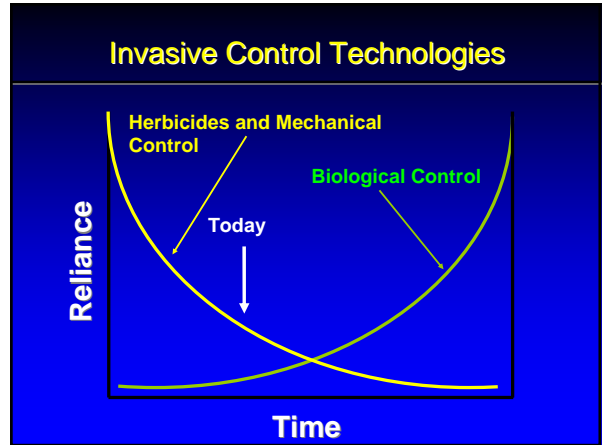
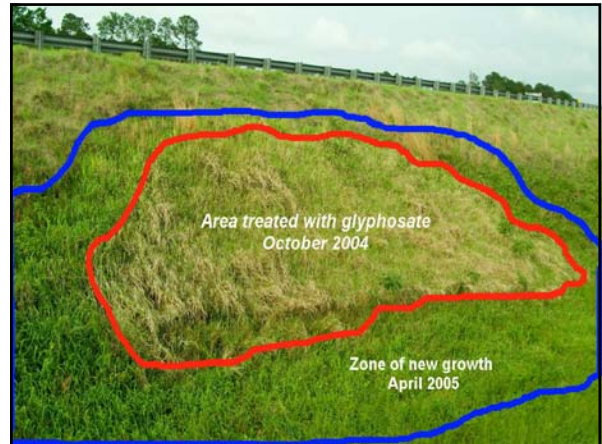


The Latest Tools in Herbicide Technology & Extending Labels for Invasives

Dave Moorhead & Chuck Bargeron
Warnell School of Forest Resources
&
Bugwood Network
The University of Georgia

HERBICIDE CONTROL METHODS





“ . . . the market for chemical herbicides used on rangeland and grazing pastures expanded by more than 30% from 2001 to 2003. . . . directly related to a greater awareness of the invasive weed and brush problem that has been worsening for several years.”


Kline 2004. The U.S. Industrial vegetation management market for pesticides and fertilizers

Vegetation Management  The miracles of science

Herbicides for Invasives

- **Chinese tallow** - Velpar L and Krenite S
- **Japanese honeysuckle** - Escort XP, Oust Extra, Velpar L
- **Multiflora Rose** - Escort XP, Oust Extra, Velpar L
- **Sericea Lespedeza** - Escort XP
- **Purple loosestrife** - Escort XP
- **Old World climbing fern** - Escort XP
- **Ailanthus** - Escort XP
- **Privet** - Velpar L



Vegetation Management  The miracles of science

**SPECIAL LOCAL NEED
24(C) LABELING**

DuPont Crop Protection

**DUPONT™ ESCORT® XP
HERBICIDE**
ONLY FOR CONTROL OF OLD
WORLD CLIMBING FERN


FOR DISTRIBUTION AND USE ONLY WITHIN THE STATE OF FLORIDA

DUPONT™ ESCORT® XP HERBICIDE
EPA Reg. No. 352-439

FOR USE ONLY BY FEDERAL OR STATE AGENCIES AND THE CERTIFIED APPLICATORS UNDER THEIR DIRECT SUPERVISION

**ONLY FOR CONTROL OF OLD WORLD CLIMBING FERN
IN THE STATE OF FLORIDA**
EPA SLN No. FL-030010

Active Ingredient: Metsulfuron methyl
Methyl 2-[[[4-methoxy-6-methyl-1,3,5-triazin-2-yl]amino]carbonyl]amino]sulfonate 60% (by weight)

Vegetation Management  The miracles of science

**SPECIAL LOCAL NEED
24(C) LABELING**

DuPont Crop Protection

**DUPONT™ ESCORT® XP
HERBICIDE**
FOR USE IN LAKE RESTORATION
PROJECTS IN DEWATERED
ZONES OF LAKES

FIFRA SECTION 24(C) LABELING FOR DISTRIBUTION AND USE ONLY WITHIN THE STATE OF FLORIDA

DUPONT™ ESCORT® XP HERBICIDE
EPA REG. NO. 352-439


FOR USE IN LAKE RESTORATION PROJECTS IN DEWATERED ZONES OF LAKES

Active Ingredient: Metsulfuron methyl
Methyl 2-[[[4-methoxy-6-methyl-1,3,5-triazin-2-yl]amino]carbonyl]amino]sulfonate 60% (by weight)

