



POST-HARVEST WEED MANAGEMENT - NORTH

What You'll Learn...

- Fall is a good time to initiate weed management plans for winter annual, biennial, and perennial weed problems.
- Post-harvest weed control can help minimize weed seed production and take advantage of weed susceptibility to certain herbicides.
- Options for post-harvest herbicide applications are determined by weed species and densities, environmental conditions, and planting intentions.
- Post-harvest herbicides can help control weeds in the fall without limiting the use of preplant, pre-emergence, or in-crop herbicide options.

Post-Harvest Weed Management Benefits

Post-harvest weed management provides an opportunity to address problematic weeds such as winter annual, biennial, and perennial weeds, particularly in reduced- and no-till systems. Fall herbicide applications can be the first phase of a comprehensive weed management plan. Benefits include:

- Control of fall-emerging weeds such as (chickweed, horseweed/marestail, henbit, purple deadnettle, mustards, and others);
- Control of biennial species in the rosette stage of growth, when weeds are generally more susceptible to herbicides;
- Maximum efficacy of translocated herbicides (glyphosate, dicamba, 2,4-D) on underground reproductive structures and roots of perennial species (dandelion, Canada thistle);
- Reduction of weed seed production by winter annuals, biennials, and perennials, or from weeds that re-grow after crop harvest;
- Helps spread out spring workload;
- Potentially warmer soil and better soil moisture due to less weed biomass at planting time;
- Helps reduce the potential for cutworms and soybean cyst nematodes by removing overwintering host weeds;

- Allows the use of different site-of-action herbicides before spring planting as part of a weed resistance management plan.

Fields with a diverse array of winter annual, biennial, or perennial weeds, plus tough-to-control weeds, may require multiple herbicide application timings (fall, spring burndown, at-planting, or in-crop) for effective weed management. The application of residual herbicides in the fall does not replace the need for residual herbicide applications in the spring. The primary benefit of fall treatments is control of weeds that are present at the time of treatment and, secondarily, residual control of emerging weeds prior to spring planting.¹

Considerations Prior to Herbicide Use

During and after harvest, scout fields to determine the weed species present and if densities require herbicide treatment. This will help determine the herbicide or tank mixture needed to manage the weed spectrum, stages of weed growth, and weed susceptibility to various herbicide options. Summer annual weeds that were cut off during harvest need at least a week to produce new leaf growth prior to an herbicide application. Another factor to consider is the variable soil moisture conditions across a field that can affect time of emergence and growth status of the different weeds throughout the field.

Fall conditions are usually more favorable for control of winter annual weeds and marestail. Weed control is often more difficult in the spring because of greater weed size and variable weather conditions. A single marestail plant can produce as many as 200,000 seeds, making it desirable to control marestail in the fall prior to bolting and seed production the following spring (Figure 1).² A fall-applied herbicide for control of winter annual, biennial, and perennial weeds can help prevent seed production to reduce the intensity of weed infestations (Figure 2).



Figure 1. Marestail seedlings (left); kochia in post-harvest wheat stubble (right).



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Herbicide Options and Recommendations

Several herbicides are approved for use after harvest. Soil-residual herbicide options vary based on the post-harvest situation and spring-planting intentions. Check individual product labels to determine the restrictions for application timing, geography, soil texture, tank mixing, and planting intervals for rotational crops (if planting intentions change).

Many herbicides approved for use prior to or after planting are not approved for fall application.¹ Consider the site-of-action of the fall-applied herbicide and if its use may preclude the use of preplant or in-crop herbicide options, or interfere with weed resistance management planning.

Herbicide tank mixtures can help broaden the spectrum of weed control, control existing or emerging weeds, and improve control of biennial and perennial weeds. Post-harvest burndown tank mixtures with Roundup® brand glyphosate-only agricultural herbicides and dicamba or 2,4-D can be effective for most post-harvest weed situations.¹

Fall-applied soil residual herbicides, such as Valor® EZ or Valor® XLT, can compliment burndown herbicides and provide pre-emergence control of weeds emerging after harvest. However, they are not likely to persist long enough to provide adequate preplant or in-crop weed control, particularly for difficult to control or summer annual weeds.^{1,3} The rate of application of a fall-applied herbicide should control winter annuals but not preclude the use of spring herbicide options.

