Designing an Effective and Efficient Enlist E3® Soybean Weed Control Program

For the second year in a row, the majority of U.S. soybean acres are expected to be planted with Enlist E3® soybeans in 2024. This technology has proven itself on millions of acres and is now the #1 selling soybean technology in the U.S.

At this time of year, with most seed purchasing decisions already made, attention now shifts to maximizing performance of Enlist E3 soybeans. A big part of that is making herbicide decisions with lots of factors in mind. In the short term, farmers need options that protect yield and can make them more profitable this season. Long term, they need choices that help combat resistance and keep this valuable trait technology viable.

The Enlist® weed control system was established with a strong program approach foundation — a foundation that's reinforced with solid recommendations and plenty of options designed to serve the needs of farmers this season and for many years in the future.

KEEPING UP WITH CHANGING WEED PRESSURES

Weed control approaches have to continually evolve to meet unrelenting weed pressures. The Iowa State University Extension notes that prior to the 1980s, redroot and smooth pigweed were the most common pigweed species.[1] Today, it's waterhemp. A 2022 survey of soybean growers by the Weed Society of America identified these (see table) as among the biggest weed challenges facing U.S. and Canadian soybean growers.[2]

Top 7 weeds in soybeans (2022)[2]

	MOST COMMON		MOST TROUBLESOME
1	Waterhemp	1	Palmer amaranth
2	Common lambsquarters	2	Waterhemp
3	Foxtail spp.	3	Ragweed spp.
4	Palmer amaranth	4	Horseweed (marestail)
5	Horesweed (marestail)	5	Morningglory spp.
6	Morningglory spp.	6	Common lambsquarters
7	Redroot pigweed	7	Kochia

As we all know, a single mode of action doesn't cut it against difficult weeds like these. One study of farmers in Wisconsin showed most tended to use a single herbicide active ingredient to control weeds in the early 2000s. By 2018, that number had risen to 2.5 active ingredients.[3] Now, farmers need to be using even more. "Today, we want three, four or five modes of action per year per crop," says Steve Snyder, Enlist Field Specialist, Corteva Agriscience.

Building a program approach, including when to apply and what products to use, takes planning and fine tuning throughout the season. The program approach recommended by Corteva Agriscience for Enlist E3 soybeans offers proven choices and flexibility without guesswork.

STARTING EARLY: PRE-PLANT THROUGH PREEMERGENCE

According to Snyder, getting the most out of the Enlist E3 soybean system starts early. "When we're planting, we want a clean field. We want to start clean, with tillage or a quality burndown program." He cautions, "Once you get behind on weed control, you're usually behind most of the year."

Snyder says getting ahead comes down to timing. "It's much easier to kill a weed that has only one or two growing points," he explains. "That's why it's important to get your preemergence herbicide out prior to or soon after planting. For instance, in Enlist E3 soybean fields, you can apply Sonic® and Surveil® herbicides three days after planting."

Snyder notes that a program approach offers important near- and long-term benefits. "We've never recommended the Enlist® herbicides alone," says Snyder. "We always want tank-mix partners. We always want preemerge herbicides." He typically recommends using at least three or four modes of action per crop.

For example, a lot of preemergence herbicides feature two or three modes of action. Then, as part of a postemergence program, Enlist Duo® herbicide offers two more, with tolerance to 2,4-D choline in Enlist herbicides and glyphosate. Or you can get those two by tank-mixing Enlist One® with Liberty® herbicide (glufosinate). Add a qualified residual to the application of an Enlist herbicide and you can add a fifth mode of action.

"Different modes of action working on that weed gives us more effective control," Snyder says. It also helps reduce potential for resistance in the future.

Enlist Field Specialist Steve Snyder speaking at a field day event

"We got used to relying on one mode of action in the past, and we know the results of that," Snyder says. "We don't want that to happen again. We want to be able to use this tool not just one or two years but for many years."

Depending on the product, residuals provide four to eight weeks of control, as long as they get occasional moisture. However, that protection eventually wears out. That's where it pays to use layered residuals.

"By layered residuals, we mean adding a residual product to your postemergence application program," Snyder says. "We like EverpreX herbicide, which is an s-metolachlor product." There are other options as well. "If you apply a layered residual with an Enlist herbicide during late June or early July, you can expand protection until the crop canopies and weed pressure declines."

POST-EMERGENCE FLEXIBILITY

One of the features farmers appreciate most about the Enlist weed control system is the ability to spray Enlist One and Enlist Duo herbicides through the R1 growth stage. And farmers can find even more flexibility with over 1,700 qualified tank-mix partners. This can mean incorporating other herbicide modes of action and/or applying other crop protection products in a single pass. More modes of action are great for resistance management, and fewer trips through the field saves resources and contributes to sustainability.

An up-to-date list of approved tank-mix partners can be found at EnlistTankMix.com.

GETTING MORE OUT OF THIS SEASON AND THE NEXT

Snyder emphasizes that the central concept of a program approach is that it doesn't rely on just a single mode of action for weed control. It not only controls weeds effectively, there are additional side benefits as well. "It actually increases the longevity of the other traditional herbicides we've been using for years. It helps them all last longer," says Snyder.

As final preparation for success with the Enlist herbicide system, Steve Snyder reminds farmers and their advisors that additional resources are always available at enlist.com and on the Enlist Ahead® app.

Soybean program approach

Start clean with tillage or burndown

HERBICIDE

Enlist Duo®
COLEX-D® technology

Enlist One®
COLEX-D® technology

No plant-back restrictions for Enlist E3® soybeans for either Enlist One® or Enlist Duo® herbicide.

Elevore®
Arylex™ active
(See label for plant-back restriction)

Plant Enlist E3® soybeans

Enlist E3® SOYBEANS

Apply soil residual herbicide*

HERBICIDE

Afforia®
Enlite®
Envive®
Sonic®
Surveil®
Trivence®

EverpreX®
(Also layered residual use)

Apply Enlist® herbicides
Apply through R1 growth stage

HERBICIDE

Enlist Duo®
COLEX-D® technology

Enlist One®
COLEX-D® technology

Apply glyphosate
Apply no later than R2 growth stage

Apply Liberty® herbicide
Apply up to R1 growth stage

Liberty®
Herbicide

*Visit EnlistTankMix.com for a full list of qualified tank-mix partners with Enlist One® or Enlist Duo® herbicide. Always reference product labels for application cutoff timing.

Tillage or burndown | Planting | Preemergence | Postemergence/tank-mix

[1] Hartzler, Bob. "Palmer Amaranth: ID, Biology and Management." Iowa State University Extension and Outreach. Accessed March 1, 2024. https://crops.extension.iastate.edu/encyclopedia/palmer-amaranth-id-biology-and-management.

[2] Van Wychen, Lee. 2022 Survey of the Most Common and Troublesome Weeds in Broadleaf Crops, Fruits & Vegetables in the United States and Canada Weed Science Society of America. Accessed March 13, 2024. https://wssa.net/wssa/weed/surveys/.

[3] Benbrook, Charles, and Tom Green. "Time to Show the Spread of Resistant Weeds by Speeding Up Adoption of Integrated Weed Management." Heartland Health Research Alliance. Accessed March 13, 2024. https://hh-ra.org/2021/08/20/time-to-slow-the-spread-of-resistant-weeds-by-speeding-up-adoption-of-integrated-weed-management/.