Investigations of Early Season Herbicide, Fungicide, & Fertilizer Co-applications in Field Corn

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University of Missouri
Two separate field studies conducted

- Influence of V5 Herbicide and Fungicide Applications on Corn Injury and Corn Yield.
  - Fungicides: **Stratego Yld**, **Quilt Xcel**, **Headline AMP**

- Influence of V5 Herbicide, Fungicide, and Fertilizer Applications on Corn Yield.
  - Herbicides: **Halex GT**, **Roundup + Capreno**, **Roundup**, **Ignite**
  - Fungicides: **Stratego Yld**, **Quilt Xcel**, **Headline AMP**
  - Slow Release N: **Nitamin**
Influence of V5 Herbicide + Fungicide Applications on Corn Height Reduction 7 Days After Application (Columbia, MO 2011)

Corn Height Reduction (% of Untreated)

- No Herbicide
- Realm Q (4 oz/A)
- Capreno (3 fl oz/A)
- Callisto (3 fl oz/A)
- Halex GT (4 pt/A)
- Roundup (22 fl oz/A)
- Roundup (22 fl oz/A) + Capreno (3 fl oz/A)
- Roundup (22 fl oz/A) + Aatrex (1 qt/A)
- Ignite (22 fl oz/A)

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Influence of V5 Herbicide + Fungicide Applications on Visual Chlorosis 7 Days After Application (Columbia, MO 2011)

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Untreated

3 ozs Capreno + 4 ozs Stratego Yld
Untreated                       3 ozs Capreno + 4 ozs Stratego YLD
Influence of V5 Herbicide + Fungicide Applications on Corn Yield (Columbia, MO 2011)

![Graph showing the effect of different herbicide and fungicide applications on corn yield. The graph compares the yield of corn under various treatments including no herbicide, Realm Q, Capreno, Callisto, Halex GT, Roundup, Ignite, and combinations thereof with fungicides like Quilt Xcel, Headline AMP, and Aatrex. Each bar represents the corn yield in bushels per acre (Bu/A) and includes an LSD (0.05)=14 for statistical significance. The treatments are color-coded to differentiate between herbicide types and fungicide combinations.

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Influence of V5 Herbicide Applications on Corn Yield When Averaged Across all Fungicide Treatments (Columbia, MO 2011)

Corn Yield (Bu/A)

<table>
<thead>
<tr>
<th>Herbicide Treatment</th>
<th>Yield (Bu/A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Herbicide</td>
<td>115</td>
</tr>
<tr>
<td>Realm Q (4 oz/A)</td>
<td>108</td>
</tr>
<tr>
<td>Capreno (3 fl oz/A)</td>
<td>106</td>
</tr>
<tr>
<td>Callisto (3 fl oz/A)</td>
<td>114</td>
</tr>
<tr>
<td>Halex GT (4 pt/A)</td>
<td>112</td>
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<tr>
<td>Roundup (22 fl oz/A) + Capreno (3 fl oz/A)</td>
<td>107</td>
</tr>
<tr>
<td>Roundup (22 fl oz/A) + Aatrex (1 qt/A)</td>
<td>112</td>
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<tr>
<td>Roundup (22 fl oz/A)</td>
<td>112</td>
</tr>
<tr>
<td>Ignite (22 fl oz/A)</td>
<td>110</td>
</tr>
</tbody>
</table>

LSD (0.05)=5

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Influence of V5 Fungicide Applications on Corn Yield When Averaged Across all Herbicide Treatments (Columbia, MO 2011)

### Corn Yield (Bu/A)

- **Stratego YLD (4 fl oz/A)**: 112
- **Quilt Xcel (10.5 fl oz/A)**: 110
- **Headline AMP (10 fl oz/A)**: 108
- **No Fungicide**: 112

**LSD (0.05) = 6**

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Influence of V5 Herbicide + Fungicide + Nitamin Combinations on Corn Yield
(Columbia, MO 2011)

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Influence of V5 Herbicide Applications on Corn Yield When Averaged Across all Fungicide and Nitamin Treatments (Columbia, MO 2011)

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Influence of V5 Fungicide Applications on Corn Yield When Averaged Across all Herbicide and Nitamin Treatments (Columbia, MO 2011)

Corn Yield (Bu/A)

- Stratego YLD (4 fl oz/A)
- Quilt Xcel (10.5 fl oz/A)
- Headline AMP (10 fl oz/A)
- No Fungicide

LSD (0.05)=5

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Influence of V5 Nitamin Application on Corn Yield When Averaged Across all Herbicide and Fungicide Treatments (Columbia, MO 2011)

Corn Yield (Bu/A)

- Nitamin (2 gal/A)
- No Nitamin

LSD (0.05) = 4

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1st Year Research Conclusions

• Substantial corn height reductions can occur with certain herbicide-fungicide combinations (Capreno, Realm Q)

• There was not a significant effect of V5 fungicide applications on corn yield in comparison to the non-treated control

• There was not a significant effect of V5 Nitamin application on corn yield in comparison to the non-treated control
Fungicides are most profitable in corn when a combination of factors are present:

- Disease susceptible hybrids
- Continuous corn
- No-till or reduced tillage systems
- Late-planted corn
- Weather conditions that favor disease development (i.e. heavy dews, high humidity, wet season)

Table 1. Yield responses to fungicides applied at the V6 stage.

<table>
<thead>
<tr>
<th>Source</th>
<th>Location</th>
<th>V6</th>
<th>VT-R1</th>
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<tr>
<td>U. of IL Summary</td>
<td>WI</td>
<td>7.8</td>
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<td>IL</td>
<td>4.3</td>
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<td>-10.5</td>
<td>-9.5</td>
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<tr>
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<td>-0.2</td>
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<td>3.9</td>
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<tr>
<td>2010 On-Farm Trial</td>
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<tr>
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<tr>
<td>2010 On-Farm Trial</td>
<td>IL</td>
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</tr>
<tr>
<td><strong>Average</strong></td>
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<td>1.3</td>
<td>7.9</td>
</tr>
</tbody>
</table>

Further Considerations...

- Previous research suggests a single VT application will provide the same yield benefits as a V6+VT application.
• Estimated cost per product:
  – Stratego Yld (4 fl oz/A) = $18/A
  – Quilt Xcel (10.5 fl oz/A) = $20/A
  – Headline AMP (10 fl oz/A) = $20/A

• Minimum 3-4 bu/A yield increase required to breakeven.
Questions??

Thank You