

## Research unveils novel S-metolachlor waterhemp resistance mechanisms

*A newly published Weed Science Society of America research article identifies a single gene controlling S-metolachlor resistance in a central Illinois waterhemp population*

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WESTMINSTER, Colorado – XX January 2024 – Recently published research in the journal *Weed Science* provides new mechanistic insights into S-metolachlor resistance in waterhemp (*A. tuberculatus*). Specifically, the study points to a single major gene that controls metabolic resistance to S-metolachlor (the active ingredient in Dual Magnum and Dual II Magnum), in the Stanford, Illinois resistant (SIR) waterhemp population, which represents a relatively new and recent waterhemp resistant form.

“Waterhemp has ascended to its current status as the worst weed threatening Corn Belt crop production over the last fifty years,” says Dean Riechers, Professor, University of Illinois Urbana-Champaign. “In that time, the weed has developed resistance to two of seven herbicide sites-of-action classes, and threatens to develop resistance to even more, creating extremely difficult management challenges to farmers as they endeavor to control it.”

The good news is that the results from the study and germplasm derived from the research can assist in identifying the gene(s) conferring resistance to S-metolachlor in waterhemp. The study’s results will also will help establish a baseline for future molecular-genetic studies to pinpoint metabolic resistance traits in other dioecious weedy amaranths besides waterhemp.

“This study’s results are important, because they help to clearly describe and define and crosses and populations needed to investigate inheritance of S-metolachlor resistance in the SIR population,” adds Riechers. “We’ve identified a single, dominant gene that most likely confers resistance, and a second, recessive gene that may also modify S-metolachlor resistance in SIR, which are both new discoveries.”

More information is available in the article, “[\*Inheritance of resistance to S-metolachlor in a waterhemp \(Amaranthus tuberculatus\) population from central Illinois.\*](#)” The research is featured in Volume 71, Issue 6 of *Weed Science*, a [Weed Science Society of America](#) journal, published online by Cambridge University Press.

### About Weed Science

*Weed Science* is a journal of the Weed Science Society of America, a nonprofit scientific society focused on weeds and their impact on the environment. The publication presents peer-reviewed

original research related to all aspects of weed science, including the biology, ecology, physiology, management and control of weeds. To learn more, visit [www.wssa.net](http://www.wssa.net).

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