Inert Ingredients 40% (by weight)

TOTAL 100%




Vegetation Management  The miracles of science

NATIVE GRASSES

ESCORT® XP is recommended for weed control and suppression in the establishment and maintenance of native grasses. It may be used where blue grama, bluestems (big, little, plains, sand, ww spar) bromegrasses (meadow), buffalograss, green sprangletop, indiagrass, kleingrass, lovegrasses (atherstone, sand, weeping, wilman), orchardgrass, sideoats grama, switchgrass (blackwell), wheatgrass (bluebunch, intermediate, pubescent Siberian, slender, streamband, tall, thickspike, western), and Russian wildrye are established. It may also be applied over these species in the seedling stage, except for orchardgrass and Russian wildrye.

Application Information
Apply ESCORT® XP at the rate of 1/10 ounce per acre for the control and suppression* of bur buttercup (testiculate),

Vegetation Management  The miracles of science™

DuPont™ Escort® XP herbicide

Help prevent the spread of kudzu.

Native to Japan, kudzu (*Pueraria montana*) was introduced to the United States as a forage crop and ground cover. This aggressive, high-climbing, perennial vine has thrived in its new home. It quickly escaped cultivation and is now raging throughout the Southeast—destroying forests and pastures as it spreads.

Fast, tough and out of control.
The plant reproduces from both seed and tuberous roots. Seeds can be scattered by birds and animals. Roots can be spread when kudzu patches are disturbed by mechanical equipment.

In hot, humid weather, the plant's runners can grow a foot or more per day. Large, tuberous roots store large quantities of food reserves, making control of this pest difficult.

Looking for answers.
In Mississippi, the Lafayette County Forestry Association

Oxford, Miss.: visual kudzu control, 12 Months After Treatment (MAT)

