Aminocyclopyrachlor for Weed Control in Pasture and Rangelands

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Introduction

Aminocyclopyrachlor (AMCP)

- Extremely active broadleaf herbicide
- Combinations for more broad-spectrum control
  - AMCP + metsulfuron (Rejuvra)
  - AMCP + triclopyr (Invora)
  - AMCP + 2,4-D
Postemergence Weed Control
(Winter Annuals & Cool Season Perennials)

0.35 to 0.5 oz ai/A

• ≥ 98% control of white clover, common dandelion, purple cudweed and hairy buttercup
Postemergence Weed Control
(Winter Annuals & Cool Season Perennials)

0.51 to 1.0 oz ai/A

- ≥ 92% control of buckhorn plantain, catsear dandelion, hop clover, henbit, purple deadnettle, wild violet
- 100% control of facelis, common chickweed, Brazilian catsear, Florida betony, curly dock, Carolina geranium
- 0% yellow woodsorrel control
Postemergence Weed Control
(Winter Annuals & Cool Season Perennials)

1.01 to 1.5 oz ai/A

- ≥ 91% control of Florida pusley (3 wk seq.), lawn burweed
- 100% control of annual blueeyed grass
- 0-98% control of corn speedwell (very unpredictable)
- 0% mouseear chickweed, parsley-piert control
- 0% wild garlic one app; ≥ 90% 4-wk sequential
Henbit and Winter Weed Control in Coastal Bermudagrass Using AMCP Combinations

Applied Mar 7
NIS applied at 0.25%
AMCP + 2,4-D
Apr 30, 2013

Yellow woodsorrel

Mouseear chickweed
AMCP + metsulfuron
Apr 20, 2013 (8 WAT)
Corn speedwell
1.5 oz ai/A
4 WAT – no control
Wild garlic  1.1 oz ai/A AMCP
12 DAT – plant eventually recovered
With 4-wk sequential – ≥ 90% control
Wild radish
2.0 oz ai/A
4 WAT
Stunted – seed delay

NCSU Research
1.51 to 2.0 oz ai/A
33% wild radish control
Postemergence Weed Control
(Winter Annuals & Cool Season Perennials)

• No injury symptoms to mouseear chickweed, parsley-piert and yellow woodsorrel

• Tank-mix partner definitely needed (but not 2,4-D)

• Slight to moderate injury symptoms to corn speedwell, wild garlic and wild radish

• Possible benefit from timely sequential application or tank-mix partner (possibly 2,4-D but not on corn speedwell)
Postemergence Weed Control (Summer Annuals & Warm Season Perennials)

NCSU Research: 0.75 to 1.5 oz ai/A

- **≥ 86%** Virginia buttonweed control
- **≥ 92%** annual lespedeza, dogfennel, pink purslane, goldenrod species, carpetweed control
- **100%** horsenettle, horseweed, dollarweed control
- **83%** smooth crabgrass early tiller – one application
- **95%** smooth crabgrass early tiller – 3-wk sequential
SWSS Weed Survey of Southern States (2012) – Warm Season Weeds

- AMCP alone: 100% horsenettle, horseweed, dogfennel

- Combination products containing metsulfuron, chlorsulfuron or triclopyr provided complete control of common ragweed and 90%+ control of spiny amaranth
  - Arrowleaf sida: evaluated in 2013

- Bitter sneezeweed, blackberry, cocklebur, prickly pear, multiflora rose, thistle sp. (not evaluated yet)
Post Arrowleaf Sida Control in Coastal Bermuda Using AMCP Combinations

Sampson County: 2013

LSD p=.05
- + 2,4-D
  0.36 lb ai/A
- + 2,4-D
  0.54 lb ai/A
- + metsulfuron
  0.77 oz ai/A
- + metsulfuron
  1.28 oz ai/A
- + chlorsulfuron
  1.38 oz ai/A
- + triclopyr
  0.1875 lb ai/A
- + triclopyr + fluroxypyr
  0.5 lb ai/A
- Check

