Rice Weed Control

A.J. Fischer    W. Brim-DeForest    J.W. Eckert    S. Johnson

California Cooperative Rice Research Foundation, Inc.
United States Department of Agriculture
University of California
Cooperating

August 28, 2013
Drill seeded trial H.R.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Rate (g ai/ha)</th>
<th>Prod./a</th>
<th>Timing&lt;sup&gt;2&lt;/sup&gt;</th>
<th>Application Date</th>
<th>1st</th>
<th>2nd</th>
<th>7/3/2013 (40 DAS)</th>
<th>7/24/2013 (60 DAS)</th>
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<tr>
<td>Untreated</td>
<td>1120</td>
<td>2pt</td>
<td>DPRE</td>
<td>May 28</td>
<td>54</td>
<td>11</td>
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<td>32</td>
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<tr>
<td>Protil H2O</td>
<td>1120</td>
<td>2pt</td>
<td>DPRE</td>
<td>May 28</td>
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<td>4</td>
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<tr>
<td>Protil H2O fb. SuperWham + COC</td>
<td>1120 fb. 4484</td>
<td>2pt fb. 4qt + 1.25% v/v</td>
<td>DPRE fb. 3-4 lsr</td>
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<td>75</td>
<td>65</td>
<td>73</td>
<td>79</td>
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<tr>
<td>Protil H2O fb. SuperWham + Clincher + COC</td>
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<td>2pt + 4qt + 13oz + 1.25% v/v</td>
<td>DPRE fb. 3-4 lsr</td>
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<td>0</td>
<td>91</td>
<td>86</td>
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<td>Clincher + COC fb. SuperWham + COC</td>
<td>1120 + 280</td>
<td>2pt + 4qt + 13oz + 1.25% v/v</td>
<td>DPRE fb. 3-4 lsr</td>
<td>May 28</td>
<td>97</td>
<td>88</td>
<td>93</td>
<td>98</td>
</tr>
<tr>
<td>Granite SC fb. SuperWham + Clincher + COC</td>
<td>1120 + 280</td>
<td>2pt + 4qt + 13oz + 1.25% v/v</td>
<td>DPRE fb. 3-4 lsr</td>
<td>May 28</td>
<td>99</td>
<td>92</td>
<td>97</td>
<td>100</td>
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<tr>
<td>Granite SC fb. SuperWham + Clincher + COC</td>
<td>1120 + 280</td>
<td>2pt + 4qt + 13oz + 1.25% v/v</td>
<td>DPRE fb. 3-4 lsr</td>
<td>May 28</td>
<td>96</td>
<td>42</td>
<td>97</td>
<td>100</td>
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<tr>
<td>Abolish + COC</td>
<td>3363</td>
<td>1.5qt + 1.25% v/v</td>
<td>DPRE fb. 3-4 lsr</td>
<td>May 28</td>
<td>0</td>
<td>79</td>
<td>0</td>
<td>19</td>
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<tr>
<td>Abolish fb. SuperWham + COC</td>
<td>3363 fb. 6726</td>
<td>1.5qt fb. 6qt + 1.25% v/v</td>
<td>DPRE fb. 3-4 lsr</td>
<td>May 28</td>
<td>96</td>
<td>96</td>
<td>93</td>
<td>99</td>
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<tr>
<td>LSD (P=0.05)</td>
<td></td>
<td></td>
<td></td>
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<td>73</td>
<td>82</td>
<td>52</td>
<td>88</td>
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</table>

1. ECHPH (Late watergrass), ECHR (Early watergrass), SCPMU (Rice field bulrush), CYPDI (Small flower Umbrellaplant), HETLI (Duck salad), LEFFA (Sprangletop), BAORO (Waterhyssop), AMMCO (Redstem), SAGMO (California arrowhead); MOOVA (Monochoria)

2. fb. (followed by), lsr (leaf stage of rice), Till (tillers of rice), DPRE (pre emergent), AFF (after final flush), PPF (post permanent flood).

3. Untreated weed control values represent % cover by the respective weed species

4. Pro C.O.C. is the brand name of COC (Crop oil concentrate)

Phytotoxicity Information:
ALS herbicides (Granite) tend to cause stunting of rice and may cause some stand reduction.

