

MISSISSIPPI SOYBEAN PROMOTION BOARD

CHOOSING A PREMIX HERBICIDE WITH MULTIPLE SITES OF ACTION COMPONENTS

Herbicide premixes that contain components with different sites of action (SOA) from each other may contain active ingredients that are different from those of other premixes with the same SOA's. This may result in differences in weeds that are controlled, different required soil qualities, and different plantback/crop rotation restrictions.

Below are examples that represent this dilemma [SOA in parentheses].

[Zidua PRO herbicide](#) contains saflufenacil, the active ingredient in [Sharpen](#) (14), imazethapyr, the active ingredient in [Pursuit](#) (2), and pyroxasulfone, the active ingredient in [Zidua](#) (15).

[Optill PRO herbicide](#) contains saflufenacil, the active ingredient in Sharpen (14), imazethapyr, the active ingredient in Pursuit (2), and dimethenamid-P, the active ingredient in [Outlook](#) (15). Thus, it is different from Zidua PRO because its SOA 15 component is the active ingredient in Outlook, not the active ingredient in Zidua.

[Fierce XLT herbicide](#) contains chlorimuron, the active ingredient in [Classic](#) (2), flumioxazin, the active ingredient in [Panther SC](#) (14), and pyroxasulfone, the active ingredient in Zidua (15). Thus, its SOA 2 and 14 active ingredient components are different from those in both Zidua PRO and Optill PRO, but it has the same SOA 15 active ingredient as Zidua PRO.

As indicated above, each of the above tri-mixes contains active ingredients that represent 3 SOA's—i.e., 2, 14, and 15. So in essence, they should all be interchangeable in their use.

However, according to each herbicide's label [[Zidua PRO](#), [Optill PRO](#), and [Fierce XLT](#)], there are differences in these products as indicated in the below table.

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Labeled traits/information for herbicide premixes with 2, 14, and 15 SOA.			
Herbicide	Zidua PRO–BASF	Optill PRO–BASF*	Fierce XLT–Valent*
Components	Pursuit, Zidua, Sharpen	Pursuit, Outlook, Sharpen	Panther SC, Zidua, Classic
Adjuvant requirement	Yes (MSO, AMS)	Yes (MSO, AMS)	Depends on tank mix partner
Soil restriction**	Yes	Yes	Yes
Plantback/rotation restriction***	Yes	Yes	Yes
Control (not suppression) of indicated weeds ****			
Palmer Amaranth	B, R	B, R	R
Pigweeds	B, R	B, R	R
Marestail	B	B	R
Morningglories	B	B	R (rate dependent)
Prickly sida	B, R	B	R
Cutleaf eveningprimrose	B	B	R
Hemp sesbania	B	B	R
Pennsylvania smartweed	B, R	B, R	R [suppression only]
Barnyardgrass	R	R	R
Johnsongrass (seedling)	B, R	B, R	R
Fall Panicum	R	R	R
Italian ryegrass	R	NO	R
Broadleaf signalgrass	B, R	B	R
Crabgrass, large and smooth	R	R	R
<p>*Optill PRO separately packaged dry and liquid components. Fierce XLT requires a burndown partner.</p> <p>**Zidua PRO and Optill PRO rate dependent on soil texture/organic matter content. Fierce XLT should not be applied to high-pH soils in Black Belt region of Miss.–check label.</p> <p>***Check label for corn, cotton, sorghum, and rice. Zidua PRO and Optill PRO–coarse soils with <2% OM, wait 30 days to plant soybeans. No waiting period for planting soybeans after Fierce XLT application.</p> <p>****According to each herbicide product's label. B = Burndown control; R = Residual control. Labels for each herbicide premix indicate many other weeds controlled.</p>			

Here is a list of obvious differences among the three products.

- Zidua PRO and Optill PRO have both burndown and residual activity, but only Zidua PRO has residual activity against prickly sida and broadleaf signalgrass.
- Zidua PRO has residual activity against Italian ryegrass, while Optill PRO does not.
- Fierce XLT needs a burndown partner to control emerged weeds of the shown species.

- Fierce XLT is separately packaged in dry and liquid components.
- All three products have application restrictions based on soil traits, and plantback/rotation restrictions. However, they are different among the products according to each label.

So what can be inferred from the above information?

Herbicide premixes with different active ingredients having the same SOA's should

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be carefully examined to 1) determine just what they will control and when, 2) differentiate restrictions associated with their use, and 3) ensure they will control targeted weeds.

The content of this article is not intended to imply the endorsement of one of the above products over another. Rather, the intent is to point out the extra “selection pressure” that must be exercised by producers as they choose among these and other product premixes that have different active ingredients with the same SOA’s.

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