

Rimisoxafen: New, Dual Mode-of-Action Herbicide for Corn and Soybeans

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Herbicide Innovation Pipeline

Product Concept

Rimisoxafen

Novel mode-of-action with residual control of herbicide resistant broadleaf species in core row-crop markets

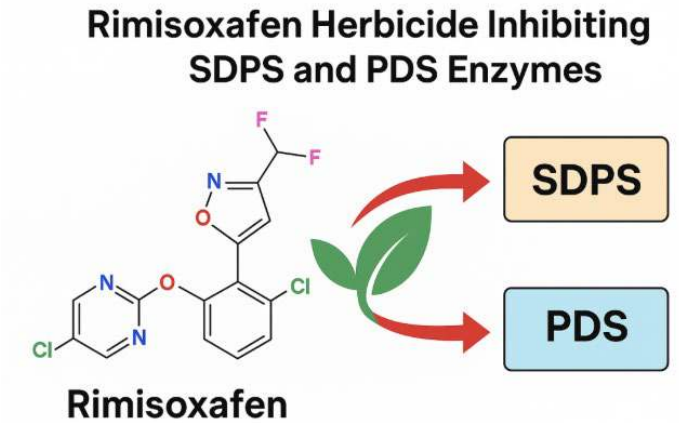
- Dual MoA with a single active ingredient.
- Premixtures tailored to crop segment.
- Long-lasting residual activity.
- Complementary with all seed trait technologies.

3-5 years



Rimisoxafen Overview

- **ISO common chemical name:** Rimisoxafen
- **Dual mode of action:** inhibiting two critical enzymes
 1. PDS - phytoene desaturase (Group 12)
 2. SDS - solanesyl diphosphate synthase (Group 32)
 - ✓ In vitro/in vivo analysis confirmed dual MOA
 - ✓ Offers broader spectrum weed control
- **Focus Crops:** Corn and Soybeans
- **Focus Pests:** Amaranthus/Broadleaf
- **Application timing:** Pre-plant/Pre-emergence
- **Next-Generation herbicide** designed to agronomic demands of resistance management, efficacy, and environmental stewardship



RIMISOXAFEN: A Dual Mode of Action Herbicide to Outpace Resistance

Rimisoxafen stops weeds from making key photoprotective pigments and molecules they need to survive. Specifically, it shuts down two important parts of the plant's photosynthetic machinery:

1. PDS (Phytoene Desaturase – Group 12) – this enzyme helps the plant make carotenoids, which protect it from sunlight damage.
2. SDPS (Solaneyl Diphosphate Synthase – Group 32) – this enzyme helps the plant make plastoquinone, another important molecule involved in photosynthesis.

What's the Big Deal?

Most herbicides only attack one target in the plant. If the weed mutates where the herbicide binds, the herbicide becomes less effective. But rimisoxafen hits two targets at once. A weed would need two different target-site mutations occurring on both PDS and SDPS at the same time to survive. This makes it much harder for weeds to evolve target-site resistance.

How Will it Be Used?

- Preemergence in corn and soybeans for key grassy and broadleaf weeds.

FMC Inhouse Trial: **Early Pre-Plant Applications**

USA-23-209: Crawfordsville, AR

48 Day After Treatment **EVALUATION**

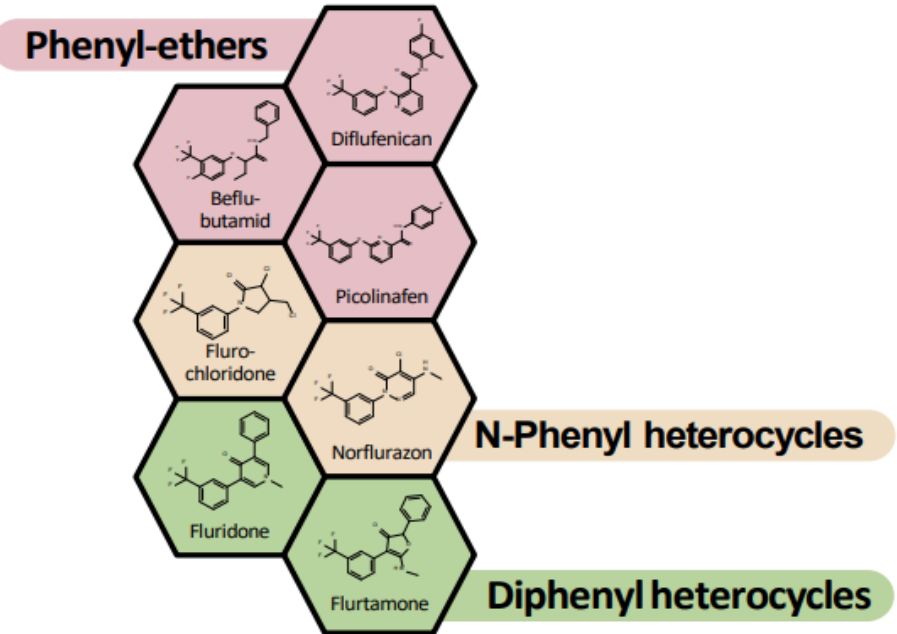


Rimisoxafen

- Rimisoxafen inhibits SDPS (Group 32) and PDS (Group 12) both at the enzyme level and in vivo.
- Brings two MoA's to the field within a single molecule, promises to mitigate target site resistance risk for rimisoxafen, an outcome now achieved through mixtures.
- In a background of increasingly limited weed control options for growers, Rimisoxafen holds exciting potential to mitigate development of target-based resistance with a single molecule.

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Inhibition of Phytoene Desaturase



32

Inhibition of Solanesyl Diphosphate Synthase

