2017 Weed Control and Its Implications on the Future of Weed Management

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Top Topics from 2017
1. Management of Herbicide Resistant Weeds
2. Off-target Movement of Dicamba

Weed resistance is NOT new...
- First reported herbicide-resistant weed
  - Wild carrot
  - 1957
  - 2,4-D
- Barnyardgrass
  - Thousands of years of hand-weeding rice forced an evolutionary response

US Herbicide/Herbicide Resistant Trait Timeline
- 1945: Introduction of the first chemical herbicide (2,4-D)
- 1957: First reported herbicide-resistant weed
- 1966: Resistance to glyphosate will never happen
- 2000: First glyphosate and ALS-inhibitor resistant horseweed population found
- 2009: Glufosinate resistant trait market increases to manage glyphosate-resistant weeds
- 2015+: ALS-Inhibitor, Glufosinate, Dicamba, and 2,4-D resistant traits are introduced
- Herbicide-resistant traits will solve problems created by glyphosate resistance

Resistant Weed Biotypes Across the Years

Global Increase in Unique Resistant Cases

Number of Unique Resistant Cases

Year
0 100 200 300 400 500

Resistance by MOA

![Graph showing the number of resistant species for several herbicide sites of action (HRAC codes)].

Introduction of New Herbicide MOAs

![Graph showing the introduction time of new herbicide sites of action (HRAC codes)].

Start clean and stay clean

- No weeds at planting
- Overlay residual herbicides - First line of defense

Before planting

April 14
Seedbank Management

Glyphosate-resistant marestail

2,4-D Resistant Waterhemp

2,4-D Resistant Waterhemp
Timelapse Video - 56 days

Waterhemp
Fremont, NE

BURNDOWN:
Durango (36 oz) + Valor (2 gal) + Prowl H20 (1 pt)

POST:
Durango (48 oz)

POST:
Flextar GT (44 oz) + Durango (16 oz)

POST:
Cobra (12 oz) + Resource (5 oz)

Interrow Cultivation

POST:
Ultra Blazer (1.5 pt)

Herbicide Cost: $94/a

Photo: 8/5/12

2,4-D Resistant Waterhemp

U.S. agency searches for proof of criminal use of herbicide dicamba

Law and order
Boothill man arrested following fatal shooting allegedly sparked by dicamba dispute
Dicamba: Nebraska Update on Soybean Injury
By Amit Jhala, University of Nebraska-Lincoln Weed Specialist. July 24, 2017

“Most soybean fields I visited had very consistent dicamba injury symptoms from one end to the other, suggesting off-target movement through volatility.”
The Effect of Formulation on Dicamba Volatility When Applied Under Field Conditions – Debora de O. Latorre

- Plot size:
  - Each plot was 50 feet long
  - 20 foot dome was placed over soybean in the center of each plot
  - Three replications in each experiment
  - AR, GA, IN, LA, MS, NE

- Each treatment was applied to 3 flats (1.97 x 0.98 ft / 11.8 x 23.6") of soil

- Soil was treated at a remote location and transported to the test site

- Treated flats were placed between two rows of soybeans in the center of the dome, and plastic sheeting was placed over the dome frame

- Treated flats and plastic sheeting were removed 48 hours after application
Questions?

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Thank You!