

Nutrien

Solutions

William "Bill" Walker
Territory Manager
SD, ND, IA, NE
Email: william.walker@nutrien.com

5230 AIRPORT ROAD
SPEARFISH, SOUTH DAKOTA 57783
VEGETATION MANAGEMENT PRODUCTS
VEGETATION MANAGEMENT
CONSULTING

(866) 642-3800 Office Toll Free
(605) 642-3800 Office
(605) 642-3784 Fax Line
(605) 645-1636 Bill's Cell Phone



Pesticide Label and Law

Herbicides are quite safe to use when used “According to “ALL” labeled Instructions”

All Herbicide labels will have pertinent information regarding

Application rates

Application timing

Tank mix partners

Worker protection standards

Personal protection equipment required

And many other important facts

Without reading and understanding the labels you will not know how to use the products properly

Word of mouth from a third party is not a good excuse for not reading or understanding the Pesticide (Herbicide) you are about to use

REMEMBER

The label is the law when using and applying Pesticides

Pesticide Label and Law

Again, the first thing to always remember **“The Label is the Law”**

You can do anything you want, if the **site, application rate, timing of application** are on the label and, if you are **wearing the proper PPE** and following the **“LABELED INSTRUCTIONS”**

If you are applying off from labeled instructions, sites or any other non-labeled application and there is a problem – **Expect to possibly get fined for any or all of these if reported**

Pesticide labels have suggested rate ranges and, maximum amounts of product that can be applied on any acre/site per year

If you are not a licensed applicator (Iowa Certified Commercial Applicator) and get caught applying pesticides on your job – expect to possibly get fined

IDALS exception to this is: For ready to use products only, Pathfinder II, Pathway, Premixed and ready to use Stump and Stem or foliar products, **NO mixing**, just spray on the stumps, stems or foliage with **“NO”** additional mixing

Why We Calibrate Equipment

*All pesticides have rates per acre on the labels, very few have percentage of solution, but a few do

*If our equipment is not calibrated so you know how much carrier (water or other) you are putting out, then you “**DO NOT**” know how much product to put into the tank.

*Labels are the Law; you must follow the labeled rates per acre on the labels to stay in compliance with the Law

*If you just start glugging glugs into the tank, then you have no idea what your rate per acre is that you might be applying (**Absolutely No Label Says Add 10 Glugs Per Acre or per Gallon**)

*If there is a complaint filed and **IDALS** must come and investigate and they ask you, what your rate per acre of the product you applied was and, you can not tell them, that is a violation of the product label

*Most all products now have maximum use rates per acre per year on the labels, again, if you are not calibrated than these rates could be exceeded and again, a violation of the label.

Brush and Tree Control Programs

Some brush species cannot be effectively controlled with herbicides.

For example, species such as persimmon, sassafras, and saw brier are difficult species to control with herbicides

Others more familiar to you might be Honeysuckle, Locust Species, Mulberry, Autumn Olive, Russian Olive, while not uncontrollable, they are harder to control

A few herbicides provide suppression or partial control of these species, but none are very good as a **singular product application**

Complete brush control from a single herbicide product application rarely occurs due to the diversity of species and the age of brush at most sites

Landowners can compensate for this problem by either tank mixing two or more herbicides or using follow-up treatment to control plants that escaped the first application.

Follow-up applications are made the next growing season because it is impossible to make an accurate evaluation of control until that time.

Brush and Tree Control Programs - Steps In A Brush Control Program

1. Evaluate the target species

The first step in establishing a brush control program is to identify the dominant target species or group of species on the target site

This is important because each site generally has a mixture of brush, and it is almost impossible to tailor a single herbicide product program to fit all possibilities

2. Evaluate the target site

Consider potential site and any possible environmental problems such as:

- *Possible off-site movement of herbicides due to drift or runoff of drainage water**
- *Potential surface water and groundwater contamination**
- * Soil type (leach ability, rocky, sandy, clay, loam and organic matter content) and vegetative cover present**
- *Possible injury to plants whose roots may extend into areas treated with soil active herbicides**
- *Is the site bordering existing tree belts, farm groves, extended housing developments, organic farm sites, vineyards or fruit tree groves**

3. Choose the application method and the herbicide

Does it meet the needs of the objective

Will it control the trees or brush present (all species or most species)

Is it compatible with the location, topography, soil type, and nearby non-target plants

Is it low key or low odor (when close to inhabited houses or extended housing developments)

Will it have a massive “Brown Out” effect

Is brush mowing the choice for the first control method (Mechanical Control)

While mechanical brush control is usually more expensive, time consuming, erosion prone, and less likely to achieve root kill, it does avoid the problems of larger standing dead brush.

Something to remember;

When Trees and brush are small, they are not as noticeable to nearby landowners when mowed or sprayed

Once they get larger and turn into trees (10’ or so) and become fruit or berry bearing bushes, now they have become noticeable to the adjacent landowners, and they deem them valuable

Factors To Consider In Choosing A Brush Control Program

Suberization

Plants use this natural healing process to prevent insects or diseases from infesting tissues after cuts or wounds occur

Woody plants develop a layer of protective, corky cells over the damaged tissue

When you use the hack and squirt or cut stump method of application, apply the herbicides immediately to achieve maximum absorption into the wounds

Delaying application of water-soluble herbicides for as little as one hour can reduce absorption and subsequent decrease in control

Oil based carriers can help in extending the application timing, using Bark Oil Carrier with a penetrant can increase control on older cuts

Root grafts

Sometimes the roots of different plants share vascular tissue through grafting

Root grafting occurs primarily within the same species but may occur between plants of the same genus

A herbicide can move from a treated tree to an untreated desirable tree through the root system, killing or injuring it

Damage to desirable trees because of root grafting may occur from the use of 2,4-D, Banvel (Dicamba), Roundup, and especially from (picloram) products (Tordon 22K, Pathway, Tordon RTU, Imazapyr Products and Others)

Can sometimes occur with Escort XP, Garlon's and other triclopyr products but not as often

Flashback or Flashing Off

This term describes the passive loss of an herbicide from the roots of treated trees as they die, and chemicals are released into the soil from the decaying roots

