2020 Summary of Herbicide Evaluations for Marestail (Horseweed) Control in Soybean

Prashant Jha
Iowa State University, pjha@iastate.edu

Follow this and additional works at: https://lib.dr.iastate.edu/cropnews

Part of the Agricultural Science Commons, and the Agriculture Commons

Recommended Citation
https://lib.dr.iastate.edu/cropnews/2687

The Iowa State University Digital Repository provides access to Integrated Crop Management News for historical purposes only. Users are hereby notified that the content may be inaccurate, out of date, incomplete and/or may not meet the needs and requirements of the user. Users should make their own assessment of the information and whether it is suitable for their intended purpose. For current information on integrated crop management from Iowa State University Extension and Outreach, please visit https://crops.extension.iastate.edu/.
2020 Summary of Herbicide Evaluations for Marestail (Horseweed) Control in Soybean

Abstract
Marestail is one of the most widespread and troublesome weeds in Iowa croplands. It can grow to a height of 1.5 to 6 feet, produce up to 200,000 seeds, and can reduce soybean yields up to 80% if not controlled (Figure 1). Marestail seeds are light and disperse across landscapes with winds. Seeds have little dormancy and can germinate soon after seed shed. In general, 75% of seedlings germinate in fall, remain in rosette-stage until spring, begin stem elongation in April, and start flowering in July. About 25% of seeds germinate in the spring. Due to these unique biological characteristics and a prolonged emergence period, a comprehensive management program is necessary for marestail control.

Disciplines
Agricultural Science | Agriculture

This article is available at Iowa State University Digital Repository: https://lib.dr.iastate.edu/cropnews/2687
2020 Summary of Herbicide Evaluations for Marestail (Horseweed) Control in Soybean

February 11, 2021

Marestail is one of the most widespread and troublesome weeds in Iowa croplands. It can grow to a height of 1.5 to 6 feet, produce up to 200,000 seeds, and can reduce soybean yields up to 80% if not controlled (Figure 1). Marestail seeds are light and disperse across landscapes with winds. Seeds have little dormancy and can germinate soon after seed shed. In general, 75% of seedlings germinate in fall, remain in rosette-stage until spring, begin stem elongation in April, and start flowering in July. About 25% of seeds germinate in the spring. Due to these unique biological characteristics and a prolonged emergence period, a comprehensive management program is necessary for marestail control.
Marestail populations in Iowa have developed resistance to glyphosate (HG 9) and ALS-inhibitor (HG 2) herbicides. Therefore, a diverse herbicide program is needed. Controlling marestail at the rosette stage is critical for consistent control with postemergence herbicides. As temperatures increase in spring, marestail stems begin to elongate. Plants in the rosette stage are much easier to control than bolted plants. Fall or spring burndown (preplant) herbicide programs play a vital role by targeting marestail at the rosette stage.

Field trials at the ISU Research and Demonstration Farm near Ames, IA in 2020 evaluated the effectiveness of several herbicide programs on marestail (Figures 2 and 3).
Engenia (dicamba) and Enlist One (2,4-D choline) both provided greater control of marestail when applied at the rosette stage compared to the bolting stage (Figure 2). In this study, Liberty (32 oz/a) provided >90% control even when applied at the bolting stage of marestail plants; however, applications should be targeted to plants at the rosette stage for consistent control.

Figure 2. Effect of postemergence herbicides and application timing on marestail control in a bare ground study at 3 weeks after application (3 WAA).

Figure 3. Efficacy of fall- or spring-applied preplant burndown herbicides on marestail control in Roundup Ready 2 Xtend soybean.
In an Xtend soybean trial, fall-applied BurnMaster (dicamba + 2,4-D) or Scorch (dicamba + 2,4-D + fluroxypyr) provided complete control of marestail until early spring (April 15, 2020; data not shown). However, due to a lack of residual activity, new marestail plants emerged in the spring and percent control was reduced to <90% at the time of soybean planting (May 15, 2020) as shown in Figure 3. In contrast, 2,4-D-based fall burndown programs which included a residual herbicide such as Panther SC (flumioxazin) provided >98% control of marestail at soybean planting. No differences were observed when the residual herbicide was added to the fall or spring burndown programs (>95% control). However, we recommend including residual herbicides (flumioxazin, metribuzin) in spring burndown applications for consistent control of late-emerging cohorts of marestail and other early-emerging weed species such as common lambsquarters and giant ragweed prior to soybean planting.

Glufosinate should be added in spring burndown programs with 2,4-D choline and dicamba in Enlist E3 (tolerance to glyphosate, 2,4-D choline, and glufosinate) and XtendFlex (tolerance to glyphosate, dicamba, and glufosinate) soybeans, respectively, especially when applications are delayed due to a wet spring or when marestail plants have bolted. On-going research trials conducted by the ISU weed science program indicate that fall-planted cereal rye cover crop would be an effective complimentary strategy to manage or suppress marestail in soybean and reduce burden on herbicides.

**Disclaimer:** This article is for education purpose only. Mention of a specific product should not be considered as approval, nor should failure to mention a product be considered disapproval. Read the product label before using any herbicide product.

**Category:** Weeds

Links to this article are strongly encouraged, and this article may be republished without further permission if published as written and if credit is given to the author, Integrated Crop Management News, and Iowa State University Extension and Outreach. If this article is to be used in any other manner, permission from the author is required. This article was originally published on February 11, 2021. The information contained within may not be the most current and accurate depending on when it is accessed.

**Crop:**

Soybean

**Tags:** marestail  horseweed  weed management  herbicide  weed seed

**Authors:**

https://crops.extension.iastate.edu/cropnews/2021/02/2020-summary-herbicide-evaluations-marestail-horseweed-control-soybean
Prashant Jha  
**Associate Professor**

Prashant Jha is an Associate Professor and Extension Weed Specialist with the Department of Agronomy at ISU. His research program is focused on improved understanding of weed biology and ecology to develop effective, integrated weed management strategies in corn and soybean production systems of ...

Ramawatar Yadav