Applied Jun 8
0.25% Induce
AMCP + 2,4-D
0.54 lb ai/A
Jul 8, 2013 (4 WAT)

AMCP + metsulfuron
1.28 oz ai/A
Jul 8, 2013 (4 WAT)
AMCP + chlorsulfuron
1.38 oz ai/A
Jul 8, 2013 (4 WAT)

AMCP + triclopyr
0.1875 lb ai/A
Jul 8, 2013 (4 WAT)
‘Coastal’ Bermudagrass Tolerance to AMCP Combinations at Initial Greenup <2” Growth

<table>
<thead>
<tr>
<th></th>
<th>3</th>
<th>2</th>
<th>0</th>
<th>0</th>
<th>lsd (p=.05)</th>
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<tbody>
<tr>
<td>AMCP 2 oz ai/A</td>
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<tr>
<td>AMCP + metsulfuron 1.33 + 0.2 oz ai/A</td>
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<tr>
<td>AMCP + 2,4-D 1.395 + 10.6 oz ai/A</td>
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<tr>
<td>AMCP + triclopyr 1 + 2 oz ai/A</td>
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<tr>
<td>Check</td>
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</table>

Applied Apr 7
NIS at 0.25% v/v

2010: Wake County
‘Coastal’ Bermudagrass Tolerance to AMCP Combinations at Initial Greenup <2” Growth

2010: Wake County

Applied Apr 7
NIS at 0.25% v/v

<table>
<thead>
<tr>
<th>Date</th>
<th>Treatment</th>
<th>Lbs green wt / acre</th>
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<tbody>
<tr>
<td>1-Jun</td>
<td>AMCP 2 oz ai/A</td>
<td>8000</td>
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<tr>
<td>1-Jun</td>
<td>AMCP + metsulfuron 1.33 + 0.2 oz ai/A</td>
<td>10000</td>
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<tr>
<td>1-Jun</td>
<td>AMCP + 2,4-D 1.395 + 10.6 oz ai/A</td>
<td>12000</td>
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<tr>
<td>1-Jun</td>
<td>AMCP + triclopyr 1 + 2 oz ai/A</td>
<td>2441</td>
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<tr>
<td>9-Jun</td>
<td>Check</td>
<td>2441</td>
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</table>

lsd (p=.05)

- AMCP 2 oz ai/A
- AMCP + metsulfuron 1.33 + 0.2 oz ai/A
- AMCP + 2,4-D 1.395 + 10.6 oz ai/A
- AMCP + triclopyr 1 + 2 oz ai/A
- Check
‘Coastal’ Bermudagrass Tolerance to AMCP Combinations at 6-8” Growth

Applied May 4
NIS at 0.25% v/v

% Stand Reduction

lsd (p=0.05)

AMCP 2 oz ai/A
AMCP + metsulfuron 1.33 + 0.2 oz ai/A
AMCP + 2,4-D 1.395 + 10.6 oz ai/A
AMCP + triclopyr 1 + 2 oz ai/A
Check

2010: Wake County
‘Coastal’ Bermudagrass Tolerance to AMCP Combinations at 6-8” Growth

Lbs green wt / acre

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Lbs green wt / acre</th>
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</thead>
<tbody>
<tr>
<td>AMCP 2 oz ai/A</td>
<td>2035</td>
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<tr>
<td>AMCP + metsulfuron 1.33 + 0.2 oz ai/A</td>
<td>2035</td>
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<tr>
<td>AMCP + 2,4-D 1.395 + 10.6 oz ai/A</td>
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</tr>
<tr>
<td>AMCP + triclopyr 1 + 2 oz ai/A</td>
<td>2035</td>
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<td>Check</td>
<td>2035</td>
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</table>

2010: Wake County

Applied May 4
NIS at 0.25% v/v
‘Coastal’ Bermudagrass Tolerance to AMCP Combinations at or 10 Days after 1st Cut

