

Soil Residual Herbicide Options after Soybean Emergence

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Early season weed control is imperative to maximize soybean yield. Many soybean growers were not able to apply pre-emergence, residual herbicides prior to soybean emergence. A few residual herbicides such as Anthem, Dual II Magnum, FirstRate, Intrro, Outlook, Prefix, Pursuit, Warrant, and Zidua can be applied after soybean emergence. Some of these herbicides such as Anthem, FirstRate (only for broadleaf weeds), Pursuit, and Prefix have foliar activity to control small, emerged weeds.

Given most soybeans grown in Nebraska are glyphosate-tolerant, glyphosate can be tank-mixed with residual herbicides with no foliar activity, such as Dual II Magnum, Warrant, or Zidua to control weeds already emerged at the time of application. It is also possible to tank-mix some other post-emergence soybean herbicides such as Cadet, Classic, Cobra, Flexstar GT, Fusilade DX, Phoenix, Ultra Blazer, and Select Max to control emerged weeds. This would add a different mode of action and might effectively delay or control glyphosate-resistant weeds. Tank-mix partners may cause other effects regardless of the application timing. Follow application timing and other restrictions of tank-mix herbicide partners as noted in the herbicide label.

Treatment Guide

Several important factors should be considered when addressing weed control with residual herbicides applied after soybean emergence:

- soybean growth stage,
- tank mix partner, and
- weed growth stage

Following is more specific information for residual herbicides that can be applied after soybean emergence.

Anthem is a pre-mix of Zidua (Pyroxasulfone) and Cadet (Fluthiacet-methyl). It can be applied post-emergence in soybean up to the V3 stage. The application rate is in a range of 4 to 9 fl oz per acre depending on soil type. It provides effective residual activity for control of common waterhemp, Palmer amaranth, common lambsquarters, velvetleaf, and grasses.

Dual II Magnum can be applied at a rate of 1 to 1.33 pints per acre as a post-emergence treatment to soybeans from emergence up through the 3rd trifoliate leaf stage. Dual II Magnum will not control emerged weeds, so it must be applied to a weed-free soil surface or in a tank mixture with products that provide post-emergence control of weeds present at the time of application. Do NOT apply Dual II Magnum if S-metolachlor products such as Dual Magnum or Dual II Magnum have already been applied.

FirstRate may be applied any time prior to the 50% flowering stage of soybeans; however, application prior to full emergence of the first soybean trifoliate leaf may cause temporary yellowing or chlorosis of soybeans. Tank-mix partners may cause other effects regardless of application timing.



Figure 1. Emerged soybeans in a field near Clay Center. (Photos by Amit Jhala)



Figure 2. Soybeans at unifoliate stage. Some herbicides such as Prefix can be applied at this stage.

Related Article

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Pursuit can be applied early post-emergence in soybeans when weeds are actively growing and before they exceed a height of 3 inches. Apply Pursuit before soybean bloom at an application rate of 4 oz per acre. Base application timing on weed size and not soybean growth stage. Use a crop oil concentrate at 1 gallon per 100 gallons of spray solution.

Prefix can be applied at 2 to 2.33 pints per acre as a post-emergence application from cracking through the 3rd trifoliolate stage of soybeans. Necrotic spotting, leaf crinkling, or curling of soybean leaves may occur following post-emergence application, but soybean soon outgrow these effects and develop normally. Prefix alone may control or partially control some emerged broadleaf weeds; however, for broad spectrum control, tank-mix with other herbicides. Add non-ionic surfactant at 0.25% v/v to the final spray volume. Do NOT use crop oil concentrate when applying Prefix post-emergence as these spray adjuvants may increase soybean injury.

Outlook is a selective residual herbicide for controlling annual broadleaf, grass, and sedge weeds. Emerged weeds will not be controlled and must be controlled with an appropriate post-emergence herbicide. Outlook can be applied from emergence to 5th trifoliolate leaf stage. The application rates in a single application are 12 to 18 fl oz per acre on coarse-texture soils and 14 to 21 fl oz per acre on medium-texture or fine-texture soils. This can also be influenced by soil organic matter content. If Outlook is applied in two split applications, maintain a minimum 14 day-interval between applications and do NOT exceed a seasonal total of 24 fl oz per acre.

Warrant is an encapsulated acetochlor herbicide that can be applied post-emergence in soybeans after soybeans are completely emerged, but before they reach R2 (initiation of flowering) growth stage. It can be applied at 1.25 to 2 quarts per acre, depending on soil texture and organic matter content. The optimum timing and rate of application is when soybeans are V2 to V3 stage at 1.5 quarts per acre. Warrant is a residual herbicide, so it must be tank-mixed with a burndown herbicide to control existing weeds.

Zidua is a selective, rate-dependent residual herbicide for control of annual grasses, broadleaf, and sedge weeds. It can be applied to soybean at 1st to 3rd trifoliolate leaf stage. Do NOT apply Zidua to soybean from emergence (at cracking) through unifoliolate stage or injury may occur. The early post-emergence application rate is in a range of 1 to 3.5 oz per acre, depending on soil texture. Zidua has no foliar activity, so it must be tank-mixed with a foliar active herbicide for control of existing weeds.

Residual Activity

Length and effectiveness of residual activity from in-crop application will vary depending on

- weed species,
- herbicide application rate,
- rainfall following application (minimum of 0.5 inches of rainfall within a week of application is ideal),
- density of the weed and crop canopy at the time of application, and
- length of subsequent weed germination events.

For more information, see [2014 Guide for Weed Management in Nebraska](#)  (EC 130) published by the University of Nebraska-Lincoln Extension. Always read label before applying herbicide in the field.

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