Establishment of County-wide program in 2021 & 2022
    - Integrated approach of mowing & herbicides

Questions, Comments, or Concerns



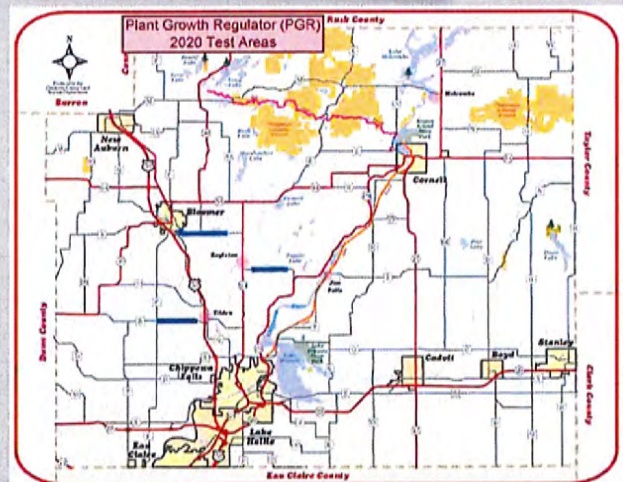
## Plant Growth Regulators – Summary

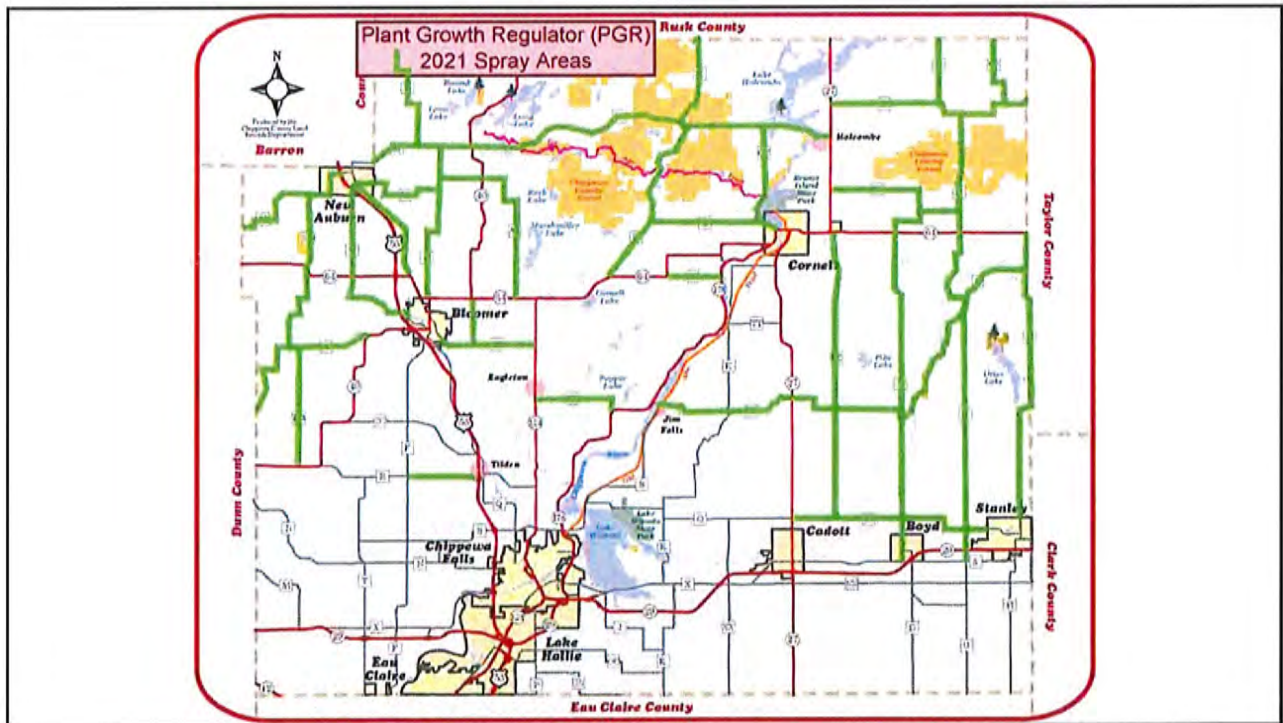
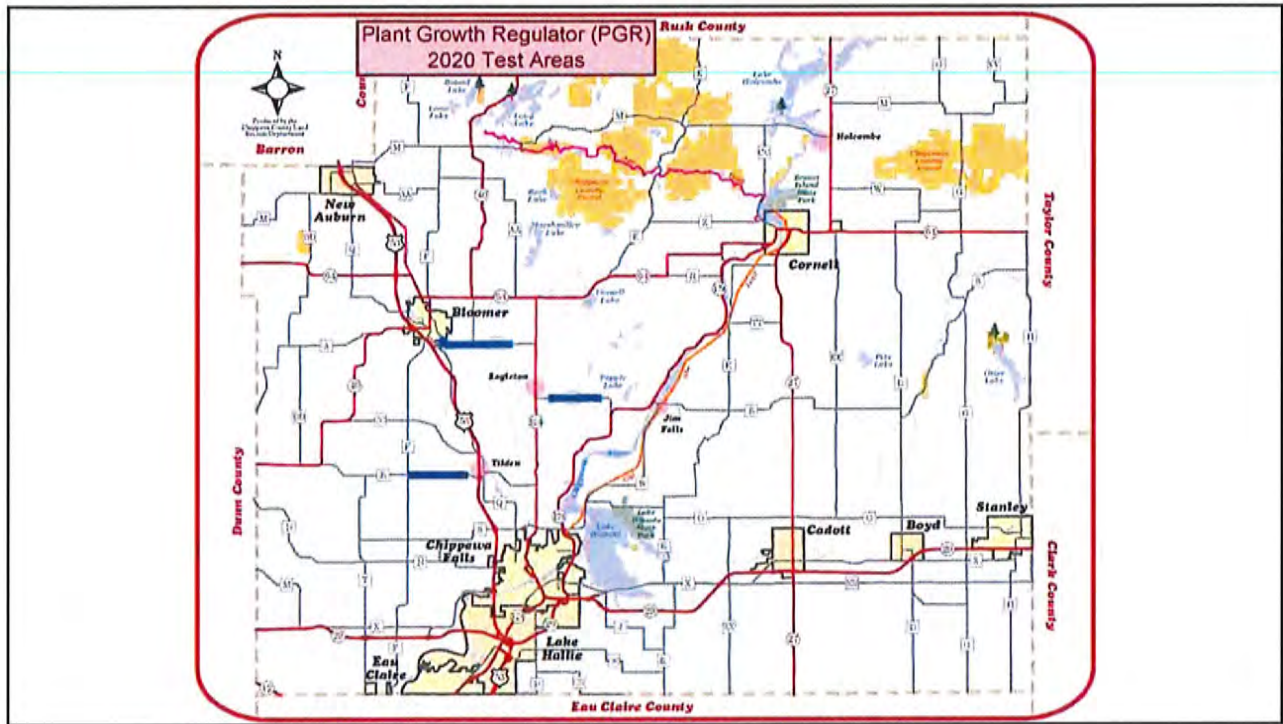
- 2020 test site locations
- Treatment results
- Costs
- Benefits
- Future plans

