photo courtesy of Katie Koenig

Western Rangeland Invasive Annual Grass and Broadleaf Weed Control

HighNoon®

HERBICIDE

CORTEVA™ agriscience

Range & Pasture™

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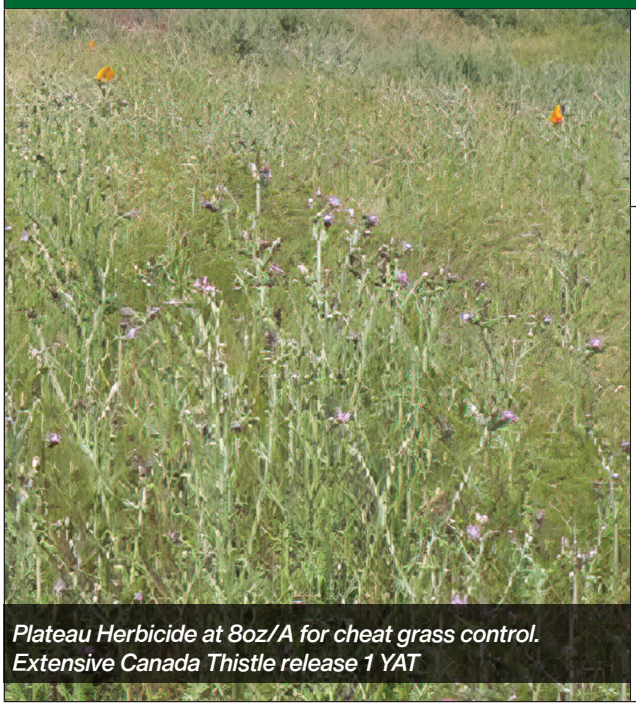
HighNoon® Herbicide for Western Rangeland

Problem– Weeds Know No Boundaries
Weeds do not stop at the boundary of our rangeland. They can invade all our valuable areas that we enjoy for grazing, wildlife, and recreation. It is not enough to take out a noxious and invasive species. It is critically important that a balanced approach is used to manage both invasive grasses and broadleaves. Invasive grasses and broadleaves reduce long-term health of grazing acres for wildlife and livestock, while also greatly increasing fire risk.

Invasive and Noxious Weeds Controlling one weed could just leave space for another if you aren't focusing on both broadleaves and grasses.	> Broadleaves and Invasive Grasses Can Lead to Reduced Carrying Capacity and Jeopardizing the Long Term Health of Your Grazing Acres > When These Infestations Go Unchecked, Your Lowest Cost Feed Source is at Risk—The Land	
Why These are Problems A healthy native plant population is your best defense against invasive grasses and broadleaves. By doing nothing, the seedbanks of these invasive species continue to increase, and conditions deteriorate for the growth and maintenance of desirable grasses and forbs. Reduced native grass and forbs results in increased undesirable weeds, a decrease of wildlife habitat, an increased fire risk, and reduced grazing for cattle. It's not what you gain, but what you lose by doing nothing.		
Grass Availability	> A Healthy Native Plant Population is Your Best Defense Against Invasive Species	
"Not what you gain, but what you lose by doing nothing."	> Seedbanks of These Invasive Species Increase > Poorer Growing Conditions for Desirable Grasses and Forbs	
Reduced Grass Means	> Increased Hay Purchased > Increased Undesirable Weeds	> Decrease of Wildlife Habitat > Increased Fire Risk

Rangeland Degradation Can Reach the Point that Full Rehabilitation Projects are Needed

Broadleaf Plus Annual Grass Solution



Plateau Herbicide at 8oz/A for cheat grass control. Extensive Canada Thistle release 1 YAT

HighNoon® Provides Excellent Post-Emergent and Residual Control

Attributes

> Combination of Two Reduce Risk Herbicides
> Use Rates Between 16-20 oz Per Acre
> Non-Restricted Use
> Grass Safety and Seeding Flexibility for Grasses