Once the herbicide is released from one tree, it is available for uptake from another

This is readily seen with applications containing Imazapyr (Arsenal, Stalker) products and Picloram products (Tordon 22K, Pathway, Tordon RTU)

Flashback damage can also occur with Dicamba (Banvel) and occasionally 2,4-D type products

Tree Dripline or Root Extensions

***Dripline is normally the furthest branches of trees and brush**

***These will normally dictate the extension of the root system, in the case of deciduous trees this might be more accurate**

***In the case of pine or spruce species you would normally take the height of the trees to figure the possible extension of the root systems.**

***When applying to unwanted trees and brush make sure these unwanted trees and brush are not within the dripline or root zones of any desirable trees**

***Treatments within these areas could possibly damage or kill the desirable trees with roots extending into the treatment zones**

***This could occur with picloram type products, soil applied type products like Spike 20P, dicamba products, imazapyr type products and any other products that might have a soil residual/soil uptake mode of action.**

Brush Mowing

This is one of your chosen brush control methods when brush has gotten heavy in sites

Quick knockdown, but leaves a lot of trash on the ground

Cut stems and stumps are hard to find to treat



Stems and stumps are rough, or shatter cut so herbicide treatments after make it extremely difficult to penetrate the stems and stumps

Many cases these could take soil treatment programs right after cutting (if ground is not frozen) but, much of the product may never reach the soils (ties up in the trash) and frozen ground will compound run-off problems



After the Brush Mowing

Once the sites have been mowed than look at the following control programs

*If you go too soon than the regrowth has not had time to put on ample leaf or stem structure to effectively take in the herbicides needed for control

*Normally you need to wait a minimum of 1 year after mowing and **2 years would be better before spraying any resprouts**

*Foliar applications on the smaller regrowth is best, may take two applications, a year apart, to get best results

*If you have larger stumps that can be found, stump treating these would be best, these can be treated in fall, winter and early spring with products designed for this and, **“As Soon As Possible After Mowing”**

*Stump or stem treatment of these should be done within 2 to 4 hours after cutting or mowing, you need quick follow-up

*Blanket spraying large mowed sites with stump or stem sprays (Garlon 4 Ultra and Bark Oil mixes) **is not recommended**

*In many cases you will exceed the maximum amounts of chemicals allowed per acre per growing season

Example:

If you are using a stump and stem product that is either premixed or mix it yourself than normally, they are about a 25% herbicide to 75% carrier (Bark Oil or other Oil carrier)

If we use Garlon 4 Ultra (ester triclopyr) at 1 quart (25%) per gallon

Bark Oil at 3 quarts (75%) to make 1 gallon material



That material is to be applied with no additional carrier with a hand sprayer

Normally hand sprayers will calibrate around 40 plus gallons per acre rates

Garlon 4 Ultra Herbicide maximum application rate per acre per year is **8 quarts (2 gallons) per site per year**

If you mow a site that is ½ mile long by 16 feet wide than you have basically mowed 1 acre of brush

To stay on label, you would have to treat that site with **8 gallons or less of premix of your mix if mixed at 25% herbicide solution by volume** to your oil carrier, or, no more than **10.7 gallons of Pathfinder II herbicide**

(40 qts. = 10 gal. Garlon 4 Ultra) (5 x rate allowed)

Almost impossible with a hand sprayer and even difficult with a handgun application or boom application

Cut Stump Spray Treatments

Stump spray treatments involves cutting down the tree or brush and than treating the “Freshly” cut surface with an herbicide

Normally tree stump is cut 2” to 4 “ from ground level and top is cut as level as possible



Thoroughly wet (spray) the cambium layer next to the bark so, the conducting tissue carries the herbicides to the roots

On larger trees you only need to treat the outer 2” to 3” of the stumps, the internal heartwood of the tree is already dead



On smaller trees (4" or so) less in diameter treat the entire cut surface and collar area down to ground level

Apply treatments immediately after cutting for maximum effectiveness

There is some reduction in effectiveness after 1 hour (water-based products)

It may take up to 4 hours before any serious drop-off in penetration occurs (oil-based products)

If application is delayed for several days, re-cut stumps

Upward sap flow can also cause herbicide run-off and reduce control, more prominent in spring and summer and water based products

Trash or sawdust on the stumps can absorb products and reduce control, clean these off before Applying

On smaller stems, you can directly treat these without cutting if using the oil base stump products, treat the lower 18" to 24" of stem down to the ground



Foliar Treatment:

*Normally foliar treatments are done on trees and brush up to approximately 15 feet tall or shorter

*The tree or brush foliage and small stems are sprayed until wet, in most cases, you do not need heavy dripping or run-off



*Applications for foliar can start as soon as the trees or brush have developed full leaf structure

*Until trees or brush have developed full leaf structure, they are “NOT” taking nutrients down to the root systems

*This will normally be mid to late June when full leaf structure has developed

*Foliar spraying is normally from early summer, late June or early July on until late September or, until leaves start to change at about 30% to 40% color change depending upon species

Treatments can be less effective if treating during very hot weather or when trees are under severe drought/water stress conditions (control may fall off)

****Foliage that is heavily dust covered should not be sprayed, products can be tied up in the dust and never get to the leaf or stems for intake into the plants (spray after rain or higher water volumes)**

Also, use of surfactants that help with penetration through the smaller stems and leaf uptake are highly recommended with this type of spraying (penetrating type surfactants, NIS or MSO types)

Use of drift control products that help to increase the droplet weights, reduce fines and help with droplet deposition and adhesion are also recommended

Especially when treating larger trees and brush, these will help in reducing possible drift and off target issues to surrounding lands and fields

These will also help in the retention and adhesion of the herbicide(s) to the leaf and smaller stems where the product will be taken into the plant

Some species such as Cedars, Pines and Spruces require through coverage inside and out for good control

If an issue is just some branches possibly hampering visibility or overhang safety, but you are not able to remove the entire tree or brush (Landowner issues)

Then you could possibly look at chemical side trimming or branch trimming these trees or brush

Krenite S Herbicide could do this for you (bud inhibitor product)

Does have Honeysuckle on the label at the higher use rates, up to 6% solution by volume

Just spray the limbs or parts of the tree causing a problem, these will die and leave the rest of the tree intact when used within the labeled species

This might be a good compromise in some cases with a landowner.