Trial Information
1. Trial seeded May 25, 2013 with 120 lbs per acre of M206
2. Trial managed as a drill seeded with initial flush on May 26, additional flushes on May 31, June 4, and June 9 with final flood on June 18 (rice was 3-4 lsr).
3. No weeds were visible at delay-pre application May 28.
   Watergrass and barnyard grass were 3 leaf, and smallflower was sprouting on June 11.
   Watergrass was 1 tiller and smallflower was sprouting on June 15.
4. Spray applications made with 20 gallons/acre using 8003 nozzles.
5. Weather conditions on May 28: Air temperature 78° F, wind 2.5 MPH from the west.
6. Weather conditions on June 11: Air temperature 77° F, wind 1 MPH from the southeast.
7. Weather conditions on June 15: Air temperature 98° F, wind 1.5 MPH from the southeast.
8. Weather conditions on June 19: Air temperature 76° F, water temperature 82° F, wind 1 MPH from the southeast.
**Pinpoint Trial at Hamilton Road**

<table>
<thead>
<tr>
<th>Treatment⁴</th>
<th>(g/ha)</th>
<th>Rate</th>
<th>Prod/a</th>
<th>Timing²</th>
<th>Application Date</th>
<th>% Weed Control³⁵</th>
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<tbody>
<tr>
<td>Untreated⁵</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>95</td>
</tr>
<tr>
<td>Clincher + Granite SC + COC + SuperWham + COC</td>
<td>260 + 35 lb. 6726</td>
<td>13oz + 2oz + 2.5% v/v lb. 6qt + 2.5% v/v</td>
<td>3-4 lb. 1.2 TIL</td>
<td>18-Jun 2-Jul</td>
<td>100 100 100 100 99 100 100 97 100 97</td>
<td></td>
</tr>
<tr>
<td>Granite SC + COC</td>
<td>36</td>
<td>2oz + 2.5% v/v</td>
<td>3-4 lb.</td>
<td>18-Jun —</td>
<td>100 98 100 99 100 25 100 97</td>
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<tr>
<td>Clincher + COC</td>
<td>280</td>
<td>13oz + 2.5% v/v</td>
<td>3-4 lb.</td>
<td>18-Jun —</td>
<td>97 0 0 97 91 91 5 0 0</td>
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<tr>
<td>Clincher + COC + SuperWham + Grandstand + COC</td>
<td>260 lb. 6726 210</td>
<td>13oz + 2.5% v/v lb. 6qt + 8oz + 1.25% v/v</td>
<td>3-4 lb. 1.2 TIL</td>
<td>18-Jun 2-Jul</td>
<td>98 0 0 97 100 100 81 81 84</td>
<td></td>
</tr>
<tr>
<td>Granite SC + COC + SuperWham + Grandstand + COC</td>
<td>36 lb. 6726 210</td>
<td>2oz + 2.5% lb. 6qt + 8oz + 1.25% v/v</td>
<td>3-4 lb. 1.2 TIL</td>
<td>18-Jun 2-Jul</td>
<td>97 99 100 100 100 31 100 97</td>
<td></td>
</tr>
<tr>
<td>SuperWham + Clincher + COC</td>
<td>4484 + 315</td>
<td>13oz + 10oz + 2.5% v/v</td>
<td>3-4 lb.</td>
<td>18-Jun —</td>
<td>86 85 0 85 94 100 75 0 100</td>
<td></td>
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<tr>
<td>Regiment + UAN + NIS + SuperWham + Grandstand + COC</td>
<td>30 lb. 6726 210</td>
<td>0.5oz + 2% + 1.25% v/v lb. 6qt + 8oz + 1.25% v/v</td>
<td>3-4 lb. 0 TIL</td>
<td>18-Jun 2-Jul</td>
<td>99 100 100 95 100 31 98 100 75</td>
<td></td>
</tr>
<tr>
<td>Regiment + Abolish + UAN + NIS + SuperWham + Grandstand + COC</td>
<td>30 + 3363</td>
<td>0.5oz + 1.5qt</td>
<td>3-4 lb.</td>
<td>16-Jun —</td>
<td>99 100 100 95 100 50 98 100 70</td>
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<tr>
<td>Clincher SC + Granite SC + Abolish + COC</td>
<td>260 + 35 + 4484</td>
<td>13oz + 2oz + 1.5qt + 2.5% v/v</td>
<td>3-4 lb.</td>
<td>16-Jun —</td>
<td>99 100 100 94 100 100 100 100 89</td>
<td></td>
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</tbody>
</table>