Post-harvest burndown applications should be applied to emerged, actively growing, winter annual weeds. Try to allow time for crop residue to settle after harvest before making a herbicide application. Roundup brand glyphosate-only agricultural herbicides should be applied when weeds are less than 4 inches tall. Increase the Roundup® brand glyphosate-only agricultural herbicide rate if weeds exceed 4 inches tall. Always use ammonium sulfate (AMS) as the first product added to the tank at 8.5 to 17 pounds per 100 gallons of water. Use 10 to 15 gallons of water per acre.

Do not use AMS in glyphosate + dicamba tank mixtures, use a non-AMS water conditioner.

Perennial weed control is usually more effective in the fall because translocated herbicides such as Roundup brand glyphosate-only agricultural herbicides, dicamba, and 2,4-D, move with the food reserves the plant stores in the lower parts of the plant and roots.³ A light frost can improve control of some perennials such as dandelion, Canada thistle, and quackgrass because the herbicide moves with food reserves throughout the root system.^{2,3} Research from across the Midwest has shown fall herbicide applications provide the most consistent control of dandelion.⁴

Palmer amaranth may be present in corn fields late in the season, and control should be continued after harvest. As corn matures and dries down, the weed can resume vigorous growth. Palmer amaranth plants that are only a few inches tall can produce a seed head with thousands of viable seeds.

Summary

The goal of post-harvest weed control is to remove late summer or fall weeds prior to spring planting. Tank mixing Roundup PowerMAX®

Herbicide at 32 to 44 fl oz/acre + Valor® EZ at 2 fl oz/acre + dicamba or 2,4-D at 0.5 lb a.i./acre can provide broad spectrum fall burndown and residual weed control.



Figure 2. Southern Illinois field with early fall-applied glyphosate + 2,4-D (untreated area on the right).

Sources: ¹ Loux, M. 2011. Fall herbicide treatments. C.O.R.N. newsletter, Ohio State University. ² Loux, M., Stachler, J., Johnson, B., Nice, G., Davis, V., Nordby, D. 2004. Biology and Management of Horseweed. Purdue University. ID-323. ³ Hager, A. 2010. Weed control following fall harvest. University of Illinois, The Bulletin. ⁴ Zollinger, R. 2011. The most important weed control decision you make! North Dakota State University Crop & Pest Report. Web sources verified 06/30/2017. 130815013219

For additional information, contact your local seed representative. Developed in partnership with Technology, Development & Agronomy by Monsanto.

Roundup Technology® includes Monsanto's glyphosate-based herbicide technologies. Individual results may vary, and performance may vary from location to location and from year to year. This result may not be an indicator of results you may obtain as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible. ALWAYS READ AND FOLLOW PESTICIDE LABEL DIRECTIONS. Tank mixtures: The applicable labeling for each product must be in the possession of the user at the time of application. Follow applicable use instructions, including application rates, precautions and restrictions of each product used in the tank mixture. Monsanto has not tested all tank mix product formulations for compatibility or performance other than specifically listed by brand name. Always predetermine the compatibility of tank mixtures by mixing small proportional quantities in advance. Roundup Ready technology contains genes that confer tolerance to glyphosate, an active ingredient in Roundup® brand agricultural herbicides. Agricultural herbicides containing glyphosate will kill crops that are not tolerant to glyphosate. Roundup PowerMAX®, Roundup Ready PLUS®, Roundup Technology® and Roundup® are registered trademarks of Monsanto Technology LLC. Valor® is a registered trademark of Valent U.S.A. Corporation. All other trademarks are the property of their respective owners. ©2017 Monsanto Company. 130815013219 072017SEK