TREATMENT	% CONTROL	BY MAT	24 MAT
Escort® XP 4 oz + 0.5% SDS	100	100	100
Escort® XP 4 oz	100	100	100
Escort® XP 2 oz + 0.5% SDS	100	100	100
Escort® XP 2 oz	100	100	100
Escort® XP 1 oz + 0.5% SDS	100	100	100
Escort® XP 1 oz	100	100	100
Escort® XP 0.5 oz + 0.5% SDS	100	100	100
Escort® XP 0.5 oz	100	100	100
Escort® XP 0.25 oz + 0.5% SDS	100	100	100
Escort® XP 0.25 oz	100	100	100
Escort® XP 0.125 oz + 0.5% SDS	100	100	100
Escort® XP 0.125 oz	100	100	100
Escort® XP 0.0625 oz + 0.5% SDS	100	100	100
Escort® XP 0.0625 oz	100	100	100
Escort® XP 0.03125 oz + 0.5% SDS	100	100	100
Escort® XP 0.03125 oz	100	100	100
Escort® XP 0.015625 oz + 0.5% SDS	100	100	100
Escort® XP 0.015625 oz	100	100	100
Escort® XP 0.0078125 oz + 0.5% SDS	100	100	100
Escort® XP 0.0078125 oz	100	100	100
Escort® XP 0.00390625 oz + 0.5% SDS	100	100	100
Escort® XP 0.00390625 oz	100	100	100
Escort® XP 0.001953125 oz + 0.5% SDS	100	100	100
Escort® XP 0.001953125 oz	100	100	100
Escort® XP 0.0009765625 oz + 0.5% SDS	100	100	100
Escort® XP 0.0009765625 oz	100	100	100
Escort® XP 0.00048828125 oz + 0.5% SDS	100	100	100
Escort® XP 0.00048828125 oz	100	100	100
Escort® XP 0.000244140625 oz + 0.5% SDS	100	100	100
Escort® XP 0.000244140625 oz	100	100	100
Escort® XP 0.0001220703125 oz + 0.5% SDS	100	100	100
Escort® XP 0.0001220703125 oz	100	100	100
Escort® XP 0.00006103515625 oz + 0.5% SDS	100	100	100
Escort® XP 0.00006103515625 oz	100	100	100
Escort® XP 0.000030517578125 oz + 0.5% SDS	100	100	100
Escort® XP 0.000030517578125 oz	100	100	100
Escort® XP 0.0000152587890625 oz + 0.5% SDS	100	100	100
Escort® XP 0.0000152587890625 oz	100	100	100
Escort® XP 0.00000762939453125 oz + 0.5% SDS	100	100	100
Escort® XP 0.00000762939453125 oz	100	100	100
Escort® XP 0.000003814697265625 oz + 0.5% SDS	100	100	100
Escort® XP 0.000003814697265625 oz	100	100	100
Escort® XP 0.0000019073486328125 oz + 0.5% SDS	100	100	100
Escort® XP 0.0000019073486328125 oz	100	100	100
Escort® XP 0.00000095367431640625 oz + 0.5% SDS	100	100	100
Escort® XP 0.00000095367431640625 oz	100	100	100
Escort® XP 0.000000476837158203125 oz + 0.5% SDS	100	100	100
Escort® XP 0.000000476837158203125 oz	100	100	100
Escort® XP 0.0000002384185791015625 oz + 0.5% SDS	100	100	100
Escort® XP 0.0000002384185791015625 oz	100	100	100
Escort® XP 0.00000011920928955078125 oz + 0.5% SDS	100	100	100
Escort® XP 0.00000011920928955078125 oz	100	100	100
Escort® XP 0.000000059604644775390625 oz + 0.5% SDS	100	100	100
Escort® XP 0.000000059604644775390625 oz	100	100	100
Escort® XP 0.0000000298023223876953125 oz + 0.5% SDS	100	100	100
Escort® XP 0.0000000298023223876953125 oz	100	100	100
Escort® XP 0.00000001490116119384765625 oz + 0.5% SDS	100	100	100
Escort® XP 0.00000001490116119384765625 oz	100	100	100
Escort® XP 0.000000007450580596923828125 oz + 0.5% SDS	100	100	100
Escort® XP 0.000000007450580596923828125 oz	100	100	100
Escort® XP 0.0000000037252902984619140625 oz + 0.5% SDS	100	100	100
Escort® XP 0.0000000037252902984619140625 oz	100	100	100
Escort® XP 0.00000000186264514923095703125 oz + 0.5% SDS	100	100	100
Escort® XP 0.00000000186264514923095703125 oz	100	100	100
Escort® XP 0.000000000931322574615478515625 oz + 0.5% SDS	100	100	100
Escort® XP 0.000000000931322574615478515625 oz	100	100	100
Escort® XP 0.0000000004656612873077392578125 oz + 0.5% SDS	100	100	100
Escort® XP 0.0000000004656612873077392578125 oz	100	100	100
Escort® XP 0.00000000023283064365386962890625 oz + 0.5% SDS	100	100	100
Escort® XP 0.00000000023283064365386962890625 oz	100	100	100
Escort® XP 0.000000000116415321826934814453125 oz + 0.5% SDS	100	100	100
Escort® XP 0.000000000116415321826934814453125 oz	100	100	100
Escort® XP 0.00000000005820766091346740717265625 oz + 0.5% SDS	100	100	100
Escort® XP 0.00000000005820766091346740717265625 oz	100	100	100
Escort® XP 0.000000000029103830456733720356328125 oz + 0.5% SDS	100	100	100
Escort® XP 0.000000000029103830456733720356328125 oz	100	100	100
Escort® XP 0.0000000000145519152283668601781640625 oz + 0.5% SDS	100	100	100
Escort® XP 0.0000000000145519152283668601781640625 oz	100	100	100
Escort® XP 0.00000000000727595761418343008908203125 oz + 0.5% SDS	100	100	100
Escort® XP 0.00000000000727595761418343008908203125 oz	100	100	100
Escort® XP 0.000000000003637978807091715044541015625 oz + 0.5% SDS	100	100	100
Escort® XP 0.000000000003637978807091715044541015625 oz	100	100	100
Escort® XP 0.0000000000018189894035458575222705078125 oz + 0.5% SDS	100	100	100
Escort® XP 0.0000000000018189894035458575222705078125 oz	100	100	100
Escort® XP 0.00000000000090949470177292876113525390625 oz + 0.5% SDS	100	100	100
Escort® XP 0.00000000000090949470177292876113525390625 oz	100	100	100
Escort® XP 0.000000000000454747350886438056567626953125 oz + 0.5% SDS	100	100	100
Escort® XP 0.000000000000454747350886438056567626953125 oz	100	100	100
Escort® XP 0.0000000000002273736754432190282838134765625 oz + 0.5% SDS	100	100	100
Escort® XP 0.0000000000002273736754432190282838134765625 oz	100	100	100
Escort® XP 0.00000000000011368683772160951414169078125 oz + 0.5% SDS	100	100	100
Escort® XP 0.00000000000011368683772160951414169078125 oz	100	100	100
Escort® XP 0.0000000000000568434188604757070705468765625 oz + 0.5% SDS	100	100	100
Escort® XP 0.0000000000000568434188604757070705468765625 oz	100	100	100
Escort® XP 0.0000000000000284217094302378535352734378125 oz + 0.5% SDS	100	100	100
Escort® XP 0.0000000000000284217094302378535352734378125 oz	100	100	100
Escort® XP 0.0000000000000142108547151189267676367190625 oz + 0.5% SDS	100	100	100
Escort® XP 0.0000000000000142108547151189267676367190625 oz	100	100	100
Escort® XP 0.00000000000000710542735755946338381835953125 oz + 0.5% SDS	100	100	100
Escort® XP 0.00000000000000710542735755946338381835953125 oz	100	100	100
Escort® XP 0.00000000000000355271367877973169190917965625 oz + 0.5% SDS	100	100	100
Escort® XP 0.00000000000000355271367877973169190917965625 oz	100	100	100
Escort® XP 0.0000000000000017763568393898658459545958953125 oz + 0.5% SDS	100	100	100
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Escort® XP 0.000000000000000888178419694932922977297965625 oz + 0.5% SDS	100	100	100
Escort® XP 0.000000000000000888178419694932922977297965625 oz	100	100	100
Escort® XP 0.00000000000000044408920984746646148864878125 oz + 0.5% SDS	100	100	100
Escort® XP 0.00000000000000044408920984746646148864878125 oz	100	100	100
Escort® XP 0.000000000000000222044604923733230744424390625 oz + 0.5% SDS	100	100	100
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Escort® XP 0.0000000000000001110223024618666153722221953125 oz + 0.5% SDS	100	100	100
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Escort® XP 0.0000000000000000000004235157098736977272624965625 oz	100	100	100
Escort® XP 0.00000000000000000000021175785493684886363124965625 oz + 0.5% SDS</			