LSD (P=0.05)

1 ECPH (Late watergrass), ECHOR (Early watergrass), SCPMU (Rice field bulbush), CYPDI (Small flower Umbrellaplant), HETLI (Duck salad), LEFFA (Speargrass), BAORO (Waterhyssop), AMMCO (Redstem), SACMO (California arrowhead); MOOVA (Monochoria)
2 lb. (followed by), lar (leaf stage of rice), Til (tillers of rice).
3 Untreated weed control values represent % cover by the respective weed species
4 Pro C.O.C. is the brand name of COC (Crop oil concentrate), Kinetic is the brand name of NIS (Non-ionic surfactant), UAN (Urea Ammonium Nitrate)

**Phytotoxicity Information:**
ALS herbicides (Granite and Regiment) tend to cause stunting of rice and may cause some stand reduction

**Trial Information**
1. Trial seeded May 25, 2013 with 120 lbs per acre of M206
2. Trial managed as a pinpoint flood with flood water drained June 15 reflood June 19 to 3-4 inches.
3. Watergrass was 4 leaf, bulrush was 4 leaf, duckseed was 1 tiller, smallflower was 4 inches, water hyssop was sprouting-2 leaf, and radstem was sprouting on June 18. Watergrass was 3 tiller, bulrush was 1-3 tiller, duckseed was flowering, water hyssop was 6-8 leaf on July 2.
4. Spray applications made with 20 gallons/acre using 8003 nozzles.
5. Weather conditions on June 18: Air temperature 85°F, wind 4 MPH from the south.
6. Weather conditions on July 2: Air temperature 83°F, water temperature 79°F wind 3 MPH from the southeast.
7. June 27, 2013- 150lb ammonium sulfate = 30lb nitrogen/acre

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**Pinpoint Flood**

- **Applicaton timing**
  - Seeded: May 25, 2013
  - Flood: May 24, 3" water depth
  - Drained: June 15
  - 1st Application: June 18
  - Reflood: June 19, 4" water depth
  - Post permanent flood applications: July 10
Leathers' Trial

### Treatment

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Rate</th>
<th>Prod. la</th>
<th>Timing</th>
<th>Application date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Untreated</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Cerano fb. Superwham + Grandstand + COC</td>
<td>673 lb. 6726 + 210</td>
<td>120 lb. 6qt + 8oz + 1.25% w/w</td>
<td>Post-reflood fb. 1Til</td>
<td>3-Jun 28-Jun —</td>
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<tr>
<td>Granite GR fb. Superwham + Grandstand + COC</td>
<td>40 lb. 9726 + 210</td>
<td>15lb. 6qt + 8oz + 1.25% w/w</td>
<td>Post-reflood fb. 1Til</td>
<td>3-Jun 28-Jun —</td>
</tr>
<tr>
<td>Cerano fb. Granite GR fb. Superwham + Grandstand + COC</td>
<td>448 lb. 40 lb. 6726 + 210</td>
<td>8lb. 15lb. 6qt + 8oz + 1.25% w/w</td>
<td>Post-reflood fb. 2 DAT fb. 1Til</td>
<td>3-Jun 5-Jun 28-Jun</td>
</tr>
<tr>
<td>Cerano fb. GWN-10252 fb. Superwham + Grandstand + COC</td>
<td>448 lb. 250 lb. 6726 + 210</td>
<td>8lb. 7,5lb. 6qt + 6oz + 1.25% w/w</td>
<td>Post-reflood fb. 2 DAT fb. 1Til</td>
<td>3-Jun 5-Jun 26-Jun</td>
</tr>
</tbody>
</table>

### LSD (P=0.05)

Leathers method where presoaked seed is flown into 1-2 inches of water. When seedling has both root and shoot visible (approx. 2-4 days) lower the water to just a skim, reflood when root is penetrating soil

### Phytotoxicity Information:

- Clomazone (Cerano) can cause bleaching and some stand reduction in rice
- Penoxsulam (Granite GR) can cause stunting of rice early in development
- Benzobicyclic has minimal phytotoxicity alone, but the combination granule (with halosulfuron) may cause some stunting

