**Herbicide Comparison for Residual Waterhemp Control in Corn**

Werle arneson dewerff

Waterhemp management has become a major challenge for several corn and soybean farmers in Wisconsin and beyond. **Waterhemp** has an extended emergence window and is a competitive, prolific and genetically diverse weed species which has evolved resistance to commonly used corn and soybean herbicides across the Midwest (see 2019 Wisconsin Waterhemp Herbicide Resistance Project Update <http://www.wiscweeds.info/post/wisconsin-waterhemp-herbicide-resistance-project-2019-update/> ). The use of soil residual herbicides is a foundation for waterhemp control and given that several effective and flexible herbicide options in terms of application window (PRE through early-POST) are available for corn, this crop provides farmers with a good opportunity for effective waterhemp management.

In 2019 we conducted a study to evaluate and demonstrate the effectiveness of multiple soil-applied corn herbicides. The study was conducted at a grower’s field south of Brooklyn, Dane county, WI in a field with natural and significant waterhemp infestation as part of our WiscWeeds Waterhemp Management Challenge educational efforts. Treatments consisted of corn herbicides containing one or multiple sites of action (SOA). Herbicides were sprayed when corn reached the V2 growth stage. Since the objective was to evaluate soil residual activity, Liberty (32 fl oz per acre) was tank-mixed to all treatments to eliminate established waterhemp plants at the time of herbicide application (corn hybrid used in this study was LibertyLink). Two treatments were intentionally applied off-label in this study given their relevance in our state and thus the importance of collecting their efficacy data: Princep 4FL and Verdict (these products are labeled PRE-emergence only in corn).

To download the **2019 Preliminary Report of the “WiscWeeds Herbicide Comparison for Residual Waterhemp Control in Corn” (PDF file) click HERE**.

The herbicide rates used in the study are ones recommended by our industry colleagues and supported by us for a typical Wisconsin **Silt Loam soil**. In this report we also include site and study information, and the equivalent rate of single active ingredient products in the premixes evaluated (herbicides with multiple active ingredients). Our intent with this study is not to promote one product versus another, instead, demonstrate the value of using an effective soil residual programs for waterhemp control in corn.

**Take-Home**

+ When selecting a soil-applied herbicide program, we challenge agronomists and farmers to balance efficacy (using our results and their experience), product cost, and rotation restrictions.

+ We also encourage farmers to compare their use rates with the ones used in our study (recommended by industry representatives and respective product labels), assuming Silt Loam soils. The residual activity of a soil-applied herbicide is dependent on the rates applied; cutting rates is not a recommended strategy when attempting to manage troublesome weeds like waterhemp.

+ PRE-emergence herbicide programs containing multiple effective sites of action are recommended to broaden weed control spectrum and to lower selection for additional herbicide resistance.

+ When selecting a commercial premix, note that not all active ingredients may be considered effective. For instance, Halex GT contains 3 SOA (glyphosate, Group 9; S-metolachlor, Group 15; mesotrione, Group 27) but only two will provide effective soil residual control for waterhemp (S-metolachlor, Group 15; mesotrione, Group 27).

This study will be replicated in 2020. Stay tuned for additional research findings related to our waterhemp control studies and also plot tour opportunities in 2020!

**Always read, understand and follow the pesticide label.**

We would like to thank the \*\*Wisconsin Corn Promotion Board\*\* for supporting this project and Industry Representatives for assisting with treatment structure and providing chemicals for trial establishment. Members of the Wisconsin Cropping Systems Weed Science Lab provided technical assistance towards the execution of this project.

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