Weed control

Sharpen®

New Herbicide for Established Alfalfa

Where does it fit?

Mick Canevari
UCCE Advisor
S J County
Weeds of Alfalfa
Poisonous Weeds

Common Groundsel
   (Alkaloids)
Coast Fiddleneck
   (Alkaloids)
Poison Hemlock
   (Alkaloids)
Nightshade
   (glycoAlkaloids)
Starthiste
   (Acids/lactones)
Grasses
   (Nitrates)
Common Groundsel after a herbicide treatment
Environmental Factors

Overcast vs Full Sun

Velpar % Groundsel Control – 90 DAA

2005

0 20 40 60 80 100

0.25

Full Sun
OC/Rain

0.5

2

1

2

62
83
98
99

8
13
20
GROUNDSEL CONTROL WITH PARAQUAT AT THREE GROWTH STAGES IN ALFALFA

25-Feb 2009

- No Axil Budding (Flowering, 1-4"Ht)
- Axil Budding (Flowering, 1.25-3.5"Ht)
- Axil Budding (Flowering, 4.5-6"Ht)

Gramoxone + 0.5 lb/A. (1 Qt/A) + NIS

Mick Canevari
UCCE San Joaquin
Sharpen™ Herbicide

Active Ingredient  saflufenacil

- Burndown Chemistry– PPO Inhibitor, Group 14
  Control of many toughest broadleaf weeds – GROUNDSEL
- No “Notice of Intent” or closed mixing system requirements

Targeted
- Low-volatility herbicide, so it stays where it is put

Fast and Complete
- Controls broadleaf weeds fast
- Not effective on controlling grasses
- Excellent when utilized as a tank mix partner with soil residual herbicides in established alfalfa.

Estimated California Registration –2015
Sharpen Dormant application

14 days after application

50 days after application
Sharpen weed control

Sharpen 2 fl oz + Velpar 32 fl oz + Prowl H2O
3 qts

Velpar 32 fl oz

50 Days after application
Not effective on Perennial Weeds

Yellow Nut Sedge

Bermuda grass
Sharpen will help control Roundup tolerant weeds

Fleabane

Roundup Ready Alfalfa

Nettle

Malva
November application 30 DAT

UTC

Velpar 1 pt

Sharpen 4 oz

Sharpen 2 oz

November application 30 DAT
Weed Germination & Herbicide Timing for the Central Valley

Winter Weeds:
- Velpar
- Chateau
- Gramoxone
- Karmex
- Sencor
- Prowl
- Roundup
- Sharpen

Summer Weeds:
- Pursuit/
- Raptor
- Prowl
- Treflan TR-10
- Poast
- Select
- Eptam
Foliage had grown out of burn by the 60 DAT rating.
San Joaquin County, California

% Necrosis
Alfalfa Sharpen Tolerance
UC Davis 2014

<table>
<thead>
<tr>
<th>YIELD Apr 17 (133 DA-A, 104 DA-B, 78 DA-C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rate: product/A</td>
</tr>
<tr>
<td>1. UTC A</td>
</tr>
<tr>
<td>2. Sharpen 2.0 floz AB All 4 Reps.</td>
</tr>
<tr>
<td>3. Sharpen 4.0 floz A R2&amp;3 only</td>
</tr>
<tr>
<td>4. Gramoxone 32.0 floz A</td>
</tr>
<tr>
<td>5. UTC B</td>
</tr>
<tr>
<td>6. Sharpen 2.0 floz B</td>
</tr>
<tr>
<td>7. Sharpen 4.0 floz B</td>
</tr>
<tr>
<td>8. Sharpen 4.0 floz AB R1&amp;4 only</td>
</tr>
<tr>
<td>9. Gramoxone 32.0 floz B</td>
</tr>
<tr>
<td>10. UTC C</td>
</tr>
<tr>
<td>11. Sharpen 2.0 floz C</td>
</tr>
<tr>
<td>12. Sharpen 4.0 floz C</td>
</tr>
<tr>
<td>13. Gramoxone 42.7 floz C</td>
</tr>
</tbody>
</table>

Appl: A = 12/5/13; B = 1/3/14; C = 1/29/14
Sharpen treatments included MSO @ 1.0% V/V + Ammonium Sulfate @ 8.5 lb/100 gal.