% Stand Reduction

lsd (p=.05)
- AMCP 2 oz ai/A
- AMCP + metsulfuron 1.33 + 0.2 oz ai/A
- AMCP + 2,4-D 1.395 + 10.6 oz ai/A
- AMCP + triclopyr 1 + 2 oz ai/A
- AMCP 2 oz ai/A Jun 8
- Check

Applied Jun 8 or Jun 19
NIS at 0.25% v/v

2010: Wake County
Tall Fescue Tolerance to AMCP Combination Products

<table>
<thead>
<tr>
<th>Time (WAT)</th>
<th>Treatment Description</th>
<th>% Necrosis</th>
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<tr>
<td>1 WAT</td>
<td>+ chlorsulfuron 1.38 oz ai/A</td>
<td>3</td>
</tr>
<tr>
<td>2 WAT</td>
<td>+ metsulfuron 1.28 oz ai/A</td>
<td>4</td>
</tr>
<tr>
<td>4 WAT</td>
<td>AMCP 0.5 oz ai/A</td>
<td>7</td>
</tr>
<tr>
<td>8 WAT</td>
<td>+ 2,4-D 1.3 lb ai/A</td>
<td>0</td>
</tr>
<tr>
<td>10 WAT</td>
<td>AMCP + thifensulfuron 1.22 + 0.278 oz ai/A</td>
<td>3</td>
</tr>
<tr>
<td>12 WAT</td>
<td>AMCP + tribenuron 1.22 + 0.153 oz ai/A</td>
<td>4</td>
</tr>
<tr>
<td>14 WAT</td>
<td>Aminopyralid 0.11 lb ai/A</td>
<td>7</td>
</tr>
<tr>
<td>16 WAT</td>
<td>Check</td>
<td>0</td>
</tr>
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LSD p=.05

NCSU Beef Unit: 2013

Applied May 21
NIS at 0.25%
Tall Fescue Yield Effects to AMCP Combination Products

Lb dry wt/A

23-Jul
30-Sep

NCSU Beef Unit: 2013

Applied May 21
NIS at 0.25%

LSD p=.05

+ chlorsulfuron
1.38 oz ai/A

+ metsulfuron
1.28 oz ai/A

AMCP
0.5 oz ai/A

+ 2,4-D
1.3 lb ai/A

AMCP + thifensulfuron
1.22 + 0.278 oz ai/A

AMCP + tribenuron
1.22 + 0.153 oz ai/A

Aminopyralid
0.11 lb ai/A

Check

ns ns ns

NCSU Beef Unit: 2013
Turfgrass Clipping Residues
Average of 2 Field Trials at NC State (2009 – 2010)

Days After Application
Conclusions

Winter Weed Trial
• AMCP + metsulfuron or chlorsulfuron: complete control of henbit, narrowleaf vetch, Carolina geranium, shepherds-purse, mouseear chickweed, oldfield toadflax and corn speedwell
• AMCP + 2,4-D: no control of mouseear chickweed, oldfield toadflax and corn speedwell

Summer Weed Trial
• AMCP + 2,4-D, metsulfuron, chlorsulfuron or triclopyr: complete control of arrowleaf sida 4 WAT but new germination occurred by 8 WAT
Conclusions

‘Coastal’ Bermuda Yield Trial

• AMCP at 2 oz ai/A or with metsulfuron, 2,4-D or triclopyr did not affect yield when treated at initial greenup

• AMCP at 2 oz ai/A or with metsulfuron caused 30% stand (1 MAT) and yield reduction when applied to 6-8 inch new spring growth; AMCP with 2,4-D or triclopyr caused 20% stand reduction 1 MAT but did not affect yield

• All treatment combinations reduced bermudagrass stand <10% at 4 WAT when applied 10 days after 1st cut
Conclusions

Tall Fescue Yield Trial

- AMCP + chlorsulfuron or metsulfuron caused tall fescue necrosis 15 or 37%, respectively, 4 WAT with recovery by 8 WAT; tall fescue yield was not affected

- AMCP + 2,4-D, thifensulfuron or tribenuron caused no tall fescue injury or yield reduction