### Trial Information

1. Trial seeded May 25 with 120 lbs per acre of M206.
2. Flooded to 3 inches May 24, 2013; drained May 26; reflooded June 2.
3. Watergrass was 1-1.5 leaf, smallflower and ducksalad were sprouting on June 3.
4. Watergrass was 2 leaf, smallflower, bulrush and ducksalad were sprouting on June 5.
5. Watergrass was 1-3 tiller, bulrush was 1-3 tiller, water hyssop was 6 leaf and ducksalad was flowering on June 28.
6. Spray applications made with 20 gallons/acre using 8003 nozzles.
7. Weather conditions on June 3: Air temperature 82°F, water temperature 27°C, wind 5 MPH from the north.
8. Weather conditions on June 5: Air temperature 78°F, water temperature 68°F, wind 0 MPH.
9. Weather conditions on June 28: Air temperature 65°F, water temperature 77°F, wind 0 MPH.
10. June 27, 2013- 150lb ammonium sulfate = 30lb nitrogen/acre

### Leathers Method

**Application timing**

- **Seeded:** May 25
- **Flood:** May 24, 3-4" water depth
- **Drained:** May 29
- **Reflood:** June 2, 4" water depth
- **Post-reflood Applications:** June 3, June 5, June 28
**Gowan Rates and Program**

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Rate (g/ha)</th>
<th>Prod. la</th>
<th>Timing</th>
<th>Application Date</th>
<th>% Weed Control</th>
<th>LSD (P=0.05)</th>
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<tr>
<td>Untreated</td>
<td></td>
<td></td>
<td>1st</td>
<td>2nd</td>
<td>7/2/2013 (40 DAS)</td>
<td>63 4 2 2 7 7</td>
</tr>
<tr>
<td>GWN-9796 + Sandea</td>
<td>250 + 52.5</td>
<td>7/oz + 1oz</td>
<td>1 ler</td>
<td>4-Jun</td>
<td>7/2/2013 (40 DAS)</td>
<td>63 4 2 2 7 7</td>
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<tr>
<td>GWN-10252</td>
<td>250 + 52.6</td>
<td>7.5 lb</td>
<td>1 ler</td>
<td>4-Jun</td>
<td>7/2/2013 (40 DAS)</td>
<td>63 4 2 2 7 7</td>
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<tr>
<td>GWN-10252</td>
<td>303 + 83</td>
<td>9 lb</td>
<td>1 ler</td>
<td>4-Jun</td>
<td>7/2/2013 (40 DAS)</td>
<td>63 4 2 2 7 7</td>
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<tr>
<td>GWN-10252 fb. Propanil + Granstand + COC</td>
<td>250 + 52.5 lb.</td>
<td>4oz + 1oz</td>
<td>1 ler</td>
<td>4-Jun</td>
<td>7/2/2013 (40 DAS)</td>
<td>63 4 2 2 7 7</td>
</tr>
<tr>
<td>GWN-10252 fb. Regent + NIS</td>
<td>250 + 52.5 lb.</td>
<td>0.54oz + 0.125% v/v</td>
<td>1 ler</td>
<td>4-Jun</td>
<td>7/2/2013 (40 DAS)</td>
<td>63 4 2 2 7 7</td>
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<tr>
<td>GWN-10252 fb. Clincher + COC</td>
<td>250 + 52.5 lb.</td>
<td>1oz + 1.25% v/v</td>
<td>1 ler</td>
<td>4-Jun</td>
<td>7/2/2013 (40 DAS)</td>
<td>63 4 2 2 7 7</td>
</tr>
<tr>
<td>GWN-10252 fb. Granite SC + COC</td>
<td>250 + 52.5 lb.</td>
<td>3oz + 1.25% v/v</td>
<td>1 ler</td>
<td>4-Jun</td>
<td>7/2/2013 (40 DAS)</td>
<td>63 4 2 2 7 7</td>
</tr>
<tr>
<td>Cerano fb. GWN-10252</td>
<td>673 fb. 250 + 52.5</td>
<td>12oz + 1oz</td>
<td>4-Jun</td>
<td>7/2/2013 (40 DAS)</td>
<td>63 4 2 2 7 7</td>
<td></td>
</tr>
</tbody>
</table>

LSD (P=0.05)

GWN-9796 is a granular formulation containing 3% benzobicyclon and 0.64% halosulfuron. GWN-9796 is a liquid suspension formulation consisting of 6% benzobicyclon. Sandea is a granular formulation of 75% halosulfuron.

