Range & Pasture, & “Invasive Weed Control” Products

Frank Aulgur
Bayer Vegetation Management
Dunnigan, California

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Cell # 530.650.5594
Big news in Vegetation Management!
The names you know and trust are now Backed By Bayer.
Bayer Rangeland & Pasture Herbicides:

- Cimarron® MAX
- Cimarron® PLUS
- Pastora®
- Velpar® L
- Telar® XP
- Escort XP
Manage your weeds. Maximize your yield.

Cimarron® MAX offers excellent weed control to help improve the quality and yield of your pastures and rangeland. A single application of Cimarron MAX herbicide can help provide season-long control of a broad spectrum of weeds. Safe, effective, affordable weed control is the key to realizing the full potential of today’s pastures and rangeland. Managing weeds maximizes grass yield and quality, which ultimately leads to more cattle weight gain per acre.
- One app = season long control
- Contact and residual activity
- Wide window of application
- Excellent grass safety
- No grazing restriction
Controls many broadleaves and brush

Flexible, can be tank mixed with other pasture herbicides

No grazing or haying restrictions.

Cimarron® PLUS

Cattle and forage producers have wanted and needed a herbicide to help manage problem weeds in rangeland and pastures. They are looking for solutions that are safe, economical and have no grazing or haying restrictions. Cimarron® PLUS delivers on all three. It offers residual control to protect pasture and rangeland grasses from problem broadleaf weeds, and it offers good activity on woody species.
Bayer Herbicides based around “Aminocyclopyrachlor” (ACP) a broadspectrum auxin herbicide

Method

Perspective

Streamline

Viewpoint

Currently registered for use on non crop land, Federal and state wildlands, habitat restoration sites

Bayer is pursuing registration of aminocyclopyrachlor in rangeland & pasture.
Method

- A class of chemistry known as the **pyrimidine carboxylic acids**
- A new generation of herbicides in the synthetic auxins family
- Unique properties at the molecular and whole-plant levels
  - Control of a much wider spectrum of broadleaf weeds and brush
  - Quick uptake and rapid translocation
• Excellent postemergence control of many broadleaf weed, briar, vine and brush species
• Excellent residual weed control of many difficult to control broadleaf weeds
• Both Liquid and Dry formulations available
• Favorable environmental profile
• Low toxicity to mammals, birds and fish

2 ½ gal Containers
Available Dec 2015
Broadleaf Weeds Controlled

Yellow starthistle
- Evening primrose, common
- Evening primrose, cutleaf
- Filaree, redstem
- Fleabane, blackleaved
- Gromwell, Yellow
- Groundsel, common
- Hairy fleabane
- Hairy nightshade
- Henbit
- Horseweed/ Marestail
- Kochia
- Lambsquarters, common

Russian thistle
- Little mallow
- Long-stalk phyllanthus
- Paricle willowweed
- Plantain, Buckhorn
- Plantain, Paleseed
- Prstrate knotweed
- Prstrate spurge
- Purslane, common
- Ragweed, common
- Red tasselflower
- Redmaids
- Redroot pigweed

Redroot pigweed
- Redstem fleabane/Storksbill
- Russian Thistle
- Shepherd’s-purse
- Sovthistle, Annual
- Spotted catsear
- Swinecress
- Tropic ageratum
- Velvetleaf
- Wild buckwheat (seedlings)
- Wild mustard

Kochia
- American black nightshade
- Bittercress
- California burclover
- Canada thistle, Common (seedlings)
- Chickweed, Common
- Chickweed, Mouse-ear
- Cudweed, Linear-leaf/purple
- Curly dock (seedlings)
- Cutleaf evening primrose
- Dandelion, cat’s ear
- Dandelion, common (seedlings)
- Eclipta
## Esplanade 5 – 7 oz/A: Level of Activity CA IVM Trials

<table>
<thead>
<tr>
<th>Annual sowthistle</th>
<th>Short pod mustard</th>
<th>Common vetch</th>
<th>Hare barley</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medusahead</td>
<td>Cheatgrass</td>
<td>Wild oat</td>
<td>Poa spp.</td>
</tr>
<tr>
<td><strong>Yellow starthistle</strong></td>
<td>Ripgut brome</td>
<td><strong>Prickly lettuce</strong></td>
<td><strong>Marestail</strong></td>
</tr>
<tr>
<td>Fiddleneck</td>
<td><strong>Russian thistle</strong></td>
<td>Red stem fillaree</td>
<td>Kochia</td>
</tr>
<tr>
<td>Common sunflower</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Medusahead** 95-100%
- **Yellow starthistle** 85-95%
- **Common sunflower** 70-85%
Non Crop Bareground Options for NV:

No Trees or Tree Roots in Treated Area:

**Perspective** Herbicide  9-11 oz/A

**Esplanade** 200 SC  5-7 fl oz/A

**OR**

**Method** 240SL  12-18 ozs/Acre

**Esplanade** 200 SC  5-7 fl ozs/Acre

All Bareground Treatments should have 1-2 qts/Acre of Roundup tank mixed with them. Rainfall is required to activate soil residual performance. If rain does not occur in a timely manner, escaped weeds is probable.