Could be a good choice for some fence line tree problems as well, minimal impact and residual on nearby crops (late fall applications)

Brush Practices, Short and Long Term

Sites should be blocked into regions or areas and each site should have a minimum of a 4-year rotation to begin with (Short-Term working to Long Term)

In heavy tree and brush sites, hand cutting, or mechanical control will produce the fastest results especially on larger trees and brush stems (Short Term)

You will need to couple the mechanical control with the herbicide control to achieve longer term control of these sites (can't just cut and walk away) 4 years time you will be cutting even more stems again (Short Term)

If the sites have smaller brush and trees, chemical control is much faster and cheaper, these could be foliar sprayed and within a couple of years see significant stand reduction (Short Term/Medium Term working to Long Term)

All sites must be managed over a period of years; you should see reduced stands within 2 to 3 years and spend less time in maintaining these sites in subsequent years to follow (Long Term)

This will realize less time, equipment, fuel and manpower on mechanical control, less time in spraying with herbicides and more time to move on and do other needed projects (Long Term)

Final goal

Is to reduce the stem count in all areas treated (Long Term)

This can't be done with mechanical alone, that will increase stem counts for the next cycle

Long term stem count reduction (by combining the two) allows for less manpower and time to be spent on the right-a-ways (Long Term)

This will help to lower the cost spent on each area

This lower costs savings can be used to increase the number of acres treated in a cycle and could allow you to abbreviate treatment cycles (Long Term)

Herbicide Control - Foliar applications

Vastlan Herbicide Base

2 / 3 quarts -

acre/100 gal. water

	Labeled
Honeysuckle	
White Mulberry	X
Autumn Olive	
Buckthorn	
Black Locust	X
Norway Maple	X
Siberian Elm	X
Tree of Heaven	
Cottenwoods	X
Green Ash	X
Willows	X
Russian Olive	*X Re-treatment
Boxelder	
Callery Pear	
Oriental Bittersweet	
Red cedar	
Japanese Barberry	

Method 240 SL Herbicide Base

10 / 14 ounces

acre/100 gal. water

	Labeled
Honeysuckle	
White Mulberry	
Autumn Olive	X
Buckthorn	X
Black Locust	X
Norway Maple	X
Siberian Elm	X
Tree of Heaven	
Cottenwoods	X
Green Ash	X
Willows	X
Russian Olive	
Boxelder	X
Callery Pear	X
Oriental Bittersweet	
Red cedar	
Japanese Barberry	

Escort XP Herbicide - Added

2 ounces -

acre/100 gal. water

	Labeled
Honeysuckle	X
White Mulberry	X
Autumn Olive	
Buckthorn	
Black Locust	X
Norway Maple	X
Siberian Elm	X
Tree of Heaven	X
Cottenwoods	X
Green Ash	X
Willows	X
Russian Olive	
Boxelder	
Callery Pear	
Oriental Bittersweet	
Red cedar	X
Japanese Barberry	

Milestone or TerraVue - Added

7 ounces or 2.85 ounces

Acre / 100 gal. water

	Labeled
Honeysuckle	
White Mulberry	
Autumn Olive	
Buckthorn	
Black Locust	M / T
Norway Maple	
Siberian Elm	
Tree of Heaven	T
Cottenwoods	
Green Ash	
Willows	
Russian Olive	M/T helps
Boxelder	
Callery Pear	
Oriental Bittersweet	
Red cedar	
Japanese Barberry	

Mixes for Foliar Brush and Tree Control

Vastlan Herbicide Mix

Vastlan Herbicide at 2 quarts
**(Russian Olive at 3 quarts)
Escort XP Herbicide at 2 ounces
TerraVue Herbicide at 2.85 ounces
Liberate Surfactant at 1 to 2 quart per 100 gallons water
Or MSO Surfactant at 1% by Volume
or 1 gallon per 100 gallons water

All tank mixed in 100 gallons water for high volume applications

Or based on a per acre application with sufficient water for full coverage to leaves and smaller stems

Species to possibly control

Honeysuckle	Mulberry	Locust Species
Maple Species	Elms	Cottonwoods
Poplar Species	Ash	Willows
Russian Olive**	Tree of Heaven	
Red Cedar and Cedar Species		
Oriental Bittersweet and Japanese Barberry ***		

***Based on research of these plants

Method 240 SL Herbicide Mix

Method 240 SL Herbicide at 10 to 14 ounces
Escort XP Herbicide at 2 ounces
TerraVue Herbicide at 2.85 ounces
Liberate Surfactant at 1 to 2 quart per 100 gallons water
Or MSO Surfactant at 1% by Volume
or 1 gallon per 100 gallons water

All tank mixed in 100 gallons water for high volume applications

Or based on a per acre application with sufficient water for full coverage to leaves and smaller stems

Species to possibly control

Honeysuckle	Autum Olive	Buckthorn
Locust Species	Mulberry	Maple Species
Elms	Cottonwoods	Ash
Willows	Boxelder	Callery Pear**
Tree of Heaven	Red Cedar and Cedar Species	
Oriental Bittersweet, Japanese Barberry, Russian Olive ***		

***Based on research of these plants

Foliar Application Cautions

- *Heavy over applications that cause heavy dripping or run-off from the treated plants can and will severely damage or kill valuable understory vegetation
 - *Using products that are highly volatile such as:
 - *Dicamba's, 2,4-D Ester products, Ester based Triclopyr's can volatilize with heat and cause damages close to and miles away from the treated site
 - *Do not try to overapply just to try and get control on all species at one time, does not work, target un-controlled plants the next year
 - *Treatments can be less effective if treating during very hot weather or when trees are under severe drought/water stress conditions (control may and will fall off)
 - *Foliage that is heavily dust covered should not be sprayed, products can be tied up in the dust and never get to the leaf or stems for intake into the plants (spray after rain or higher water volumes)
- Again, use foliar on smaller trees and brush, watch how high you are lofting products into the air

