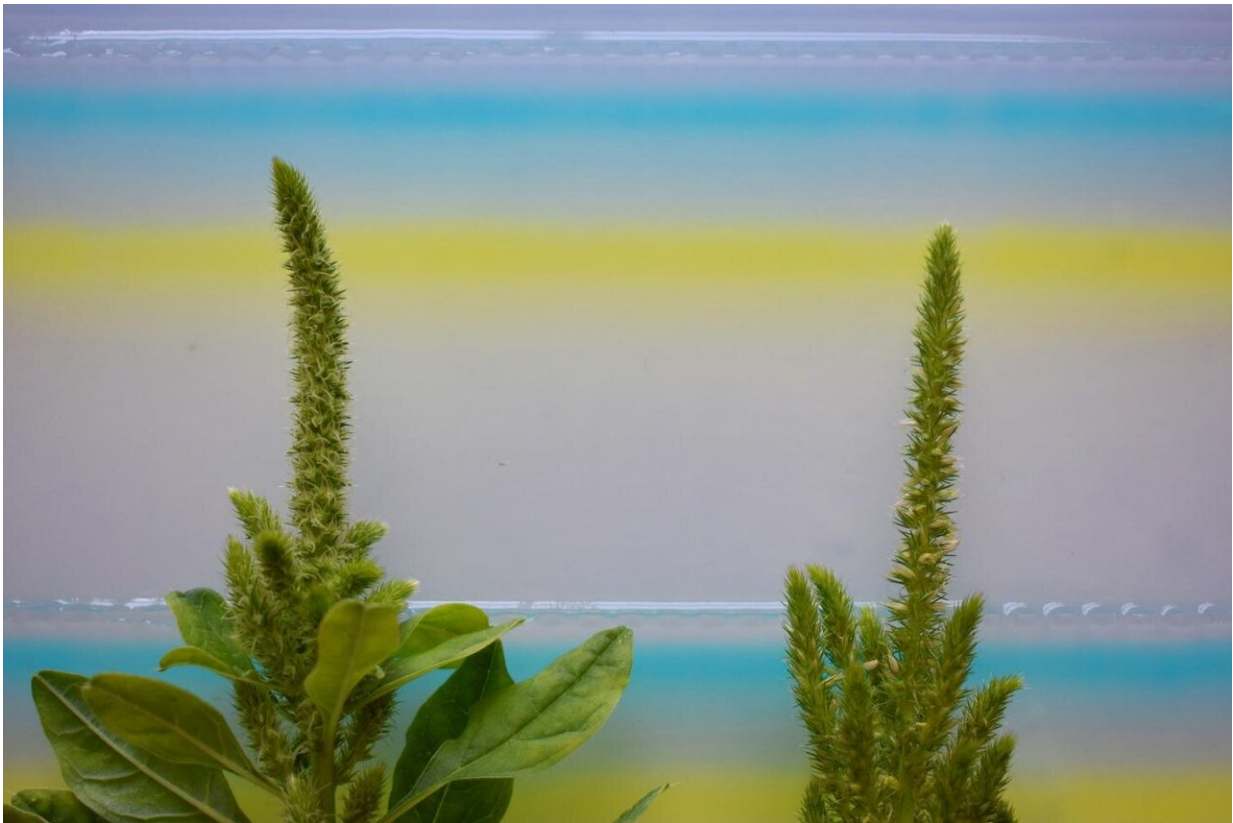


# Scientists hope genetic research will lead to new breakthroughs in weed control

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An article featured in the journal *Weed Science* sheds important new light on the genetics and potential control of Palmer amaranth and waterhemp -- two troublesome *Amaranthus* species weeds that are resistant to multiple herbicides. Credit: [www.wssa.net](http://www.wssa.net)

An article featured in the journal *Weed Science* sheds important new

light on the genetics and potential control of *Palmer amaranth* and waterhemp—two troublesome *Amaranthus* species weeds that are resistant to multiple herbicides.

While most *Amaranthus* species are monoecious and contain both male and [female flowers](#) on a single plant, *Palmer amaranth* and waterhemp are dioecious. Some plants are female, while others are male. This reproductive difference promotes outcrossing and [genetic diversity](#), which can fuel herbicide-resistant populations.

A team based at the University of Illinois recently sequenced the DNA for both male and female *Palmer amaranth* and waterhemp plants to explore dioecy and the genetic basis of sex determination. The data sets they compiled from sex-specific and sex-biased sequences were able to distinguish between male and [female plants](#) from multiple, geographically distinct *Palmer amaranth* and waterhemp populations with a 95 percent or greater accuracy.

This new genetic-level data is expected to be of great benefit to researchers who are interested in the biology, evolution and control of both *Palmer amaranth* and waterhemp.

"We hope that having a better understanding of weed genetics will open up new control strategies that haven't yet been considered," says Patrick J. Tranel, Ph.D., a professor at the University of Illinois. "For example, it might be possible to manipulate *Palmer amaranth* or waterhemp genes so that all offspring are male, causing the collapse of a local weed population."

To learn more, you can read the article "Sex-specific markers for waterhemp (*Amaranthus tuberculatus*) and *Palmer amaranth* (*Amaranthus palmeri*)" In *Weed Science* vol. 67 issue 4 online

**More information:** Jacob S. Montgomery et al, Sex-specific markers for waterhemp (*Amaranthus tuberculatus*) and Palmer amaranth (*Amaranthus palmeri*), *Weed Science* (2019). [DOI: 10.1017/wsc.2019.27](https://doi.org/10.1017/wsc.2019.27)

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