Please practice proper stewardship when using non crop herbicides.
2014 Trials Fall vs. Spring
Perspective 7 oz + Oust 6 oz/Acre
Southern California April 2015

Winter application
Prior year was infested with Russian Thistle
5MAA
Bareground Program:

Perspective®

Plus

EsplAnade™ 200 SC

In NV, higher rates would be required, 9 oz + 7 oz

2015 California site

Dec 2014 applied 5MAA

7 ozs/A

+ 5 fl ozs/A
Stewardship Around Trees with Perspective or Method Herbicides:

Stewardship of Desirable Species

When used according to label instructions, our ACP-containing products are extremely effective on trees, brush and other vegetation. Only you know best which species you want to remove and which you want to save. The active ingredient in these products is not able to make this distinction.

Therefore it is important to use care when treating around desirable vegetation. Spraying near desirable vegetation that you want to maintain may cause injury or loss. The most successful vegetation managers follow these three “smart” rules of thumb:

SMART SITE

- Carefully consider the site characteristics and soil conditions to ensure drainage falls away from desirable species. Also, think about whether the treated soil would ever be moved and come into contact with the roots of the species you want to protect. If so, avoid using these products in those areas.

SMART APPLICATION

- Only apply these products to the species you want to remove. Be mindful that it’s important to avoid direct or indirect contact with the roots and root zones of species you want to preserve.
- Desirable species have root zones that may extend beyond the drip line or plant canopy. Since all species differ in root structure, check with your extension agent if you’re not sure how far the zone extends.

Specific Sensitivities

Some specific tree and shrubs species have demonstrated a sensitivity to the active ingredient in Method, Perspective, Streamline and Viewpoint. When using these products around desirable plant species, be mindful of the potential for injury.*

Species with Demonstrated Sensitivity to Aminocyclopyrachlor (Method, Perspective, Streamline, Viewpoint)

<table>
<thead>
<tr>
<th>CONIFERS</th>
<th>DECIDUOUS TREES</th>
<th>ORNAMENTAL SHRUBS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Douglas Fir</td>
<td>Aspen</td>
<td>Arborvitae</td>
</tr>
<tr>
<td>Norway Spruce</td>
<td>Chinese tallow</td>
<td>Burning bush</td>
</tr>
<tr>
<td>Ponderosa Pine</td>
<td>Cottonwood</td>
<td>Crape myrtle</td>
</tr>
<tr>
<td>White Pine</td>
<td>Honey Locust</td>
<td>Forsythia</td>
</tr>
<tr>
<td></td>
<td>Magnolia</td>
<td>Hydrangea</td>
</tr>
<tr>
<td></td>
<td>Poplar species</td>
<td>Ice Plant</td>
</tr>
<tr>
<td></td>
<td>Redbud</td>
<td>Magnolia</td>
</tr>
<tr>
<td></td>
<td>Silver maple</td>
<td>Purple plum</td>
</tr>
<tr>
<td></td>
<td>Willow species</td>
<td>Yew</td>
</tr>
</tbody>
</table>

*Partial list. See product label for full listing. Consult your local extension service, professional consultants or other qualified authorities if you have any questions.
Selective Weeding, Invasive Weed Control

With:

- Perspective®
- Method® 240SL
- Streamline®
- Telar® XP
- Cimarron® PLUS

“Habitat Restoration” Tools....

Bayer CropScience
Nevada Invasive Management

Useful Guides:

Invasive Weed Identification for Nevada
Wayne S. Johnson, Associate Professor, Applied Economics and Statistics, College of Agribusiness, Biotechnology and Natural Resources, IPM Specialist, University of Nevada Cooperative Extension
Robert Wilson, Extension Educator, University of Nevada Cooperative Extension
Jessica Graham, Undergraduate Research Assistant, University of Nevada, Reno

Medusahead Management Guide for the Western States

Weed Control in Natural Areas in the Western United States

PDF only
Halogeton Control

- Telar® (chlorsulfuron)
  - 0.5 to 1.0 oz/acre labeled rate + 0.25% v/v NIS
  - CSU research 0.2 to 0.5 oz/acre more than adequate; optimum timing late spring to early summer plants 1 to 3 inches tall
  - Injury to Nutall’s saltbush rates higher than 0.25 oz
  - Halogeton very sensitive to Telar® in drought years