Additional Possible Herbicide Add In Products

***Patron 170 Herbicide** - Is a premix of 2,4-D Low Vol Ester and 2,4-DP-p Low Vol Ester

Does have **Honeysuckle** and **Black Locust** on the label for control

Use rates would be 6.9 pints per acre or spot treatments no more than 2.3 gallons per acre

Is a 2,4-D ester-based product so volatility in warm/hot weather could be a problem

*****AquaSweep Herbicide** - Is a premix of Triclopyr (Garlon 3A) and 2,4-D Amine

Does have **Honeysuckle**, Black Locust and Russian Olive on the label

Use rates would be a maximum 11.5 (1 gal. and 3.5 pints) pints per application for woody plants on right-a-ways, limited to 1 application per year

Does have a good aquatic labeling for wetland and aquatic sites

***Crossbow L Herbicide** - Is a premix of Triclopyr ester (Garlon 4) and butoxyethyl ester (butyl ester)

Does have **Honeysuckle** on the label for foliar applications, use 1.5% high volume (1.5 gallons per 100 gallons water), use Liberate Surfactant at 1 quart per 100 gallons mix

Is two ester products and the butyl ester is old type 2,4-D ester so possible volatility issues are real here, low humidity and high temperatures will increase that issue, use after full leaf development for foliar applications

***Imazapyr Products - Arsenal, Polaris**

These would control a vast number of the trees and brush species listed included are - **Honeysuckle**, Mulberry, Autumn Olive, Black Locust, Russian Olive and many of the other listed species.

Use rates would be 4 to 6 pints per acre as a add in or stand alone

***Major Problem - Will give you bareground under and around all treated sites (not a good foliar choice)**

Basal Stem and Cut Stump Treatment Herbicide Suggestions

Ready to Use Products and Mixed Products

Pathway Herbicide (Tordon RTU)

Is a premix of picloram (Tordon 22K) and 2,4-D Amine

Is a water-based product

Has a blue dye added to show treated stumps and stems

Can be used on Cut Stump, tree injection, frill or girdle applications

Is water-soluble and can move with surface runoff water

Is a warm weather application

Do not use on frozen ground

Can freeze in below freezing temps

Can freeze on cut stump surfaces

Can flash off dead roots and become available for other plants to pickup

Maximum application rate is 4 gallons per acre per year

Pathfinder II Herbicide (RTU)

Is a premix of triclopyr ester (Garlon 4) and mineral oil

Is an oil-based product

Has no dye added but lightly stains treated stumps and stems

Can be used for cut stump, basal stem and streamline basal treatments

Can be used in freezing temperatures but might thicken up in below freezing

Can be used to waters edge or seasonally dry wetland sites

Is an ester product so volatility in warm weather could be an issue

Is less likely to flash off dead roots than picloram or other products (but possibly could)

Maximum application rate is 10.7 gallons per acre per year (ROWs)

Garlon 4 Ultra/Bark Oil Premix (RTU)

Can be made into a premix solution of triclopyr ester and Bark oil carrier

Bark Oil is a carrier and bark penetrator

Is an oil-based product

Can have a dye added to show treated stumps and stems (blue or red)

Can be used in below freezing temperatures “without” thickening up

Can be used to waters edge and seasonally dry wetland sites

Is an ester-based product so volatility in warm weather could be an issue

Is less likely to flash off dead roots than picloram or other products (but possibly could)

Other products can be mixed with it to increase control of more species

Maximum use rate per acre per year is 8 quarts on ROW sites

Basal Stem and Cut Stump Treatment Herbicide Suggestions

Ready to Use Products and Mixed Products - ** On products on one label but not the other

Pathway Herbicide

Labeled

Honeysuckle	
White Mulberry	
Autumn Olive	
Buckthorn	
Black Locust	
Norway Maple	X
Siberian Elm	X
Tree of Heaven	
Cottonwoods	
Green Ash	X
Willows	
Russian Olive	
Boxelder	
Callery Pear	
Oriental Bittersweet	
Red cedar	X
Japanese Barberry	

Pathfinder II Herbicide

Labeled

Honeysuckle	
White Mulberry	
Autumn Olive**	X
Buckthorn**	
Black Locust	X
Norway Maple	X
Siberian Elm	X
Tree of Heaven**	
Cottonwoods	X
Green Ash	X
Willows**	
Russian Olive**	X
Boxelder	X
Callery Pear	
Oriental Bittersweet	
Red cedar**	X
Japanese Barberry	

Garlon 4 Ultra/Bark Oil Premix (Labeled)

Honeysuckle	
White Mulberry	X
Autumn Olive**	
Buckthorn**	X
Black Locust	X
Norway Maple	X
Siberian Elm	X
Tree of Heaven**	X
Cottonwoods	X
Green Ash	X
Willows**	X
Russian Olive**	
Boxelder	X
Callery Pear	
Oriental Bittersweet	
Red cedar**	
Japanese Barberry	

Add Milestone or Stalker or Polaris SP

Honeysuckle	SP
White Mulberry	S/SP
Autumn Olive	S/SP
Buckthorn	
Black Locust	M/S
Norway Maple	S/SP
Siberian Elm	S/SP
Tree of Heaven	S/SP
Cottonwoods	S/SP
Green Ash	S/SP
Willows	S/SP
Russian Olive	S
Boxelder	S/SP
Callery Pear	
Oriental Bittersweet	
Red cedar	
Japanese Barberry	

Callery Pear - Basal or Cut Stump treatments will work with Garlon 4 Ultra and Bark Oil mix

Use a 25% to 50 % mix of Garlon 4 Ultra (1 to 2 quarts per gallon) and Bark Oil or a basal treatment of 20% Garlon 4 Ultra and Bark Oil (26 ounces Garlon 4 Ultra to 102 ounces Bark Oil) on trees up to 6” in diameter

Russian Olive /Autumn Olive - Cut Stump and basal treatments should be a 33% solution of Garlon 4 Ultra and Bark Oil mix, 42 ounces Garlon 4 Ultra and 86 ounces Bark Oil, can add Stalker at 1.5% or 2 ounces per gallon mix to increase control (this will flash off the dead roots, personal observations)