- **Garlon 4** - may be used on almost any site with invasives, used mainly as a basal spray, but is also good for foliar application
- **Garlon 4** - may be used in non-irrigation ditchbanks, seasonally dry wetlands, flood plains, marshes, swamps, bogs, and transitional areas between upland and lowland sites. Do not apply to open water such as lakes, rivers, creeks, bays.



Supplemental Labeling


Accord® Concentrate herbicide
EPA Reg. No. 42719-324

Uses listed in this supplemental labeling have been added to the label for Accord Concentrate. Users may apply Accord Concentrate according to this supplemental labeling until such time as labeling which includes these additional uses is fully available on product in channels of trade.

Additional Uses:

- Aquatic & Other Noncrop Sites
- Release of Bermudagrass or Bahiagrass on Noncrop Sites
- Bahiagrass Seedhead and Vegetative Suppression
- Annual Grass Growth Suppression

Aquatic uses have been added to the Accord Concentrate Label.



Accord Concentrate

- There is no restriction on the use of treated water for irrigation, recreation or domestic purposes.
- Consult local state fish and game agency and water control authorities before applying this product to public water. Permits may be required to treat such water.




Accord XRT

- New terrestrial formulation
- 5.4 #s active + surfactant. This formulation contains enough surfactant for most uses. Most concentrated formulation available.
- Labeled for Forests, Parks, Natural areas, wildlife refuges, recreation areas, non-crop area, habitat management, and similar sites



Other Dow Products for Invasives

- Spike - Potent long term vine, brush and tree control. Herbaceous vegetation will cover the site in 6 months to 1 year.
- Transline – Very specific formulation for legumes, composites, and a few other weeds
- Tordon – Excellent on kudzu, wisteria, and many other invasive vines, brush, and tree species.



Aminopyralid¹
A New Herbicide from Dow AgroSciences

Developed specifically for range, pasture and vegetative management broadleaf weed control including noxious and invasive plants

1 Aminopyralid is not yet registered with the U.S. E.P.A. Federal registration is pending. This bulletin is intended to provide technical information only and is not an offer for sale of product.

