Improving Herbicide Effectiveness with New Product Technology

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What impacts herbicide effectiveness?

Controllable

Uncontrollable

• Weather
• Environment
Physical spray drift can occur during application: movement off-site before the spray hits the ground
Herbicide volatility: after the application if the herbicide dries on site and then converts to a gas and moves from the application site.
1944

2,4-D DMA Salt thermally unstable

DMA is highly volatile, leaving behind 2,4-D acid

Volatility of the Amine
If it ain’t broke don’t fix it?

What is risk worth to you?
Choline is less likely to “dissociate”—or break apart—where the traditional form breaks apart which can lead to volatility.
WHAT MAKES CHOLINE DIFFERENT?

Mechanistic Explanation of 2,4-D DMA Salt Volatility:

Volatility of the amine affects the relative volatility of 2,4-D

2,4-D DMA Salt thermally unstable

DMA is highly volatile, leaving behind 2,4-D acid

2,4-D choline salt dissociates into 2,4-D acid anion and choline cation, both having very low volatility
Active Ingredient: 2,4-D Choline

- Not an amine or an ester
- Quaternary Ammonium Salt
- Signal Word: Danger
- Range & Pasture, Aquatic, VM Label
- Low Odor
- Near Zero Volatility
Active Ingredient: Triclopyr Choline

- Use Sites: Aquatic, Range and Pasture, Vegetation Management
- Warning signal word
- Grass safe
- No residual soil activity
- Near Zero volatility
- Large reduction in odor vs old triclopyr formulations
- Tank mix compatibility
Field Volatility Tests with 2,4-D Choline

• Sprayed half of a soybean field with a 4X rate of 2,4-D choline to analyze damage to adjacent soybeans.

• Did not see any visible injury 6 inches from the edge of the plot in all directions.

• Plot size = 5 acres
In-field volatility work validates the decreased volatility with 2,4-D Choline

Adjacent glyphosate tolerant soybean

Glyphosate tolerant soybean sprayed with 2,4-D choline at 4x single rate

Soybeans adjacent to sprayed area had no visible damage from volatility
*New Rinskor Active!

1. GF-3850=Rinskor +Milestone
2. Essentially non-volatile
3. 2018 Green Chemistry Award
4. Pasture and Land Labeling

- Broaden spectrum and timing
- Carrot family, ironweed, Canada thistle
- Combining 2 reduced risk herbicides
- Low use rates dry/liquid
- Just the beginning of Rinskor…
Thank You from the Corteva Team!

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