



# Ohio State HCS News

HORTICULTURE & CROP SCIENCE IN VIRTUAL PERSPECTIVE - THE OHIO STATE UNIVERSITY

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## Pre-Emergent Herbicides Effective for Weed Control



Jeff Stachler discusses weed control with a client during Farm Science Review.

When it comes to managing weeds with herbicides, the worst thing a grower can do is encourage herbicide resistance through overuse or improper management. With resistance to glyphosate increasing in weed species throughout Ohio, the importance of using pre-emergence products as part of an integrated herbicide program is becoming more evident.

Jeff Stachler, an Ohio State University Extension weed specialist, said that pre-emergence herbicide applications can drastically improve the control of lambsquarter, giant ragweed and marestail (horseweed) in corn and soybean fields, but their effectiveness is contingent upon how they are incorporated into management practices.

"Many growers don't use pre-emergence herbicides in their Roundup Ready soybean fields and some of them don't in their corn crop. They've gotten used to only using glyphosate for post-emergence weed control and over-simplified their weed control by reducing the number of applications to save time and costs," said Stachler, who also holds a research appointment with the Ohio Agricultural Research and Development Center.



OSU research shows that pre-emergence herbicide applications can drastically improve the control of lambsquarter, giant ragweed and marestail in corn and soybean fields.

"However, it's getting to the point where growers can no longer use just glyphosate to get effective control all the time. Glyphosate-resistance marestail is already abundant in Ohio, and we believe that some populations of giant ragweed and lambsquarter are evolving to have a low level of resistance to glyphosate, all of which is being attributed to the intensive usage of this particular herbicide."

Marestail, giant ragweed and lambsquarter remain some of the most challenging weeds to control for several reasons:

- 1) They are some of the first weeds to emerge in the spring.
- 2) They can emerge well into the growing season which makes it difficult to time a single post-emergence application.
- 3) They become more difficult to control with increasing size and age.
- 4) Their increasing resistance to herbicides, both glyphosate and ALS (acetolactate synthase), reduces the number of control options.



A field improperly treated to control horseweed.

Pre-emergence herbicides are meant to be applied prior to weed and crop emergence. The benefits of pre-emergence herbicide applications go beyond getting a head start on weed control. The management practice maintains yield at a minimum, and in many cases, improves yield; allows for greater flexibility of post-emergence herbicides; reduces early season competition between weeds and the crop; and aids in more efficient nitrogen management in corn, which can save money.

"The key to capitalizing on these benefits is more timely weed control, something that growers, both in no-till and conventional tillage production systems, really need to focus on," said Stachler.

Stachler said that conventional tillage Roundup Ready soybean growers have usually only had to apply glyphosate in a single application to obtain effective weed control.

However, for the last two to three years more conventional tillage soybean growers are having difficulty controlling some key weed species, especially lambsquarter and giant ragweed.

"Growers practicing conventional tillage, especially for soybeans, need to use pre-emergence herbicides, because these growers are simply having a harder time controlling weeds with glyphosate," he said. "Growers who omit pre-plant burndown treatments in no-tillage make applications when weeds are large and old, and use rates too low for the weed size and age, placing themselves at risk for control failures."

No-till soybean growers are also at risk for ineffective weed control. Stachler said they tend to practice delayed burndown, where they plant soybeans and then let the weeds grow to about 12 inches to 24 inches tall before they make a one-time spray application intended to last the entire season.

"This scenario is exacerbating the problem of glyphosate resistance more than any other practice, and it's got to stop," said Stachler. "No-till growers should be spraying when weeds are much smaller and younger."

The best method for controlling marestail, giant ragweed and lambsquarter is to incorporate pre-emergence herbicides into other herbicide programs, ones that make use of several herbicide application timings and a diversity of herbicides to compensate for existing or developing resistance issues. Such management techniques include pre-plant burndown treatments in no-tillage, use of residual herbicides in conventional and no-tillage, and proper management of post-emergence herbicide applications, including glyphosate.

Watch a narrated slideshow of this story with additional photos here: [Pre-Emergent Herbicides Effective for Weed Control Slideshow](#). Free [Quicktime](#) software is required to view the slideshow.

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