• Aminopyralid is not yet registered. Aminopyralid is not available for sale, and this is not an offer for sale.

5/23/2005



BASF Vegetation Management
VM Products | Labels | MSDS

Invasive Weeds

The Problem | **The Weeds** | **The Solution**

“Approximately 60 percent of the species listed under the Endangered Species Act are threatened by invasive species.”

The infestation of invasive weeds and brush – such as [leafy spurge](#), [Russian knapweed](#), [cheatgrass](#), [melaleuca](#), [saltcedar](#), [phragmites](#), [purple loosestrife](#) and dozens of others – has rendered millions of acres of once productive land useless and caused billions of dollars in

BASF Vegetation Management
VM Products | Labels | MSDS

Invasive Weeds

[The Problem](#) | [The Weeds](#) | [THE SOLUTION](#)

Plateau [\(Label\)](#)

Plateau herbicide for control of annual and perennial grasses, broadleaf weeds and vine species, especially [cheatgrass](#) and [leafy spurge](#).

- Highly effective on invasive weeds like [cheatgrass](#), [medusahead](#), [leafy spurge](#), [dalmatian toadflax](#), [Russian knapweed](#), [perennial popenweed](#) and more.
- Excellent for firebreaks & safety zones.
- Highly selective: releases desirable native grasses, shrubs and livestock forage.

BASF Vegetation Management
VM Products | Labels | MSDS

Invasive Weeds

[The Problem](#) | [The Weeds](#) | [THE SOLUTION](#)

Arsenal [\(Label\)](#)

Arsenal for control of troublesome invaders like cograss and saltcedar (see label) and broad-spectrum control of more than 130 grasses, broadleaf weeds and brush species.

- Controls tall-growing, woody vegetation that can conceal quadrants, corners and signs – creating hazards for motorists.
- Excellent foundation for low-volume, tiller vegetation management program.
- Consistent, long-term control of a broad spectrum of troublesome brush and weeds.
- Controls underbarkes down to the roots, while other herbicides destroy only the top of the plant.
- Prevents reseedling and reduces stem densities so you don't have to re-treat, which saves you money, time and labor.
- Highly selective: promotes growth of forbs favored by wildlife. Increases plant diversity.
- Targets an enzyme found only in plants.

Relevant Literature

- [Arsenal Herbicide Protects Water Quality](#)
- [Power Without Sacrifice](#)

Weed Database

[Search Weed Database](#)

Herbicide Selection Guide

[snrmys that pay!](#)

BASF Vegetation Management
VM Products | Labels | MSDS

Invasive Weeds

[The Problem](#) | [The Weeds](#) | [THE SOLUTION](#)

Habitat [\(Label\)](#)

Habitat herbicide for control of nuisance and invasive aquatic plants such as [phragmites](#), [water hyacinth](#), [torpedograss](#), [melaleuca](#), [saltcedar](#), [cattails](#), [purple loosestrife](#) and many other troublesome weeds.

- Excellent translocation to roots of perennial species.
- Long-term control with one application per year on most species.
- Low active ingredient rate per acre.
- Rainfast within 1 hour of application.
- Selective application methods results in targeted control of invasive species.

Relevant Literature

- [Intelligent Vegetation Control for Aquatic and Riparian Areas](#)
- [Strait Answers about Habitat Herbicide](#)

Weed Database

[Search Weed Database](#)

Operation Habitat
"An Aquatic Revolution"

BASF Vegetation Management
VM Products | Labels | MSDS

Weed Database

BASF offers tools and expertise to win the battle against the most troublesome invasive weeds. For weed control recommendations, you can search by class of weed, common name, scientific name or any keyword.

Search Database

– Search by Class –

- View All Classes
- Aquatic Weeds - Submersed
- Aquatic Weeds - Floating
- Aquatic Weeds - Emersed
- Aquatic Weeds - Marginal
- Invasive Sedge and Rush Weeds
- Invasive Grass Weeds
- Invasive Herbaceous Broadleaf
- Invasive Brush/Trees

Common Name	Scientific Name	Details
Acacia, earleaf		A.S.
African rue		A.S.
Alder, European		A.S.
Alligatorweed	Alternanthera philoxeroides	DETAILS

BASF Vegetation Management
VM Products | Labels/MSDS

Invasive Weeds

The Problem | THE WEEDS | The Solution

Cogongrass

Cogongrass is a fast-growing, rapidly spreading perennial grass that infests over 1.25 billion acres, worldwide. A native of Southeast Asia, cogongrass today affects 25 crops in 73 countries, including the United States, and can be found throughout our southern pastures, roadways, wetlands, savannas and forests.

