

# Old school weed control

By the United Soybean Board

Over the past two decades, the convenience and effectiveness of post-emergence glyphosate applications led many farmers to abandon past approaches to weed control, which included using a variety of herbicide and tillage options. Increasing pressure from glyphosate-resistant weeds, such as Palmer amaranth, waterhemp, giant ragweed and kochia, has seen weed experts promote a return to more diverse practices, like those used by past generations of farmers.

**Weed species respond differently to herbicides and tillage practices, so scouting and understanding which weeds are present sets the stage for farmers to develop a plan for eradicating the problem.**

“Most older farmers who have a basic knowledge of all these other herbicides have retired,” says North Dakota State University (NDSU) weed control specialist Richard Zollinger. “Many farmers today only know glyphosate, so we’ve got some training to do.”

## Tips for weed control

Diversifying your operation to combat herbicide-resistant weeds can seem overwhelming. NDSU weed scientists compiled a list of tips for managing weeds to reduce the likelihood of herbicide resistance on your farm:

- *Scout fields before and soon after herbicide applications:* Correctly identify weeds and use whatever means necessary to kill weeds that escape or germinate after chemical application.
- *Diversify crop sequences:* Crops with different lifecycles, such as winter crops, perennial crops and summer crops, offer different planting and harvest times, more herbicide options and decreased risk of herbicide-resistant weeds.
- *Consider weed biology and ecology:* Consider tillage, crop sequence, soil fertility, planting date, crop competition, weed seed longevity and herbicide response as you build your weed management plan.
- *Use effective pre-emergence herbicides:* Apply effective pre-emergence herbicides at full rates and include multiple modes of action. Pre-herbicides reduce weed emergence and allow flexibility in the timing of post herbicide applications.
- *Use effective post-emergence herbicides:* Apply herbicides that include multiple modes of action in tank-mixes or sequential applications.
- *Use full herbicide rates:* Full rates kill weeds, and dead plants cannot produce resistant progeny. Reduced rates allow plants with low-level resistance to survive and produce offspring with higher levels of resistance.
- *Spray weeds when they are small:* Small weeds, those less than three inches tall, are generally more susceptible to herbicides than large weeds.
- *Practise zero tolerance:* Scout fields after row closure and kill uncontrolled weeds by pulling them out manually if necessary. Seed from escaped weeds will contribute to the weed seed bank.
- *Control weeds in field perimeters and non-crop areas:* Weeds surviving a partial herbicide dose on field borders can be a repository for the introduction of resistant weeds into a field. Control weeds in all areas of the field where crops are not growing, including field edges, fence lines and waterways.
- *Rotate herbicides with different modes of action:* Crop rotation can introduce herbicides with different modes of action to delay herbicide resistance.
- *Use good sanitation:* Clean tillage and harvest equipment to ensure weed seed will not be transported between fields.
- *Evaluate:* Review your weed management results at the end of each season and revise to improve weed control the following year.

## Know your weeds

The abovementioned practices can help, but fighting herbicide resistance starts with farmers knowing what they are up against. Weed species respond differently to herbicides and tillage practices so scouting and understanding which weeds are present sets the stage for farmers to develop a plan for eradicating the problem.

Take Action is an industry-wide, US-based effort that helps agricultural organisations, agri-businesses and researchers to fight herbicide resistance. The Take Action website ([www.iwilltakeaction.com](http://www.iwilltakeaction.com)) features resources to help farmers identify weeds while highlighting options for treating them.

When it comes to diverse practices farmers should employ, weed researchers are unanimous in their call for the use of herbicides with different sites of action and different chemistry. Many recommend starting with a pre-emergence residual herbicide, followed by a post-emergence herbicide with different chemical components. Increased tillage is also an option for controlling some weed species.

## Adopt a diversified approach

Integrated weed management uses multiple strategies for controlling weed populations, but not all of them are realistic for all farmers. However, adopting even a few diverse practices can keep weeds off balance and give growers the upper hand in battling herbicide-resistant weeds.

Adopting a diversified approach requires more management than relying on a single post-emergence strategy. It could also add to costs, but it is an investment that farmers need to consider as part of their long-term plan. 🌱

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