New Developments in Field Crop Weed Control (corn, soybean, peanut, sorghum)

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Field Corn/Sorghum
New Stuff

- Q Products
- Kixor
- GAT
- DHT
DuPont’s Q Products

- Accent Q
  - nicosulfuron

- Steadfast Q
  - Accent + Resolve

- Resolve Q
  - rimsulfuron

- all contain a crop safener
  - isoxadifen
Figure 1. The influence of isoxadifen on corn injury, 7 DAT.
Kixor

- BASF
- saflufenacil
- PPO-inhibitor
- field corn, sorghum, soybeans
- may not be promoted in GA due to injury concerns on lighter soils
- <1.5% OM
Kixor Corn Products

- **Sharpen 2.85SC**
  - Saflufenacil
  - Burndown
  - PRE
  - 2 oz/A

- **Integrity**
  - Sharpen + Outlook
Kixor - 2008

NTC  Kixor + Outlook (PRE)  53 DAT
Sharpen Corn Injury
Optimum® GAT® Technology

Glyphosate-ALS Tolerance

- Dupont/Pioneer
- Glyphosate metabolic inactivation mechanism
  - Gene shuffling
- Insensitive ALS enzyme
- What does it bring to the table?
  - Flexibility?
- 2010 or 2011?
Potential GAT Corn Products

- **Freestyle**
  - Classic + Harmony + Express

- **Instigate**
  - Classic + Resolve + Callisto

- **Traverse**
  - Classic + Resolve

- **Trigate**
  - Resolve + Express + Callisto
GAT Field Corn - 2009

NTC

Trigate @ 5 oz/A + NIS
Applied 20 DAP
Resolve + Express + Callisto

CN-05-09
June 2
53 DAP
GAT Field Corn - 2009

NTC

Instigate @ 6.9 oz/A + Atrazine @ 1 qt/A
Applied PRE
Resolve + Classic + Callisto

CN-05-09
June 2
53 DAP
DHT Technology

- Dow AgroSciences Herbicide Tolerance

- Enhanced tolerance to 2,4-D and “fops”
  - Fops = Assure, Fusilade

- Commercially available 2012?

- Stacked with glyphosate and Herculex
DHT Corn

Corn response to 2 qt 2,4-D at V7 stage (2 DAT)

Corn protected from 2,4-D injury by DHT1 gene

Corn without DHT1 lodging due to root injury, see insert
Sorghum
Grain Sorghum - 2009

NTC

Dual Magnum 7.62EC @ 1 pt/A (PRE)
Atrazine 4L @ 1.5 qt/A + 1% Agridex (POST)

SG-01-09
39 DAP
Grain Sorghum Future Weed Control Options?

- **ALS-Resistant**
  - Nicosulfuron (Accent)
  - Rimsulfuron (Resolve)
  - Metsulfuron (Ally)

- **ACCase-Resistant**
  - “Fops”
    - Assure II
  - still susceptible to “Dims”
    - Select or Poast

- **Huskie**
  - Buctril + pyrasulfotole + safener (mefenpyr)
Soybeans
Liberty-Link Soybeans

- Not necessarily a direct replacement for Roundup!
- Use a **residual** herbicide in this system!!!!!!
- Not usually good on pigweed bigger than 3”
- Tank-mixes with POST grass herbicides may reduce grass control
  - Assure (10-21%); Fusilade (8-12%); Poast (25-41%); Select 4-22%)
- Variety performance?
## Factors that Influence Weed Control with Roundup or Ignite

<table>
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<tr>
<th>Variable</th>
<th>Roundup</th>
<th>Ignite</th>
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<td>Time of Day</td>
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<td>Dew</td>
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Source: Martinson et al. 2005. Crop Management (MN)
Liberty-Link Soybeans - 2009

NTC

Boundary 6.5EC @ 1.5 pt/A (PRE)
Ignite 2.34SL @ 22 oz/A (19 DAP)

