Preplant and Preemergence Palmer amaranth Control in Grain Sorghum for the Texas High Plains

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Introduction

- Herbicide options in grain sorghum are more limited than in other agronomic crops.
- Palmer amaranth is especially problematic due to limited postemergence options that will not affect rotational crops such as cotton.
- Effective season-long Palmer amaranth control using soil-applied residual herbicides is critical to profitable grain sorghum production.
Objective

- Evaluate registered and non-registered herbicides applied early preplant or preemergence for crop response and Palmer amaranth control in grain sorghum.
Results - Early Preplant 2017

% control

- Acuron (64 oz)
- Acuron (80 oz)
- Lumax EZ
- SureStart II
- *
- Valor (1 oz)
- *
- Valor (2 oz)
- *
- Bicep Lite II Magnum
- Degree Xtra

Texas A&M AgriLife Research
Results - Early Preplant 2018

% control

<table>
<thead>
<tr>
<th>Product</th>
<th>% Control</th>
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<tbody>
<tr>
<td>Acuron (64 oz)</td>
<td></td>
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<td>Acuron (80 oz)</td>
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<td>Magnum</td>
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</tbody>
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Results - Preemergence 2017

% control

Atrazine  Bicep II Magnum  Bicep Lite Magnum  Degree Xtra  Dual Magnum  Warrant + Verdict + Outlook  MiloPro + Dual Magnum  Callisto + Atrazine
Results - Preemergence 2018

% control

- Atrazine
- Bicep II Magnum
- Bicep Lite II Magnum
- Degree Xtra
- Dual Magnum
- Warrant
- Verdict + Outlook
- MiloPro
- MiloPro + Dual Magnum
- Callisto
- Callisto + Atrazine
Results - Sorghum Yield EPP 2017

- Acuron (64 oz)
- Acuron (80 oz)
- Lumax EZ
- SureStart II
- Valor (1 oz)
- Valor (2 oz)
- Bicep Lite II Magnum
- Degree Xtra
Results - Sorghum Yield PRE 2017

Atrazine Bicep II Bicep Lite Degree Dual Warrant Verdict MiloPro MiloPro Callisto Callisto + Magnum Magnum Magnum Xtra Magnum + Outlook + Dual Magnum + Atrazine
Early-season

Untreated

Degree Xtra PRE

Late-season

Untreated

Degree Xtra PRE
Summary

- Effective season-long Palmer amaranth control (>90%) was achieved in both years with Lumax EZ, Bicep Lite II Magnum, and Degree Xtra applied EPP.
- Effective season-long Palmer amaranth control was achieved in both years with Degree Xtra, Bicep Lite II Magnum, and MiloPro + Dual Magnum applied PRE.
- Injury was observed with SureStart II (15%) applied EPP which is not registered for use in sorghum. No other EPP or PRE herbicides injured sorghum (data not shown).
- Tank-mixes or premixes with two active ingredients or more effectively controlled Palmer amaranth compared to Atrazine, Dual, Warrant, or Callisto alone.
Questions?

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