All applications containing GWN-9796 were made with a 10 ft spray boom with nozzles removed to simulate a direct stream application. All granular formulations were hand dispersed across plot area.

1. ECHPH (Late watergrass), ECHOR (Early watergrass), SCPMU (Rice field burrush), CYPDI (Small flower Umbrellaplant), HETLJ (Duck salad), LEFFA (Sprangletop), BAORO (Waterhyssop), AMMCO (Redstem), SAGMO (California arrowhead), MOOVA (Monochoria)

2. fb. (followed by), lsr (leaf stage of rice), TII (tillers of rice), DOS (Day of Seeding)

3. Untreated weed control values represent % cover by the respective weed species

4. Pro C.O.C. is the brand name of COC (Crop oil concentrate), Kinetic is the brand name of NIS (Non-ionic surfactant)

**Phytotoxicity Information:**

Clomazone (Cerano) can cause bleaching and some stand reduction in rice. ALS herbicides (Granite, Regent, and Sandea) tend to cause stunting of rice and may cause some stand reduction. Benzobicyclon has minimal phytotoxicity alone, but the combination granule (with halosulfuron) may cause some stunting.

**Trial Information**

1. Trial seeded May 25, 2013 with 120 lbs per acre of M208
2. Trial managed as a permanent flood with flood water at 3-4 inches.
3. No weeds were visible when Cerano was applied on day of seeding May 25.
4. Watergrass was 1.5-2 leaf, burrush and duckweed were sprouting on June 4.
5. Weather conditions on May 25: Air temperature 82°F, water temperature 87°F, wind 3 MPH from the southeast.
6. Weather conditions on June 4: Air temperature 74°F, water temperature 72°F, wind 4.5 MPH from the southeast.
7. Weather conditions on June 16: Air temperature 76°F, water temperature 76°F, wind 7 MPH from the south.
8. June 27, 2013- 150lb ammonium sulfate = 30lb nitrogen/acre

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**Continuous Flood Gowan**

**Application timing**

Seeded: May 25
Flood: May 24, 3-4" water depth
Day of Seeding Application: May 25
Post-Flood Applications: June 4, June 18
## Continuous Flood Valant

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Rate</th>
<th>Timing</th>
<th>Application date</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Un treated</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>League MVP: Regent + UAN + Dyna-Amic</td>
<td>2.8 + 0.11 lb. 37.5</td>
<td>2 lb. 1-2 tiller</td>
<td>5-Jun</td>
</tr>
<tr>
<td>League MVP: Regent + UAN + Dyna-Amic</td>
<td>3.36 + 0.13 lb. 37.5</td>
<td>2 lb. 1-2 tiller</td>
<td>5-Jun 2-Jul</td>
</tr>
<tr>
<td>League MVP: Regent + UAN + Dyna-Amic</td>
<td>2.92 + 0.16 lb. 37.5</td>
<td>2 lb. 1-2 tiller</td>
<td>5-Jun 2-Jul</td>
</tr>
<tr>
<td>Cerano: SuperHIM + Lonlex + COC</td>
<td>260 lb. 726 + 97</td>
<td>1 lb. 25-May 2-Jul</td>
<td></td>
</tr>
<tr>
<td>Bolero Ultramix: Regent + UAN + Dyna-Amic</td>
<td>20 lb. 37.5</td>
<td>2 lb. 1-2 tiller</td>
<td>5-Jun 2-Jul</td>
</tr>
</tbody>
</table>

### Phytotoxicity Information:
- Clomazone (Cerano) can cause bleaching and some stand reduction in rice.
- ALS herbicides (Regiment) tend to cause stunting of rice and may cause some stand reduction.
- Thiobencarb (Bolero, League MVP) can cause some stand reduction.

### Trial Information
1. Trial seeded May 25, 2013 with 120 lbs per acre of M-206.
2. Trial managed as a permanent flood with flood water at 3-4 inches.
3. No weeds were visible when Cerano was applied on day of seeding May 25.