Application Guidelines

> Minimum 2 GPA by Air
> Greater than 10 GPA by Ground
> Use up to Waters' Edge
> No Grazing Restrictions for Any Class of Livestock
> Spot Treatments up to 40 oz/acre May be Applied Per Growing Season
> No more than 50% of an acre May be at the Spot Treatment Rate
> Annual Grasses
> Skeletonweed

See HighNoon® label for full list of weeds controlled

Use Sites

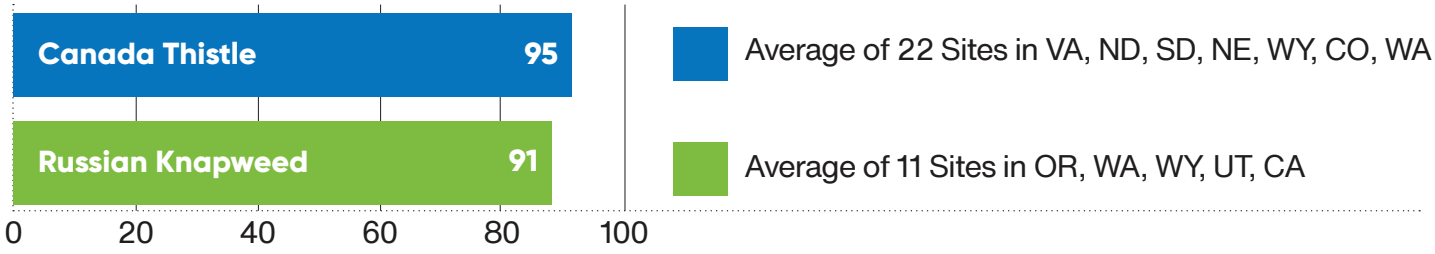
Rangeland

> Permanent Grass Pastures
> Conservation Reserve Program (CRP)

Acres

> Non-Cropland Areas (Such As Roadside and Utility Rights-Of-Way)
> Non-Irrigation Ditch Banks
> Seasonally Dry Wetlands
> Natural Areas
> Other Sites As Described on the Label

Control of Canada Thistle and Russian Knapweed with 20 oz/A of HighNoon Fall Application (After 1 Year of Treatment)



HighNoon* Herbicide is the Weed Control Solution to Maximize Your Land's Potential

For every pound of weeds controlled on range and pasture lands, more than a pound of grass is returned as high-quality forage. Now HighNoon* herbicide provides extended control of annual and perennial broadleaf weeds controlling more than 140 of those grass-robbing species in range & pasture.

HighNoon is the weed control solution to maximize the land's potential controlling weeds even other products miss— increasing forage production.

HighNoon is powered by Rinskor® active, winner of the American Chemical Society's Green Chemistry award. Rinskor active represents the latest member of the arylpicolinate family of chemistry, a unique and new class of synthetic auxin chemistry within the Herbicide Resistance Action Committee's Group O category.

Restoration Benefits

It is important to consider the returns and benefits to the landowner, as well as society in general when designing a restoration plan. In the near term, restoring our range gives you increased forage in the year of application, promotes species diversity, decreases the risk of fire, and improves late season control of tough to handle broadleaf weeds. In the long term, it also provides greater grazing efficiency, less encroachment by invasive species and provides a more productive range for generations to come.