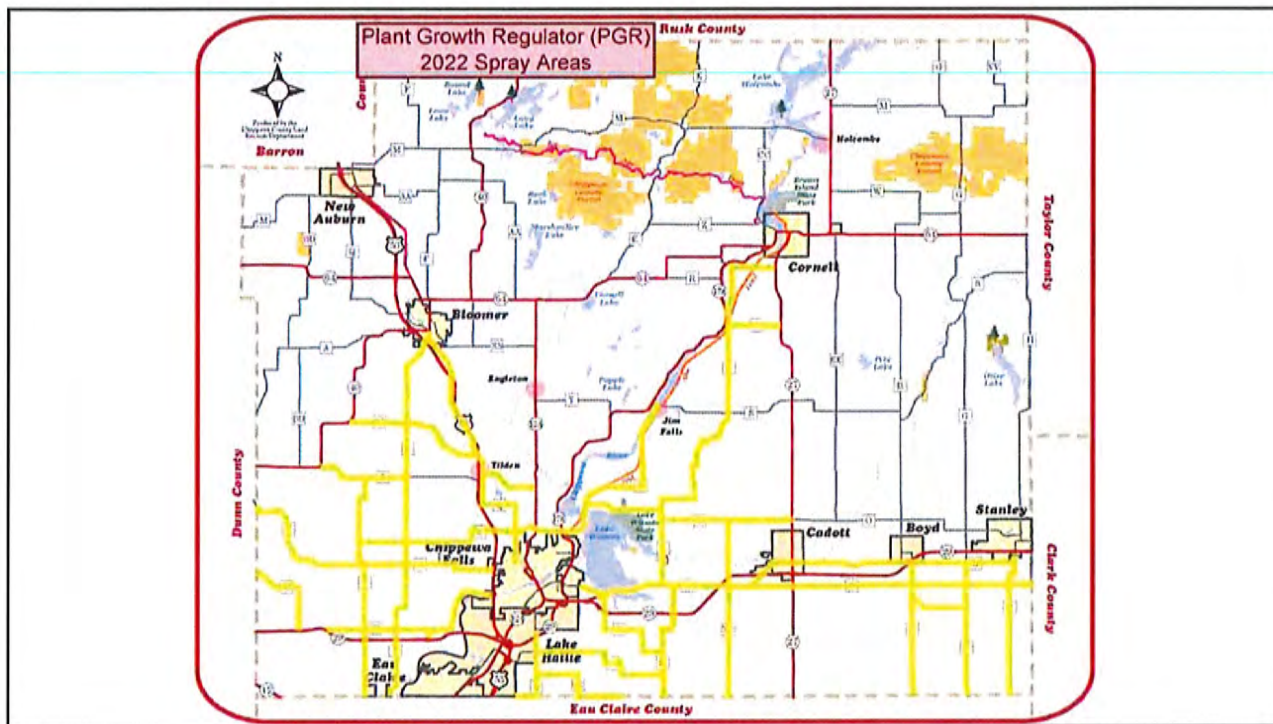
## Plant Growth Regulators

(cont'd)

- Test locations treated in 2020
- Future plans for 2021 & 2022







### Plant Growth Regulators

(cont'd)

- CTH Y in Town of Eagle Point



# Plant Growth Regulators

(cont'd)

## CTH Y in Town of Eagle Point

Untreated south slopes



Treated north slopes



# Plant Growth Regulators

(cont'd)

## CTH Y in Town of Eagle Point

Untreated south slopes



Treated north slopes





# Plant Growth Regulators

(cont'd)

- CTH B in Town of Tilden



# Plant Growth Regulators

(cont'd)

## CTH B in Town of Tilden

Treated south slopes



Untreated north slopes

