

# Herbicide Traits

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# Glyphosate Resistant Trait

- Initially incorporated to control a broad spectrum of weeds in a single application
- Success of this trait has led to development of resistant weeds
- Trait still result in control of a number of weeds
- Weaker on large sesbania, morningglory, teaweed, GR weeds, no soil residual activity

# Glufosinate Resistant Trait

- Broad spectrum weed control in a single application
- Slower adoption rate than glyphosate technology
- Good compliment to the glyphosate system with strength on most broadleaves (pigweed ??) and weakness on large grass species (esp. signal and goosegrass), no soil residual activity
- Different MOA

# Future Herbicide Development

- Focus is no longer primarily on herbicide discovery but incorporation of traits
- Centered around filling in gaps of two primary transgenic systems (ie weeds not controlled or resistant biotypes)
- Added benefit of soil residual control

# GlyTol/Liberty Link Technology

- Contain both GlyTol and Liberty Link traits
- Allows full label rate applications of glyphosate or glufosinate
- Compliments strengths with weaknesses very well, still no soil residual activity, GR pigweed??
- Mixtures did not affect efficacy
- Order of application was not of consequence
- Coverage with glufosinate is essential for max control

# Enlist Herbicide Technology

- Enlist Duo: combination of glyphosate and Colex-D Technology; multiple modes of action
- New 2,4-D formulation choline salt
- Low volatility, reduced drift, reduced odor
- Very good cotton tolerance, good control (90%) of redroot pigweed, hemp sesbania, pitted and entireleaf morningglory, and teaweed
- Decent soil activity; corn, beans, cotton

# Dicamba/DGT Technology

- Combination of glyphosate and dicamba in soybean; multiple modes of action
- DGT: combination of glyphosate, glufosinate, and dicamba tolerance (3 way MOA)
- Very good cotton tolerance, good control (90%) of redroot pigweed, hemp sesbania, pitted and entireleaf morningglory, and teaweed
- Marestalk control close to or at planting
- Decent soil activity; beans, cotton

# HPPD Technology

- Soybean tolerance to bleacher herbicides like Balance Pro and Callisto
- Provides both POST and PRE control of broadleaves
- Compliments glyphosate spectrum and provides alternate MOA
- First look in 2012



# Benefits/Concerns

- Incorporates multiple MOA as first line of resistance defense
- Adds soil residual activity to reduce weed competition
- Drift and misapplication/clean out issues
- Cost