Flexibility—Keep What You Want on Your Range

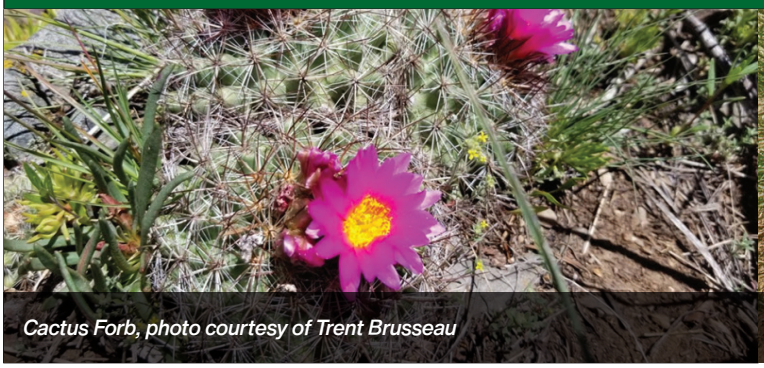
Noxious Broadleaves	Spring Application	Fall Application
	Actively Growing small Plants apply HighNoon® at 16-20 oz per acre.	Perennial and Biennial Control of noxious weeds in the Rosette stage.
	Fall Application	
Invasive Annual Grass & Noxious Broadleaves	For Pre and Post Emergent Grass and Broadleaf Control, tank mix HighNoon 20 oz + Imazapic 5-7 oz per acre. Methylated Seed Oil at 1% volume per volume should be included in this mix.	
	For Pre Emergent Grass and Broadleaf Control, tank mix HighNoon 20 oz + Indaziflam 5 oz per acre. A Non-Ionic Surfactant at 0.25% volume per volume should be included in this mix.	

Short Term Returns	> Increase Forage in the Year of Application > Promote Species Diversity > Decrease the Fire Cycle	> Improved Late Season Control of Tough to Handle Broadleaves
Long Term Benefits	> Defend the Range by Keeping out Invasive Species > Keep Rangeland in Production for Future Generations	> Grazing Efficiency

Full Circle

Before *2 Years After Treatment*

Forb Safety with Fall Application



Cactus Forb, photo courtesy of Trent Brusseau

Northwestern Indian Paintbrush Forb, photo courtesy of Trent Brusseau

Herbicide Application Prior to Seeding Grasses

Sites that require revegetation after invasive plant control include 1) a plant community dominated by invasive weeds with no desirable vegetation present to establish after herbicide treatment; and 2) sites with remnant desirable plant populations that are insufficient to recover after herbicide treatments. Field studies conducted in the Midwest and West concluded that applications of HighNoon® herbicide at 20 fluid ounces per acre (fl oz/A) could be made in the spring through fall to control noxious broadleaf weeds prior to grass planting. Grasses can be broadcast or drill seeded as a dormant planting (in the late fall or early winter) in the year of application, or grasses can be seeded the following spring. With a dormant fall seeding, grasses should be planted when soil temperatures are low enough to ensure that the seeds do not germinate and emerge for at least 60 days after application of HighNoon.

Herbicide Tolerance of Newly Emerged and Established Grasses

Newly Emerged Grasses	HighNoon® herbicide applications should be made after seeded grasses have established a secondary root system and plants are tillering (growing more than one shoot). A secondary root system is usually developed by 45 to 60 days after emergence, depending on growing conditions. Increased injury to grass seedlings may result when HighNoon is applied in tank mixes with other herbicides such as 2,4-D. Consult labels for all herbicides applied.	
Established Grasses	Established grasses have excellent tolerance to HighNoon at the maximum use rate of 20 fl oz/A. Examples of desirable warm and cool season grasses with known tolerance to HighNoon are listed below. *See HighNoon label for full list of tolerant grasses.*	
	Warm Season > Big bluestem (Andropogon gerardii) > Blue grama (Bouteloua gracilis) > Buffalograss (Buchloe dactyloides) > Gallettagrass (Pleuraphis jamesii)	 > Indiangrass (Sorghastrum nutans) > Little bluestem (Andropogon scoparius) > Sideoats grama (Bouteloua curtipendula) > Switchgrass (Panicum virgatum)
	Cool Season > Green needlegrass (Nassella virdula) > Perennial ryegrass (Lolium perenne) > Siberian wheatgrass (Agropyron spp.) > Slender wheatgrass (Elymus trachycaulus)	 > Streambank wheatgrass (Agropyron riparium) > Tall fescue (Festuca arundinacea) > Western wheatgrass (Pascopyrum smithii)

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