54 DAP
Ponder Farm
Other New Soybean Products Floating Around

- **Flexstar GT (POST)**
  - Touchdown + Reflex

- **Authority MTZ (PRE)**
  - Spartan + Sencor

- **Cadet (POST)**
  - Another POST PPO product

- **ET (POST)**
  - Another POST PPO product

- **Kixor**
  - Sharpen (saflufenacil)
  - *Crop injury problems on our soils*
Sharpen Soybean Injury
NTC
(Plot# 310)

Sharpen @ 2 oz/A
Roundup W-Max @ 22 oz/A
COC @ 1%
AMS @ 17 lb/100 gals
Applied 32 DBP (Plot# 305)
PPO Injury
On the Horizon

- **DHT Soybean (DowAgroScience Herbicide Tolerance)**
  - Enhanced tolerance to 2,4-D
  - Stacked with glyphosate
  - 2013?

- **GAT Soybean (Glyphosate ALS Tolerance)**
  - DuPont
  - 2011?

- **Dicamba Resistant Soybeans**
  - Monsanto/BASF
  - Stacked with glyphosate
  - 2013?
DHT Soybeans

Soybeans treated with 2 qts 2,4-D 6 WAT

Transformed Untransformed
Potential GAT Soybean Products

- **Diligent**
  - Valor + Classic + Resolve

- **Freestyle**
  - Classic + Harmony + Express

- **Traverse**
  - Classic + Resolve
Peanut
Fusilade in Peanuts

- Finally Labeled in 2009
- How does it compare to Poast (P) or Select (S)???
- Grass Weeds
  - *Bermudagrass* \((F=S>P)\)
  - *B. signalgrass* \((P=S>F)\)
  - *Goosegrass* \((F=P=S)\)
  - *TX panicum* \((P=S>F)\)
  - *Crabgrass* \((P=S>F)\)
- Bristly starbur control?
Fusilade/Bristly Starbur

Source: Dr. Greg MacDonald
University of Florida
Prostko’s Picks for Pigweed

- Drill a well!
- Start Clean!
- Use a residual!
- POST treatments when 3” tall or less
- Remove escapes before seed production
- Think About the Future
Residuals for Pigweed

- Corn = atrazine
- Peanut = Valor
- Cotton = Reflex
- Soybeans = Boundary or other metribuzin product?
Why metribuzin on soybean?

- Not a PPO
- Good on pigweed
- Can be applied PPI
- Issues
  - soil texture, OM, pH
  - Varieties
  - Rotations
  - Company support
  - Lack of incentive at dealer level
  - Cost/A

**Products**
- Boundary 6.5 EC
- TriCor 75DF
- Metri 75DF
- DiMetric 75DF
Metribuzin Soybean Tolerance

- **Group IV**: Asgrow 4903 RR/STS, Southern States RT4808

- **Group V**: Asgrow 5905RR, AGS 568RR, Delta Pineland DP5634, Pioneer 95Y20, Pioneer 95Y40, Pioneer 95Y70, Southern States RT5951NRR

- **Group VI**: Asgrow 6301RR, Delta Pineland DP6568, Pioneer 96M60, Southern States RT 6451NRR, Vigoro V61N9

- **Group VII**: AGS 758RR, Asgrow H7242, Benning, Dekalb H7242, Northrup King NKS 76L9, Northrup King NKS 78G6, Pioneer 97M50, USG 7732nRR, Vigoro V74N9, Woodruff

- **Group VIII**: Northrup King NKS 80P2, Prichard RR
We are overusing the PPO inhibiting herbicides!!!!!!!!

- Resistance has already been reported in other areas!!!

- **Common waterhemp**
  - 2001 (Kansas)
  - 2002 (Illinois)
  - 2003 (Missouri)

- **Common ragweed**
  - 2005 (Delaware)

- **Wild poinsettia**
  - 2004 (Brazil)
PPO-Resistant Waterhemp

(Dr. Bryan Young, Southern Illinois Univ.)
For More Weed Science Info:
www.gaweed.com