Tree of Heaven - Cut Stump or Basal treatments, 25% solution of Garlon 4 Ultra and Bark Oil plus Stalker at 1.5% or 2 ounces per gallon mix, many running roots and need the Stalker to translocate through these better

Cedars and Pine Species (Most) - Once cut below the growing point, they are dead and not growing back, most all new plants are from seed, not regrowth from the stumps

Locust Species (Black and Honey) - The addition of Milestone Herbicide to your stump spray will help to kill these and stop regrowth, 2% or 2.5 ounces per gallon of mix

Noxious Weed Spraying - Right-A-Ways

There is a broad list of noxious weed that the county is responsible for within their right-a-ways and lands

Canada Thistle



Musk Thistle



Plumeless Thistle



Bull Thistle



Leafy Spurge



Japanese Knotweed



Palmer Amaranth



Poison Hemlock



Wild Parsnip



Teasel



Iowa's Noxious Weeds and Class

Eradication Noxious Weeds - Palmer Amaranth

Primary Noxious Weeds - Quack Grass, Perennial Sow Thistle, Canada Thistle, Bull Thistle
Field Bindweed, Horse Nettle, Leafy Spurge, Perennial Pepper Grass, Common Buckthorn,
Russian Knapweed and any other species of Thistle belonging in the genus of Carduus (Musk
Thistle)

Secondary Noxious Weeds - Butterprint (Velvetleaf), Cocklebur, Wild Mustard, Wild Carrot,
Buckhorn Plantain, Sheep Sorrell, Sour Dock, Smooth Dock, Poison Hemlock, Multiflora Rose,
Wild Sunflower, Puncture Vine, Teasel, Shattercane

Prohibited Plants - Purple Loosestrife, Garlic Mustard, Oriental Bittersweet, Japanese
Knotweed, Japanese Hop

It is illegal to import, sell, or distribute any part of these plants in Iowa. Some species are listed both as a noxious and prohibited plant.

And any other plants that the county may include - Wild Parsnip

Why Does the County Have to Spray Declared Noxious Weeds

It's the Law;

The intent of noxious weed laws is to protect landowners from having their land invaded by weeds growing on adjacent land

And to reduce the likelihood of introduction and spread of new weeds.

Iowa law states

The county boards of supervisors and the state department of transportation **shall** control or eradicate noxious weeds growing on the roads under their jurisdiction

Noxious and Nuisance Weed Spraying - Timing

Normally your noxious/nuisance weed spraying should start about late May or June if you are spot spraying (Late Spring) or when you can start to identify the target weeds

If you are blanket spraying than you can start earlier (you do not need to identify the weeds) because you are covering the entire area(s)

Problem 1 - When the weeds are smaller you just can't see them in the invasive Brome grasses (green on green)

Most will wait until they either grow above the grasses (bolt to bud) or start to flower so they can identify them when spot spraying (flowers)

Problem 2 - Not all noxious weeds are ready at the same time, applicators try to pick a mid point to get most in 1 pass, some may be just bolting, some may be flowering, some may be late flower

Remember - Spot spraying is an imperfect art at best (there will be some misses)

In some cases, you or your applicators may encounter
“NO Spray Areas” or signs posted “NO Spraying”

These are normally posted by the adjacent landowner, and they may have some concern with the spraying operations

- *They may have some Organic Farming or Gardening
- *They may be Sensitive to the Sprays
- *They are concerned about their crops and possible drift
- *They are concerned about Beehives, Bees and other pollinators
- *Or possibly, they may have read false information off from the Internet on spraying and the products used so they do not want any spraying

For what ever reason these signs need to be respected and these sites or roads should not be sprayed and should be noted on a map

Contact with the concerned citizen should be made

Ask them why, the NO Spray zone and they (the person wanting the no spray) should also be informed that it is now,

Their Responsibility to Maintain the Control of the Declared Noxious Weeds Within the
“No Spray Zone”

Mowing

Mowing in the areas where noxious weeds are to be treated should be completed either

2 weeks after the applications have been made

You need time for the products to get into the plants and work
Mowed off too soon after applications just negates the herbicide control

2 to 4 weeks before any application to noxious weeds in the area

The weeds need time to heal and start to grow again
After mowing the weeds will shut down growth, cauterize the cuts so no
herbicide will get into the plants

***If you or your county operators are mowing and see noxious weeds in the mowed areas,
just let your applicators know so they can get back to those sites to treat 2 to 4 weeks later

Many noxious weeds can also be fall treated as well if time

Once they have started to actively grow again, you can treat up until the first hard frost or
two, once they start to turn color (Purple or Black) than you are done

