

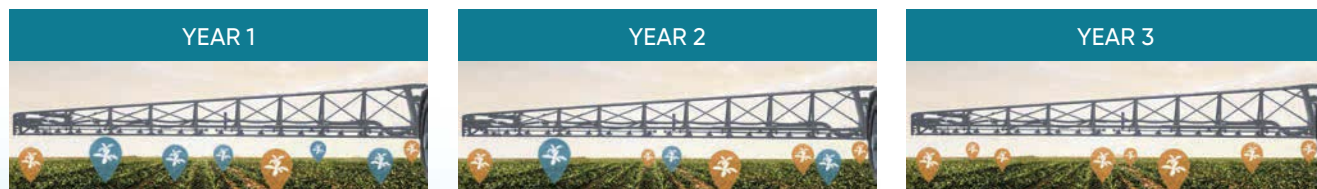
# Using the Enlist<sup>®</sup> weed control system to help prevent herbicide resistance development

Glyphosate technology became the farm industry standard for weed control for many farmers. But using glyphosate as the primary, or only, herbicide site of action has resulted in glyphosate-resistant and hard-to-control weeds, including waterhemp, marestail, Palmer amaranth and giant ragweed. Repeated use of any single herbicide may reduce effectiveness for weed control. You can help your customers manage weed resistance with an understanding of herbicide resistance and taking steps to prevent it.

## How weed resistance spreads

For the first few years a herbicide is used, **targeted** weeds are controlled; however, after repeated application of the same herbicide—or herbicides with the same site of action—a few naturally occurring **resistant** weeds can remain in the field each year. As time goes on and resistant weeds thrive, the weed population starts to contain an even larger number of resistant weeds. Over time, the resistant weeds become the dominant population—rendering the herbicide no longer effective on that species.

The Enlist<sup>®</sup> weed control system provides an effective tool to use against these herbicide-resistant weeds, including glyphosate, ALS- and HPPD-resistant weeds. Use the Enlist weed control system as part of an integrated weed management program to deliver the exceptional performance you need.



## Take advantage of different herbicide sites of action

It is a best practice to minimize selection for herbicide-resistant weed populations by proactively diversifying weed control strategies. A diversified weed management program may include the use of multiple herbicides with different sites of action and an overlapping weed control spectrum in combination with other practices, such as tillage operations and/or other cultural practices where appropriate. Using the labeled rate for herbicides and following directions for use is important to help prevent the onset of resistance.

The Weed Science Society of America (WSSA) classifies 2,4-D as a Group 4 herbicide (synthetic auxin) and glyphosate as a Group 9 herbicide (inhibitor of EPSP synthase). As with some herbicides, some naturally occurring weed biotypes that are resistant to 2,4-D or glyphosate may exist due to genetic variability in a weed population.





## Steps to help prevent weed resistance

Implementing a successful weed resistance management program will help ensure the continued efficacy of the Enlist weed control system. These steps are important to the ongoing success of your customer's program.

### 1 Use a herbicide PROGRAM APPROACH—with multiple sites of action

- Start with a clean field, using either a burndown herbicide application or tillage. Use a broad-spectrum soil residual herbicide with different sites of action, followed by a timely postemergence application of an Enlist® herbicide.
- If resistance is suspected, treat weed escapes with a herbicide that has a site of action other than Group 4 or 9 (if Enlist Duo® herbicide was used) or Group 4 (if Enlist One® herbicide was used) and/or use nonchemical methods to remove escapes, as practical, with the goal of preventing seed, root or tuber production.
- Utilize sequential applications of herbicides with alternative sites of action.
- Rotate the use of an Enlist herbicide with non-Group 4 and non-Group 9 herbicides (when using Enlist Duo) or non-Group 4 (when using Enlist One).
- Never use Enlist One alone. Always plan a program approach with Enlist One plus additional qualified tank-mix partners containing non-Group 4 herbicides or sequential postemergence applications of non-Group 4 herbicides.
- Avoid using more than two applications of an Enlist herbicide and any other Group 4 or Group 9 herbicide (when using Enlist Duo) or Group 4 (when using Enlist One) within a single growing season unless in conjunction with another site of action herbicide with an overlapping spectrum.

### 2 Make TIMELY APPLICATIONS of herbicides

- Apply full labeled rates of an Enlist herbicide to actively growing weeds once the majority reach 3 to 6 inches in height.

### 3 SCOUT WEEDS before and after application

- Scout fields before application to ensure herbicides and use rates will be appropriate for the weed spectrum and weed size present.
- Scout fields after application to detect weed escapes or shifts in weed spectrum.
- Early detection of possible resistant species can limit the spread of these weed populations and allow for the implementation of alternate weed management practices.

### 4 SEE THE BIG PICTURE, beyond the field and the herbicide

- Incorporate nonchemical weed control practices, such as mechanical cultivation, crop rotation, cover crops and weed-free crop seeds, as part of an integrated weed control program.
- Manage weeds in and around fields, during and after harvest, to reduce weed seed production.
- Thoroughly clean plant residues from equipment before leaving fields suspected to contain resistant weeds.

### 5 Agronomic and cultural PRACTICES

- Rotate crops and cultural practices to allow for a wider range of weed control practices.
- Use only commercial, weed-free crop seed.

**Report any incidence of nonperformance of an Enlist herbicide against a particular weed species to a representative or 855-ENLIST1 (855-365-4781).**

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