- Escort® (metsulfuron)
  - 0.5 to 1.0 oz/acre + 0.25% v/v NIS
  - Same timing as Telar®; not as effective
<table>
<thead>
<tr>
<th>Herbicide</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perspective Herbicide</td>
<td>3 – 4.5 oz/A</td>
</tr>
<tr>
<td>Streamline Herbicide</td>
<td>4.75 oz/A</td>
</tr>
</tbody>
</table>
Yellow Starthistle

**Method® 240SL**  
4 – 8 fl ozs/A

**Perspective®**  
3 – 4.5 ozs/A

**Streamline®**  
4.75 oz/A

**Telar® XP**  
*1 – 2.6 ozs/A  *suppression
Rabbit Brush

Test work

Streamline 7.14 oz per acre

Check
# Purple and Iberian Starthistle
(Weed Control in Natural Areas in the Western United States)

<table>
<thead>
<tr>
<th>Herbicide Combination</th>
<th>Rate</th>
<th>Timing</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aminocyclopyrachlor + chlorsulfuron Perspective</td>
<td>4.75 to 8 oz product (Perspective)/acre</td>
<td>Postemergence and preemergence. Postemergence applications are most effective when applied to plants from the seedling to the mid-rosette stage.</td>
<td>Aminocyclopyrachlor gives control of many members of the genus <em>Centaurea</em>, including purple starthistle. Its effect is similar to amipyralid. Perspective provides broad-spectrum control of many broadleaf species. Although generally safe to grasses, it may suppress or injure certain annual and perennial grass species. Do not treat in the root zone of desirable trees and shrubs. Do not apply more than 11 oz product/acre per year. At this high rate, cool-season grasses will be damaged, including bluebunch wheatgrass. Not yet labeled for grazing lands. Add an adjuvant to the spray solution. This product is not approved for use in California and some counties of Colorado (San Luis Valley).</td>
</tr>
<tr>
<td>Sulfometuron Oust and others</td>
<td>3 to 5 oz product/acre (2.25 to 3.75 oz a.i./acre)</td>
<td>Preemergence or early postemergence, before or during the rainy season when weeds are germinating and actively growing.</td>
<td>Treated soil should be left undisturbed to reduce the potential movement of the herbicide by soil erosion due to wind or water. Treatment of powdery, dry soil or light, sandy soil when there is little likelihood of rainfall soon after treatment may result in off target movement when soil particles are moved by wind or water.</td>
</tr>
<tr>
<td><strong>Photosynthetic inhibitors</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hexazinone Velpar L</td>
<td>1 to 2.5 gal product/acre (2 to 5 lb a.i./acre)</td>
<td>Preemergence or postemergence when weeds are germinating or actively growing.</td>
<td><em>Centaurea</em> control is only registered for uncultivated non-agricultural areas (such as rights-of-way), uncultivated agricultural areas (non-crop producing which includes uses such as farmyards and barrier strips), and industrial sites. Use lower rate on coarse-textured soils (sand to sandy loam). Use the higher rate on fine-textured soils (clay loam to clay) and on soils high in organic matter. High rates of hexazinone can create bare ground, so only use high rates in spot treatments.</td>
</tr>
</tbody>
</table>

Source: MedusaHead Management Guide For The Western United States, Joe DiTomoso, Guy Kyser, Josh Davies, UC California 2014
WhiteTop/Perennial Pepperweed

Perspective 3 – 4.5 oz/A

Streamline 4.75 oz/A

Hoary Cress and Perennial Pepperweed Control

- Escort® (metsulfuron)
  - 1.0 oz product/acre + 0.25% v/v NIS

- Telar® (chlorsulfuron)
  - 1.0 oz product/acre + 0.25% v/v NIS
    - Will provide residual control for germinating seedlings
    - Optimum timing bud to early flower

Dr George Beck
Tall whitetop infestation at the University of Nevada – Reno’s “S Bar S Ranch” North of Fernley, NV
Tall whitetop infestation at the S Bar S Ranch
Fernley, Nevada
Backpack Application of Telar DF Herbicide

Livestock Grazing: herded Cattle, sheep, & goats

Controlled Fires

Drove Mowers

Sprayed Telar DF herbicide alone

Sprayed Escort XP herbicide alone and in combo with 2,4-D

Sprayed 2,4-D herbicide near water’s edge
Reclaimed pastureland at University of Nevada-Reeno’s “S Bar S Ranch”

Utilizing Telar or Escort Herbicides.
Pyramid Lake, Truckee River System

NASA Satellite image showing distribution of tall whitetop along the Truckee River.