Most of the perennial weeds or new rosetted biennial weeds can be fall treated

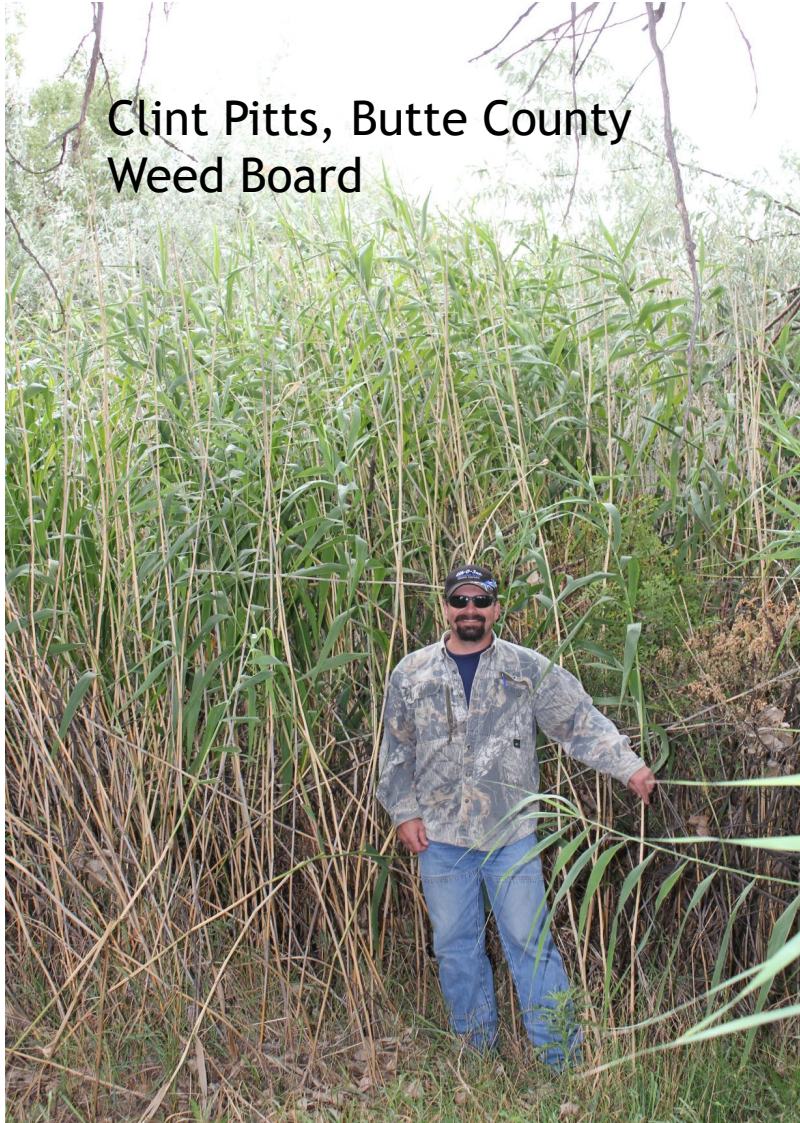
Noxious or Nuisance Plants

This List was Supplied Through a Request Sent by Brian Burkholder on Your Noxious/Nuisance Weed Concerns
2022/2023 Talk on the
Shaded Blue Boxes

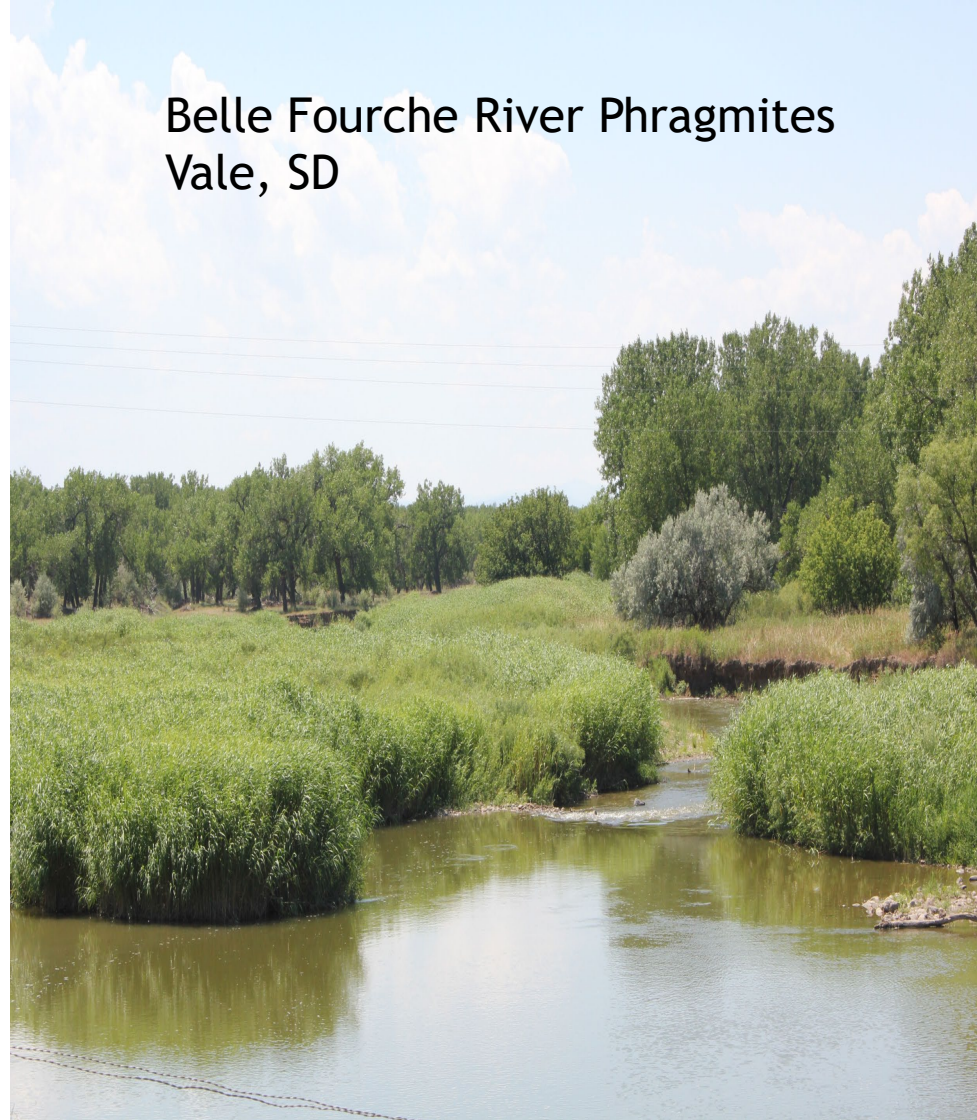
Canada Thistle	Blue
Teasel	Blue
Musk Thistle	Blue
Bull Thistle	Blue
Phragmites	
Multiflora Rose	Blue
Purple Loosestrife	
Japanese Knotweed	Blue
Ragweed	
Wild Parsnip	Blue
Leafy Spurge	Blue
Field Bindweed	Blue
Silvergrass	
Brohm Grass	
Poison Hemlock	Blue
Roundleaved Bittersweet	
Pigweed	Blue
Smartweed	
Wild Carrot	Blue
Cocklebur	
Ground Cherry	

Canada Thistle	
Teasel	
Musk Thistle	
Bull Thistle	
Phragmites	Orange
Multiflora Rose	
Purple Loosestrife	
Japanese Knotweed	
Ragweed	
Wild Parsnip	
Leafy Spurge	
Field Bindweed	
Silvergrass	Orange
Brohm Grass	Orange
Poison Hemlock	
Roundleaved Bittersweet	
Pigweed	
Smartweed	
Wild Carrot	
Cocklebur	
Ground Cherry	