Scientific Name:
Imperata cylindrica
Class:
Invasive Grass
Recommended Herbicides:
Arsenal, Habitat Quest, PLATEAU

Cogongrass
Common Name
Cogongrass
Scientific Name:
Imperata cylindrica
Class:
Invasive Grass Weeds

TERRESTRIAL SITES:
Non-Crop Sites: Burn or mow, to remove thatch and older leaves, typically summer. This helps trigger regrowth from rhizomes, and allows herbicides to be applied only to actively growing leaves. If silage is feasible, disc directly after burning to further reduce rhizome mass. After one to four months of regrowth, typically fall, broadcast apply 2qt/acres **Arsenal** 2AS +1 qt/acres MSO.

FORESTRY SITES:
For Lowland Pine Plantations: Treat pre-plant with 24 to 32 oz/acres **Arsenal AC (240)** + surfactant. A post-plant treatment of 20 oz/acres **Arsenal AC (240)** + surfactant, should be applied directed spray at 10-40 GPA in September-October, at the end of second growing season.

AQUATIC SITES:
Burn or mow, to remove thatch and older leaves, as site allows, typically summer. This helps trigger regrowth from rhizomes, and allows herbicides to be applied only to actively growing leaves. Treat with 2 qt/acres **Habitat Quest** + 1 qt/acres MSO applied to new growth.

BASF Vegetation Management
VM Products | Labels/MSDS

FIGHT BACK.

WHEN COGONGRASS ATTACKS, FIGHT BACK WITH ARSENAL® HERBICIDE APPLICATORS CONCENTRATE.

BASF PROFESSIONAL VEGETATION MANAGEMENT

forestryfacts.com

BASF Vegetation Management
VM Products | Labels/MSDS

COGONGRASS: The Perfect Weed

"In eight field studies over the last three years, Arsenal consistently provided consistent results in the long-term management of cogongrass."

Why Cogongrass is the Perfect Weed:
Cogongrass is a fast-growing, highly competitive perennial grass that infests over 1.25 billion acres, worldwide. A native of Southeast Asia, cogongrass today affects 25 crops in 73 countries, including the United States, and can be found throughout our southern pastures, roadways, wetlands, savannas and forests.

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BASF Vegetation Management
VM Products | Labels/MSDS

A BURNING ISSUE: CHEATGRASS FUELS RANGELAND FIRES.

PLATEAU® HERBICIDE CONTROLS THE WEEDS THAT FUEL WILDFIRES.

BASF PROFESSIONAL VEGETATION MANAGEMENT

weedfacts.com

ROAD TO RUIN

Studies recently conducted by researchers at the University of California at Davis (UC Davis) show roads have considerable impact on the spread of invasive species.

CAUTION NON-NATIVE WEEDS AHEAD

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LEAFY SPURGE COST-BENEFIT ANALYSIS

DOES IT PAY TO SPRAY?

CONTROLLING INVASIVE WEEDS CAN YIELD FINANCIAL BENEFITS

PLATEAU
GAIN NEW GROUND.

Many ranchers today struggle with the question of whether or not to apply herbicides to control pesky invasive weeds such as leafy spurge and Dalmatian toadflax in pastures or rangelands. Some believe spraying to control invasive weeds simply costs too much, while others wonder if herbicides can actually make a substantial difference. But the results of several independent scientific studies show that herbicides can indeed provide a strong positive impact for ranchers, dramatically improving the forage value of range and pasture lands.

Why Bother with Weed Control?
Successful ranchers know that wise land stewardship can be key to controlling costs and raising healthy livestock. Left uncontrolled, invasive weeds such as leafy spurge and Dalmatian toadflax can spell environmental and economic ruin for a cattle ranch.

Using a targeted herbicide like **PLATEAU** herbicide, however, can produce dramatic results, significantly increasing the amount of forage per acre on pasture and rangelands. The following table compares the difference between leaving a rangeland untreated and using **PLATEAU** to control invasive weeds such as cheatgrass, leafy spurge, and

Herbicide Registration

- Standardized procedure to ensure product safety
- Defines hazards
 - What is the toxicity?
 - What are the non-target impacts?
 - How does the product breakdown?
 - How is it used and handled?

