

## Herbicide Resistance in Cereals

# Start Early to Manage the Seed Bank

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**Herbicide resistance** is the inherited ability of a weed to survive a rate of herbicide which would normally give effective control. With a better understanding of herbicide resistance, you can implement a series of practices to proactively manage weed populations and avoid its onset.

MANAGE

DIVERSIFY

IMPLEMENT

Herbicide performance is impacted by many factors including correct application timing; the use of full labeled rates; proper use of adjuvants and effective spray application. But what if you've done everything right, and weeds are still taking over your fields?

This lack of control might mean that you are facing a herbicide resistance issue.

## Manage weeds to prevent next year's seed bank

Weeds are often prolific seed producers, meaning that when weeds emerge and mature, they can develop and contribute seeds back into the soil, creating a large **seed bank**. Depending on the weed species, seeds may be viable in the seed bank for many years and can emerge when you least expect it. In terms of herbicide resistance, these are the seeds capable of building a resistant population.



**Green foxtail** is a prolific seed producer capable of producing 5,000 to 12,000 seeds per plant. If left untreated, green foxtail can reduce wheat yields up to 25 percent.

► On 50 bu/A wheat, that means up to 12.5 fewer bushels per acre.

**“Managing the seed bank is a year round activity.”**

—Nilda Burgos  
Professor, Researcher  
Department of Crop, Soil and  
Environmental Sciences  
University of Arkansas

### DEFINITION

**Soil seed bank** is the natural storage of seeds, often dormant, within the soil.



“From a grower standpoint, it is more cost effective to prevent weed seed production through proper weed control than address a large seed bank issue later due to mismanagement or resistance.”

— Clark Neely  
Assistant Professor, Extension Small Grain Specialist  
Department of Soil and Crop Sciences  
Texas A&M

## To minimize the evolution of herbicide resistance, manage weed escapes to deplete next year's weed seed bank.

- **Anticipate or recognize the issue:** Minimize resistance by evaluating the plants that survive and emerge after a herbicide application.
- **Scout early and often:** Scout and properly identify weeds to select a product solution that addresses the weed spectrum in your field.
- **Clean equipment:** Equipment can trap and spread seed into a field, so keep machinery clean to avoid spreading weeds.
- **Alternate tillage practices:** Execute this practice at a reasonable interval to change the environment and destroy weeds that can contribute to the soil seed bank.
- **Do not allow weeds to reproduce by seed or to proliferate vegetatively:** Decreasing the number of seeds produced helps reduce the chance of finding resistant plants in the weed population.
- **Apply a burndown herbicide:** Reduce the number of weeds prior to planting or post-harvest with a burndown herbicide like Touchdown® CT2 or Gramoxone® SL 2.0.

## Touchdown®CT2

- Down-to-the-roots, systemic control with concentrated formulation
- Alternative to tillage; option for harvest aid
- Contains built-in adjuvant and less foaming

## Gramoxone®SL 2.0

- Broad-spectrum of broadleaf and grass weed control in wheat and barley
- Offers growers an alternative MOA to glyphosate
- Several tank-mix options; flexibility to customize management programs

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