MICK CANEVAR
UCCE EMERITUS
SAN JOAQUIN COUNTY
Sharpen™ Herbicide
Broadleaf Weeds Controlled

amaranth spp.
beggarticks, hairy
beggarweed, Florida
bindweed, field*
buckwheat, wild
canola, volunteer
carpetweed
chamomile, mayweed
chickweed, common
cocklebur, common
cockle, corn
copperleaf, Virginia
cowcockle
dandelion*
devil’s-claw
eclipta
eveningprimrose, cutleaf
filaree spp.

fleabane, hairy
galinsoga
groundcherry, cutleaf
groundsel, common
jimsonweed
knotweed, prostrate
kochia
lambsquarters spp.
lettuce, prickly
mallow, Venice
marestail/horseweed
melon spp.
morningglory spp.
mustard spp.
nettle, burning
nightshade spp.
purslane, common
pennycress, field

pigweed spp.
prickly sida/teaweed
puncturevine
ragweed, common & giant
rocket, London
sesbania, hemp
shepherd’s-purse
smartweed spp.
sowthistle spp.
spurge spp.
sunflower, common
tansymustard spp.
thistle, Canada*
thistle, Russian
velvetleaf
waterhemp spp.
willowweed

Performance may vary depending upon growth stage

*Control of seedling stage and suppression of perennial growth stage
SHARPEN WEED CONTROL
ESTABLISHED ALFALFA
2012 – 2013 Tracy Ca

Rate: lbs ai/A

% Control 120 Days After Application

Application: Dec. 13, 2012; Hasten @ 1.0% V/V and Ammonium Sulfate @ 17 lb/100 gal.
Sharpen test in other areas of California

- Intermountain Area = Steve Orloff
- Central Valley = Mick Canevari
- Southern SJ valley = Kurt Hembre
- Low Desert/Arizona = Barry Tickes
“Timing maybe December through January and the late summer slump period in August and September. It's should control most broad leaves we have here and has a much shorter plant back period which is important in places like the imperial valley and Yuma where alfalfa can be taken out any time eliminating crop rotation issues.”
“It would be used as a winter dormant application typically tank mixed with a soil residual herbicide like Velpar, Sencor or Karmex in mid-February to early March. It would likely be a substitute for Gramoxone; still unknown is grass control and the precise application window that will give good weed control without impacting 1st cutting yield.”
Parasitic weeds

*Dodder*

*Broom Rape*
For use in established stands only

Burn down of most broadleaf weeds in the winter. Nov-Jan

Effective on weeds that are tolerant to Roundup. Malva, nettle, fleabane

Last year of a stand no plantback issues, short PHI

No worker safety concerns or water or air quality issues

May work on dodder and a use in inter seeded alfalfa/grass mixes??
Trial #1
Application: Nov 18, 2010  Water 20.4 GPA
Hasten @ 1 GAL/100 GAL and Ammonium Sulfate @ 2 LB/ACRE added to all treatments

SHARPEN IN ESTABLISHED ALFALFA

Alfalfa Foliage Burn

<table>
<thead>
<tr>
<th>LBSAI/ACRE</th>
<th>12 DAT</th>
<th>27 DAT</th>
<th>61 DAT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sharpen 0.0445</td>
<td>90</td>
<td>90</td>
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<tr>
<td>Sharpen 0.067</td>
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<tr>
<td>Sharpen 0.089</td>
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<tr>
<td>Sharpen 0.134</td>
<td>90</td>
<td>90</td>
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<tr>
<td>Sharpen + Raptor 0.0445 + 0.0313</td>
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<tr>
<td>Sharpen + Gramoxone In 0.0445 + 0.375</td>
<td>90</td>
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<tr>
<td>Raptor 0.047</td>
<td>10</td>
<td>10</td>
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<tr>
<td>Gramoxone Ineon 0.5</td>
<td>90</td>
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<td>90</td>
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<tr>
<td>Velpar 0.5</td>
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<td>20</td>
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Percent Injury
SHARPEN WEED CONTROL
ESTABLISHED ALFALFA
2014

Common Groundsel

Rate: lbs ai/A.