Invasive Phragmites / Belle Fourche River









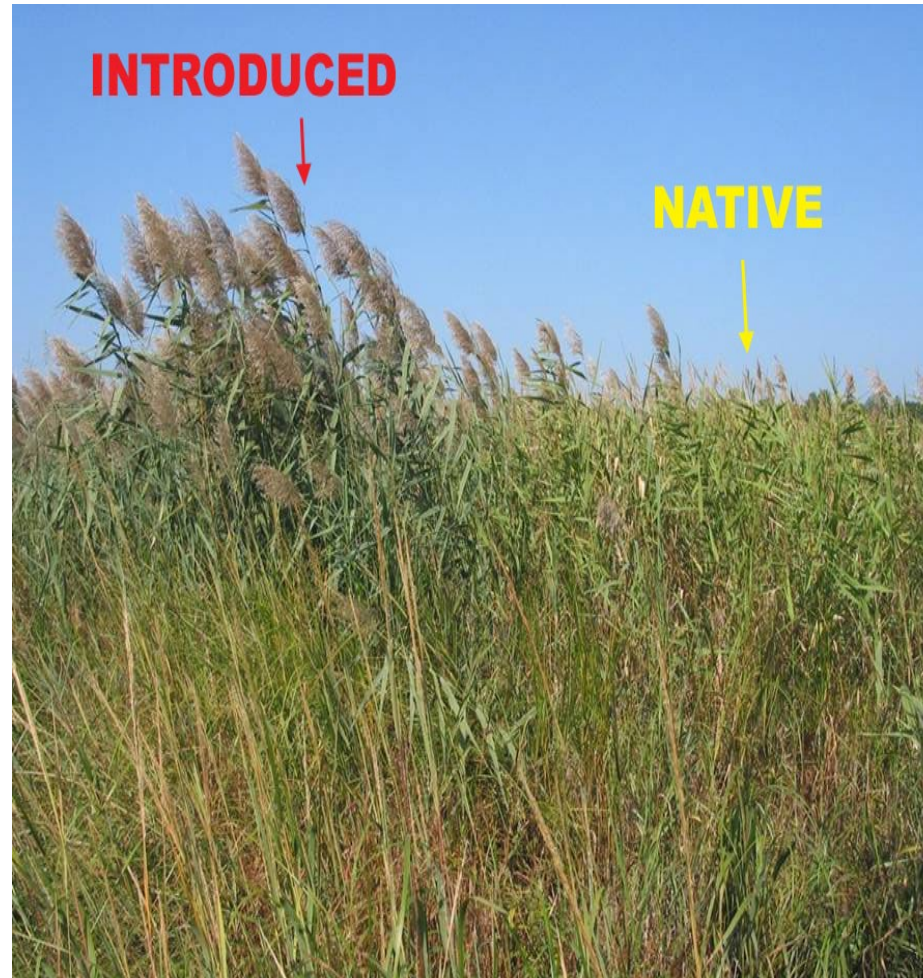
Clint Pitts, Butte County
Weed Board



Belle Fourche River Phragmites
Vale, SD

Invasive or Native Phragmites

		
Characteristic	Native	Invasive
Stem color	 Stem nodes are shiny and reddish-purple	 Stem nodes are tan-green, dull and rigid
Leaf color	 Lighter, yellow-green	 Dark blue-green
Rhizome	Yellow	White to light yellow
Growth habit	Co-occurs with other plants	Tend towards mature, dense, monotypic stands
Other	Leaf sheaths fall off during the winter, leaving bare stems standing in the spring	Leaf sheaths do not fall off, litter from the previous year has remnant leaves.



Phragmites Spray Program

Roundup Custom Herbicide at 1% Solution or 4 quarts per 100 gallons water

(Or any aquatic glyphosate product)

LI 700 Surfactant at 2 quarts per 100 gallons mix

(Acidifying Surfactant to help glyphosates work better)

Choice Weather Master at 4 quarts per 100 gallons mix

(Water Conditioner to stop the glyphosate from tying up on hard water cations)

Reign RTU Drift Control at 2 quarts per 100 gallons mix

(Deposition and adhesion aid and drift control)

Blue Marker Dye at 1 to 2 pints per 100 gallons mix

*****Any aquatic labeled glyphosate could be used*****

All should be tank mixed and applied at approximately 100 gallons per acre application rates.

All suggested products have aquatic labeling as needed and can be use around and in waters.

This program is good for use in all areas and could be used under the trees

After applications, the Phragmites should **“NOT”** be disturbed or mowed for at least 1 year or longer

Secondary Spray Program

Clearcast Herbicide	at 64 ounces per acre (2 quarts)
Liberate Surfactant <small>(100% non-ionic penetrating surfactant, aquatic labeling)</small>	at 2 quarts per 100 gallons mixture
Reign RTU Drift Control <small>(Deposition and adhesion aid and drift control)</small>	at 2 quarts per 100 gallons
Blue Marking Dye	at 1 to 2 pints per 100 gallons mix

All should be tank mixed and applied at approximately 100 gallons acre water as carrier

Clearcast is not a regulated or restricted use product, any body can buy and apply according to labeled recommendations

Clearcast is easier on trees (can be sprayed around and in some cases even over the trees and is easier on some of the surrounding grasses

This program was used around trees (Willows, Cottonwoods and Others) to preserve as much as possible for wildlife and livestock habitat

Again, after applications the Phragmites should **“NOT”** be disturbed or mowed for at least 1 year

Final Spraying Program Choice

Arsenal or Habitat Herbicide

(Any aquatic labeled Imazapyr product could be used)

at 2 quarts per acre/100 gallons mix

Liberate 100% NIS Surfactant

(100% non-ionic penetrating surfactant, aquatic labeling, helps with adhesion, droplet deposition)

at 2 quarts per 100 gallons mix

Reign RTU Drift Control

(Deposition and adhesion aid and drift control)

at 2 quarts per 100 gallons

Blue Marking dye as needed

at 1 to 2 pints per 100 gallons mix

All would be tank mixed and applied at approximately 100 gallons per acre application rates.