### Weather Conditions
1. May 25: Air temperature 82°F, water temperature 87°F, wind 3 MPH from the southeast.
2. June 5: Air temperature 92°F, water temperature 95°F, wind 1.5 MPH from the south.
3. June 27, 2013: 150lb ammonium sulfate = 30lb nitrogen/acre
### Continuous Flood Trial HR

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Rule</th>
<th>Product</th>
<th>Timing</th>
<th>Application date</th>
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</tr>
<tr>
<td>Cerano</td>
<td>673</td>
<td>12b</td>
<td>2.5 lr</td>
<td>10-Jun</td>
</tr>
<tr>
<td>Bombard</td>
<td>673</td>
<td>12b</td>
<td>2.5 lr</td>
<td>10-Jun</td>
</tr>
<tr>
<td>Cerano</td>
<td>673</td>
<td>12b</td>
<td>1 lr</td>
<td>4-Jun</td>
</tr>
<tr>
<td>Bombard</td>
<td>673</td>
<td>12b</td>
<td>1 lr</td>
<td>4-Jun</td>
</tr>
<tr>
<td>Granite GR</td>
<td>40</td>
<td>15b</td>
<td>2.5 lr</td>
<td>10-Jun</td>
</tr>
<tr>
<td>Cerano GR</td>
<td>673</td>
<td>20b</td>
<td>12b lr</td>
<td>25-May</td>
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<td>Cerano GR</td>
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<tr>
<td>Cerano GR</td>
<td>673</td>
<td>20b</td>
<td>12b lr</td>
<td>25-May</td>
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</tbody>
</table>

**Post-Flood Nitrogen/Acre**

- Cerano GR = 30 lb

**Weather Conditions**

- Air temperature 72°F, water temperature 72°F, wind 3 MPH from the southeast.
- Air temperature 72°F, water temperature 72°F, wind 3 MPH from the southeast.
- Air temperature 82°F, water temperature 87°F, wind 3 MPH from the southeast.
- Air temperature 82°F, water temperature 87°F, wind 3 MPH from the southeast.

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### Weed Control

- **ECPh (Late watergrass)**, **ECHOR (Early watergrass)**, **SCPMU (Rice field bulrush)**, **CVPDI (Small flower Umbrellaplant)**, **HETLI (Duck salad)**, **LEFFA (Sprangletop)**, **BAAORO (Waterhyssop)**, **AMMC0 (Redstem)**, **SAGMO (California arrowhead)**, **MOOVA (Monochoria)**

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**Phytotoxicity Information:**

- Clomazone (Cerano and Bombard) can cause bleaching and some stand reduction in rice.
- Penoxsulam (Granite GR) can cause stunting of rice early in development.
- Carfenrazone (Shark) can cause some injury to rice if applied too early.
- ALS herbicides (Granite and Regiment) tend to cause stunting of rice and may cause some stand reduction.
- Thiobencarb (Bolero) can cause some stand reduction.
- Thiobencarb (Bolero) and Penoxsulam (Granite GR) can cause some stand reduction when applied at the same time, but when applied separately, phytotoxicity is reduced.

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**Trial Information:**

1. Trial seeded May 25, 2013 with 120 lbs per acre of M206.
2. Trial managed as a permanent flood with flood water at 3-4 inches.
3. No weeds were visible when Cerano was applied on day of seeding May 25.
4. Watergrass was 1.5-2 leaf, bulrush and duckweed were spraying on June 12.
5. Watergrass was 2-3 tiller, ricefield bulrush, smallflower, and duckweed were 2-4 inches on June 10.
6. Watergrass was 2-3 tiller, ricefield bulrush was 1-3 tiller, hyssop was 6 leaf, arrowhead was 1-3 tiller, redstem was 8 leaf.
7. Duckweed was flowering, monochoria was 1-3 tiller, and sprangletop was 1-3 tiller on July 2.
8. Spray applications made with 20 gallons/acre using 8003 nozzles.
10. Weather conditions on June 4: Air temperature 74°F, water temperature 72°F, wind 4.5 MPH from the southeast.
11. Weather conditions on June 10: Air temperature 61.5°F, water temperature 65°F, wind 2.5 MPH from the southeast.
12. Weather conditions on July 2: Air temperature 85°F, water temperature 80°F, wind 5.2 MPH from the southeast.
13. June 27, 2013- 150 lb ammonium sulfate = 30b nitrogen/acre