Sharpen .045
Sharpen+Chateau .045+.125
Sharpen+Gramoxone Int .045+.5
Sharpen+Velpar .045+.5
Sharpen+Prowl H2O .045 + 3.0
Gramoxon Int + Chateau .5 + .125

% Control

MICK CANEVARI
SAN JOAQUIN COUNTY
Sharpen Crop Injury Trial
IREC, Tulelake CA, 2013

Yield (tons/A)

1st Cut
2nd Cut
3rd Cut

Control 1.81 1.83 1.81
Sharp 2 oz Dorm 1.91
Sharp 4 oz Dorm 1.66
Gram 32 oz Dorm 1.72
Sharp 4 + 2 oz Dorm + 1st
Sharp 2 oz 1st

3/18/13 Sprayed treatments 2, 3, 4 & 5. Alfalfa 0 – 2”
6/17/13 Sprayed treatments 5 & 6. Alfalfa 0 – 3”
Tansy Mustard Control
Butte Valley 2014, Treated 3/14

Control Rating (%)
VELPAR ALFALFA

Overcast/Rain

vs Full Sun

Stockton Ca  2005

% Groundsel Control – 90 DAA

Rain 12 hrs AA
Appl. A = 5/28/13; Sharpen @ 0.0445 lba/A.; All additives @ 1.0% V/V; All treatments AmmoSulfate @ 8.5lb/100gal; Appl. B = 7/2/13 for Trt 4 & 5.
Weeds of Alfalfa
Post emergent broadleaf, burndown herbicide, group 14, PPO

A new burndown tool for groundsel control

Flexible tank mix partner with pre-emergents, including Prowl H2O, Velpar, and Chateau

Plots treated with Sharpen recovering comparably to paraquat

Velpar struggling to control groundsel and shepherd’s purse.

Paraquat struggling to provide burndown of grounseal

Application window of November to January is projected to allow for maximum regrowth prior to first cutting
Combining and Rotating Herbicide Systems

- Prevent shift to tolerant weeds
- Prevent herbicide resistance
- Broader control of weed species
- Less herbicide applications
- Protect the efficiency of herbicides
SHARPEN IN ESTABLISHED ALFALFA

Alfalfa Height Reduction

<table>
<thead>
<tr>
<th>Product</th>
<th>LBSAI/ACRE</th>
<th>61 DAT</th>
<th>83 DAT</th>
<th>99 DAT</th>
<th>133 DAT</th>
<th>Percent Height Reduction</th>
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<tbody>
<tr>
<td>Sharpen 0.0445</td>
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<tr>
<td>Gramoxone Inteon 0.5</td>
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Trial #1 Application: Nov 18, 2010  Water 20.4 GPA
Hasten @ 1 GAL/100 GAL and Ammonium Sulfate @ 2 LB/ACRE added to all treatments.
Crop Competition

Untreated Plot  Weeds controlled

Swinecress  Stand loss
Herbicides use in Established Alfalfa

**Pre-emergence**
- Velpar (*hexazinone*)
- Chateau (*flumioxazin*)
- Karmex (*diuron*)
- Sencor (*metribuzin*)
- Treflan (*trifluralin*)
- Prowl (*pendimeathlin*)
- Eptam (*eptc*)

**Postemergence**
- Butyrac (*2,4-DB*)
- Poast (*sethoxydim*)
- Select Max (*clethodim*)
- Roundup (*glyphosate*)
- Gramoxone (*paraquat*)
- Velpar (*hexazinone*)
- Sencor (*metribuzin*)
Herbicide Screening for Post Emergent Groundsel Control in Established Alfalfa

Application: 12/3/09; All treatments included COC at 1 gal/100gal

Groundsel size 1”- 6” flowering 68 days after treatments

- Velpar 1.0 qt/A
- Gram Int 1.0 qt/A + Velpar 1.0 qt/A
- Kixor 1.03 oz/A
- Chateau 4.0 oz/A + Velpar 1.0 pt/A
- Chateau 2.0 oz/A + Velpar 1.0 pt/A
- Gram Int 1.0 pt/A + Chateau 2.0 oz/A + Velpar 1.0
- Sencor 10.7 oz/A + Chateau 4.0 oz/A
- Gramoxone Inteon 1.0 qt/A + Chateau 4.0 oz/A
- Rely 3.6 qt/A
- Reglone 1.0 qt/A
- Gram Int 1.0 qt/A
Dormant application in December 30 DAT

Sharpen + Chateau

Sharpen + Velpar

Dormant application in December 30 DAT
Sharpen® Herbicide
Dormant Application in Alfalfa

UCCE Field Trial – 4 MAT – Tracy, CA

Sharpen (2 fl oz/A) + Chateau (4 oz/A) + MSO + AMS

Primary weeds: common groundsel, common chickweed, sowthistle (light population)

Notes:
• Both mixtures provided complete control