All have aquatic labeling as needed and can be use around and in waters.

This program was chosen for applications along open shorelines and islands

Should be kept from under trees and important surrounding vegetation (will kill these)

Extremely positive control with these products and extended control time

Not a good choice for areas for restoration to follow the following year or up to several years

Some Points to Remember on the Phragmites Herbicide Suggestions

You are doing column acres, different than ground acres

All Spraying should be completed by handgun applications for as through coverage as possible

All applications are of high volume of carrier rates to insure complete and total coverages of plants

The surfactants and water conditioners were chosen for their enhancement of glyphosate-based products to help improve their performance

The other surfactants and additives were chosen for their enhancements of the products they are being used with, the penetration characteristics from these as well as drift control, deposition and adhesion enhancements

Spraying should be done starting about August and go until plants have about 40% plus color change, mid- September or so

Main spraying program is chosen with restoration in mind

Phragmites on year after application
With aquatic glyphosate program and
preserving the adjacent trees



Glyphosate application program
Sprayed in 2019, photo in 2020





Cottonwood Pole
Plantings



Willow Stick
Plantings



Prairie Cord Grass
Plug Plantings



Coated grass seeds that could be applied through backpack blowers, native warm seasons, forbs and flowers

Smooth Brome Grass (Cool Season Grass)



Silver Grass (Warm Season Grass) 20 plus varieties



Smooth Brome Grass Control

Best control is just not to plant it

Cool season grass, perennial, has some forage value early but once hardened animals do not like it, limited wildlife uses, heavy invader of native sites and restorations

Site prep to get rid of Smooth Brome Grass

Heavy rhizomes root systems so getting enough product in the plants to translocate through these is a must

Use glyphosate for site prep or a glyphosate Plateau (Imazapic) combination

If planting back warm season grasses, flowers and forbs than Plateau could be added for additional control of Smooth Brome

If using cool season grasses in the stands than “NO” Plateau Herbicide should be added

If Smooth Brome Grass is surrounding the restoration site than consider a buffer strip of all warm season grasses - 10 to 15 feet wide or so

This will allow you to treat encroaching Smooth Brome Grass (with heavier rates of Plateau) before it gets into a site that might be harder to control it in

Site Prep for Control of Smooth Brome

Glyphosate Herbicide	at 3 to 4 quarts per acre
Plateau Herbicide	at 4 to 8 ounces per acre
LI 700 Surfactant	at 2 quarts per 100 gallons water
Choice Weather Master	at 2 quarts per 100 gallons water

If plan is restoration of warm season grasses and Plateau tolerant forbs and flowers

Big exception to this would be Switchgrass, not tolerant to Plateau Herbicide

May need to do multiple applications before Smooth Brome is totally controlled

Additional applications would not need the Plateau Herbicide if using higher rates, just the glyphosates (about 6 weeks apart)

First applications are best in spring when Smooth Brome breaks dormancy and reaches about 4" or so in new growth

If area is heavily duffed (old grass stand), then mowing or burning will help product get to the new plants better for better control

Higher application rates of the carrier for better coverage is recommended

Smooth Brome Grass Control in Established Warm Season Grasses, Forb and Flower Sites

Control is limited here, if all warm season grasses (excluding Switchgrass) and Imazapic tolerant (Plateau) forbs and flowers

Smooth Brome Grass will start growing several weeks before the warm season grasses break dormancy

Once the Smooth Brome reaches about 3" to 4" spray with Plateau herbicide

Depending upon your grasses, flowers and forbs tolerance to Plateau you can use from 4 ounces to 8 ounces per acre rates

Better control can be achieved by adding MSO Surfactant at 1 quart per acre rates

This might not be perfect and may take several applications to totally rid the site of Smooth Brome Grass

If you can time the application right, making sure the other warm season plants are still dormant than Glyphosate could be added at 8 to 12 ounces per acre rates as well

If you have cool season grasses in the site that are deemed valuable, then no Plateau and no Glyphosate, all control is off

Silver Grass (Miscanthus) Approximately 20 Species Amur Silver Grass / Chinese Silver Grass

Is a warm season grass so controlling is more difficult than cool season grasses
(Fewer Chemical Options)

Has an extensive root system (much like Phragmites)

Control options as limited

(Glyphosates / Imazapyr's) no work has been done with Clearcast Herbicide

Fire or burning can encourage more growth

Can escape the ornamental planting sites and become invasive

Will crowd out native grasses, forbs and flowers

Silver Grass Spray Program

Mad Dog 5.4 Herbicide at 1% Solution or 4 quarts per 100 gallons water

(Or any glyphosate product)

LI 700 Surfactant at 2 quarts per 100 gallons mix

(Acidifying Surfactant to help glyphosates work better)

Choice Weather Master at 4 quarts per 100 gallons mix

(Water Conditioner to stop the glyphosate from tying up on hard water cations)

Reign RTU Drift Control at 2 quarts per 100 gallons mix

(Deposition and adhesion aid and drift control)

Blue Marker Dye at 1 to 2 pints per 100 gallons mix

All should be tank mixed and applied at approximately 100 gallons per acre application rates.

Spray once the plants have reached full Greenup and before flower and seed production

This program is good for use in all areas and could be used under the trees and in sites planning on reclamation within a year after control

Silver Grass

Arsenal or Polaris Herbicide

(Any Imazapyr product could be used)

at 2 quarts per acre/100 gallons mix

Liberate 100% NIS Surfactant

(100% non-ionic penetrating surfactant, aquatic labeling, helps with adhesion, droplet deposition)

at 2 quarts per 100 gallons mix

Reign RTU Drift Control

(Deposition and adhesion aid and drift control)

at 2 quarts per 100 gallons

Blue Marking dye as needed

at 1 to 2 pints per 100 gallons mix

All would be tank mixed and applied at approximately 100 gallons per acre application rates.

Should be kept from under trees and important surrounding vegetation (will kill these) even with just root uptake

Extremely positive control with these products and extended control time

Not a good choice for areas for restoration to follow the following year or up to several Years (will bareground the site for several years)

Travel Safety Tip - When Traveling Out West, Don't Pet the Fluffy Cows



Any
Questions