S Bar S Ranch

Reno/Sparks

Nixon

Wadsworth

Truckee River
**MedusaHead Control:**

*Apply in Fall best*

**Pre Rate: 5-7 fl oz/A**

### Sulfometuron + chlorsulfuron

**Landmark XP**

<table>
<thead>
<tr>
<th>Rate: 1.5 to 2.25 oz product/acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost (2014)$^3$: $13/oz (~$19 to $29 per acre)</td>
</tr>
<tr>
<td>Timing: Preemergence, in fall or after soil thaws in spring.</td>
</tr>
<tr>
<td>Safety on established perennial grasses: Minor injury possible</td>
</tr>
<tr>
<td>Plantback interval: 3 to 6 months</td>
</tr>
<tr>
<td>Grazing restriction: 1 year</td>
</tr>
<tr>
<td>Remarks: See sulfometuron.</td>
</tr>
</tbody>
</table>

### Aminocyclopyrachlor + chlorsulfuron

**Perspective**

<table>
<thead>
<tr>
<th>Rate: 5 oz product/acre (2 oz aminocyclopyrachlor + 0.8 oz chlorsulfuron/acre)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost (2014)$^1$: $80/lb (~$25/acre)</td>
</tr>
<tr>
<td>Timing: Preemergence to early postemergence</td>
</tr>
<tr>
<td>Safety on established perennial grasses: Safe, but can injure young grasses. Some other young annual grasses may be injured, but most major forage grasses are not affected.</td>
</tr>
<tr>
<td>Plantback interval: 12 months</td>
</tr>
<tr>
<td>Grazing restriction: Under current label, do not graze treated forage; this may change on future labels.</td>
</tr>
<tr>
<td>Remarks: Newly registered; check with your county to make sure your intended use is permitted. A broadleaf-selective herbicide — very effective on thistles — that is safe on most grasses. Can injure trees if applied in the root zone. Aminocyclopyrachlor is also available in a mix with metsulfuron (Streamline — not registered for use in California).</td>
</tr>
</tbody>
</table>
Fall Matrix at 4 oz/A
Fall Landmark at 1 oz/A

Likely, CA

Source: Rob Wilson, Univ CA Tulelake Research Station
Field Bindweed

**Method 240 SL**  12 – 18 fl ozs

Or

**Perspective**  4.75 – 11 ozs

Or **Streamline 4.75-9.5 oz/A**
Russian Knapweed Control

Method 240SL  8 – 12 fl oz/A

Perspective  4.75 oz/A (Fall or Spring)

Streamline 4.75 – 9.5 oz/A

- Telar® (chlorsulfuron)
  - 1.0 to 2.6 oz/acre + 0.25% v/v non-ionic surfactant (NIS; 1.0 qt/100 gal)
    - 1.0 oz/acre typical use rate
    - Fall to early winter “dormant” best timing

Dr George Beck
Streamline 4.75 – 9.5oz/A

Diffuse and Spotted Knapweed Control

- Perspective® (aminocyclopyrachlor + chlorsulfuron)
  - Non-crop only
  - 4.75 to 8.0 oz/acre + 0.25% v/v NIS
- 5.5 oz/acre for diffuse and spotted knapweeds
  - Spring to rosettes
  - Fall

Dr George Beck
Canada Thistle Control

- Perspective® (aminocyclopyrachlor + chlorsulfuron)
  - Non-crop only
  - 4.75 to 8.0 oz/acre + 0.25% v/v NIS
    - 5.5 oz/acre for Canada thistle
      - Spring rosette to bud
      - Fall regrowth

Dr George Beck
Yellow Toadflax Control

- Telar® (chlorsulfuron)
  - 2.0 to 2.6 oz/acre + 0.25% v/v NIS or 1.0 to 1.5 pt/acre MSO
  - Optimum timing post flowering into senescence when adventitious root bud growth accelerates

Dr George Beck
Dalmation Toadflax

Method 8-12 oz/A

Streamline 4.75oz/A

Dalmatian Toadflax Control

- Perspective® (aminocyclopyrachlor + chlorsulfuron)
  - 4.0 to 6.0 oz/acre + 0.25% v/v NIS
- Flowering into fall

Dr George Beck
Method 8-18 fl oz/A
Or
Streamline 4.75oz – 9.5oz/A

Leafy Spurge Control

- Perspective® (aminocyclopyrachlor + chlorsulfuron)
  - Non-crop only
  - 4.75 to 8.0 oz/acre + 0.25% v/v NIS
    - 5.5 oz/acre for leafy spurge
    - Spring at flowering or fall

Dr George Beck
Product Stewardship

Always Read and Understand Herbicide Product labels.

Please do not exceed maximum labeled Use rates.

Keep Aminocyclopyrachlor herbicides away from the roots of desirable trees.
Questions?

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