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Herbicide Registration

- Section 3: Full Federal Use Label
 - Experimental Use Permit (EUP)
 - Only approved after significant development completed
 - Increases acreage that can be treated for data collection
- Section 18: Emergency Use Label*
 - State specific
- Section 24-C: Special Local Need*
 - State specific

* *Initiated by states*

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Herbicide Registration

- Inter-regional 4 Project: IR-4
 - Established for the labeling of existing products for minor crop uses – market too small for manufacturers to justify expenditure
 - Funded by Federal Government

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Registrations & Sites

- Crop
- Non-crop
 - Terrestrial
 - Aquatic
 - Forestry
 - Pasture / Range

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Development & Registration



Section 3: Terrestrial sites

Over 120 studies

14 years

\$140 Million

Note: Aquatic, Forestry, Pasture / Range sites require additional testing

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Label Enhancements/Amendments

- New weeds & crops
- New application methods
- New restrictions
- Required regulatory language (WPS, Drift, Weed resistance management)
- All changes must be approved by EPA
 - 3 - 6 months time frame

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State Registrations

- Annual fee for each product
- New products and uses must be approved by each state
- Requirements vary by state
 - Most extensive: CA, NY, FL, AZ

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New Invasive Species Listing

- Identify site(s) where the new invasive species grows
- REMEMBER: Products are labeled by site!
- Establish product efficacy
- Review list of sites on existing product label

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New Invasive Species Listing


Scenario #1

- Site is listed on existing product label
- Applications OK

Scenario #2


- Site is not listed on existing product label
- Apply for Section 18: Emergency Use Exemption
- State(s) must initiate request

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Aminopyralid Characteristics


- Target registration date of Q₄ 2005
- Controls noxious and invasive plants, and other undesirable broadleaf weeds in rangeland, pastures and roadsides
- Selective to most cool- and warm-season perennial rangeland, pasture and IVM grasses
- Label submitted carries no grazing or haying restrictions for dairy and non-dairy animals
- Accepted for review under U.S. EPA's Reduced Risk Pesticide initiative



Aminopyralid Acute Toxicology Profile

No acute hazard – “CAUTION” signal word anticipated

Study	GF-874 (2) ^{estimation}
Acute Oral	LD ₅₀ >5000 mg/kg
Acute Dermal	LD ₅₀ >5000 mg/kg
Acute Inhalation	LC ₅₀ >5.79 mg/L
Eye Irritation	Mild Irritant
Dermal Irritation	Slight Irritant
Dermal Sensitization	Negative



Aminopyralid Mammalian Chronic Toxicity Profile

- Based on laboratory studies no significant adverse effects, including:
 - No reproductive or endocrine effects.
 - No developmental effects.
 - No genotoxicity.
 - No neurotoxicity.
 - No carcinogenicity.




Aminopyralid Ecotoxicology Review

Based on laboratory studies Aminopyralid is practically non-toxic to:

Birds - bobwhite quail
mallard ducks

Fish - rainbow trout
bluegill sunfish
sheepshead minnow
fathead minnow



Aminopyralid Ecotoxicology Review


ECOTOX PROFILE

- In laboratory studies aminopyralid exhibited low acute and chronic toxicity to mammals, birds, fish, aquatic and terrestrial invertebrates, algae and aquatic vascular plants
- Risk of adverse effects is substantially below all of the EPA levels of concern (LOC) for non-target organisms
- Studies show that aminopyralid produces no significant soil or water metabolites other than CO₂ and NH₃ and has a low bioaccumulation potential



Toxicology Summary

- Environmental Toxicology:
 - Practically non-toxic to birds, fish, honeybees, earthworms, and aquatic invertebrates
- Acute Mammalian Toxicity:
 - Low acute mammalian toxicity
 - Caution as the label signal word anticipated
- Chronic Mammalian Toxicity:
 - Not carcinogenic or mutagenic
 - Does not cause birth defects (not teratogenic)
 - Causes no neurological problems
 - Does not cause any endocrine or adverse reproductive effects



Environmental Fate

- Soil
 - Aerobic microbial degradation is the primary route of breakdown in soil
 - Moderate soil half-life of about 30 days
 - Limited movement in the soil profile
 - No degradation metabolites of concern
- Water
 - Photolysis is primary route of degradation, with a half-life under standard conditions of 0.6 days
 - Groundwater contamination potential is low because of low use rates combined with moderate field degradation rates
- Air
 - Low vapor pressure reduces potential for volatility

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