Effect of Preharvest Herbicides on Sunflower

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• Natural desiccation can be slow
• Poor weather can cause decline of yield and quality
• Bird predation may cause substantial losses
Chemical Desiccation Options

- Sodium chlorate (Drexel Defol)
- Paraquat (Gramoxone Inteon)
- Glyphosate (RoundUp)
  - First use season in 2007
  - For weed control only
  - Will affect sunflower
  - Slow activity
- BAS 800H
BAS 800H

- Phil Stahlman reported in 2007
- Proposed common name saflufenacil
- Low use rate (less than 1 oz ai/A)
- Favorable environmental profile
- Investigation of potential in sunflower
  - Desiccation of plants
  - Effect on seed
Experiment Methods

- Objective – determine the effect of application timing on seed quality
- Four locations
  - Minot and Fargo, ND
  - Brookings, SD
  - Hays, KS
- Locally adapted hybrid and production practices
Treatments

• Control
• Factorial arrangement of application timing and herbicide
• Timing based on achene moisture
  – 50, 40, and 30%
• Herbicides
  – Paraquat, 6 oz ai/A
  – Saflufenacil, 0.71 oz ai/A
  – Glyphosate, 12 oz ae/A
  – Saff plus glyt, 0.36+12 oz ai/A
Evaluations

• Desiccation at four 7-day intervals
  – Stalk, receptacle, and seed
  – Visual and moisture content

• Seed yield and quality at 28 days
  – Yield
  – Weight per 1000
  – Oil content and composition
  – Germination
Sunflower Yield by Location

Location

Minot  Fargo  Brookings  Hays

Yield (lb/A)

2400  2200  2000  1800  1600  1400  1200  1000  800  600  400  200  0
Effect of Application Timing on Achene Size

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<th>Application timing (% achene moisture)</th>
<th>Size (g/1000)</th>
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<tr>
<td>50</td>
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LSD 5% = 1.3
Effect of Herbicide on Achene Size

LSD 5% = NS
Effect of Application Timing on Achene Oil Content

LSD 5% = 0.7
Effect of Herbicide on Achene Oil Content

Application timing (% achene moisture)

Oil (%)

LSD 5% = NS
Summary

- Chemical desiccation as early as 50% achene moisture
  - Can reduce field drying time
  - Did not reduce yield
- Herbicide did not affect achene size or oil content
- Application at 50% moisture reduced size and oil content
Evaluations to Come

- Germination tests have been initiated
- Oil composition will be determined

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