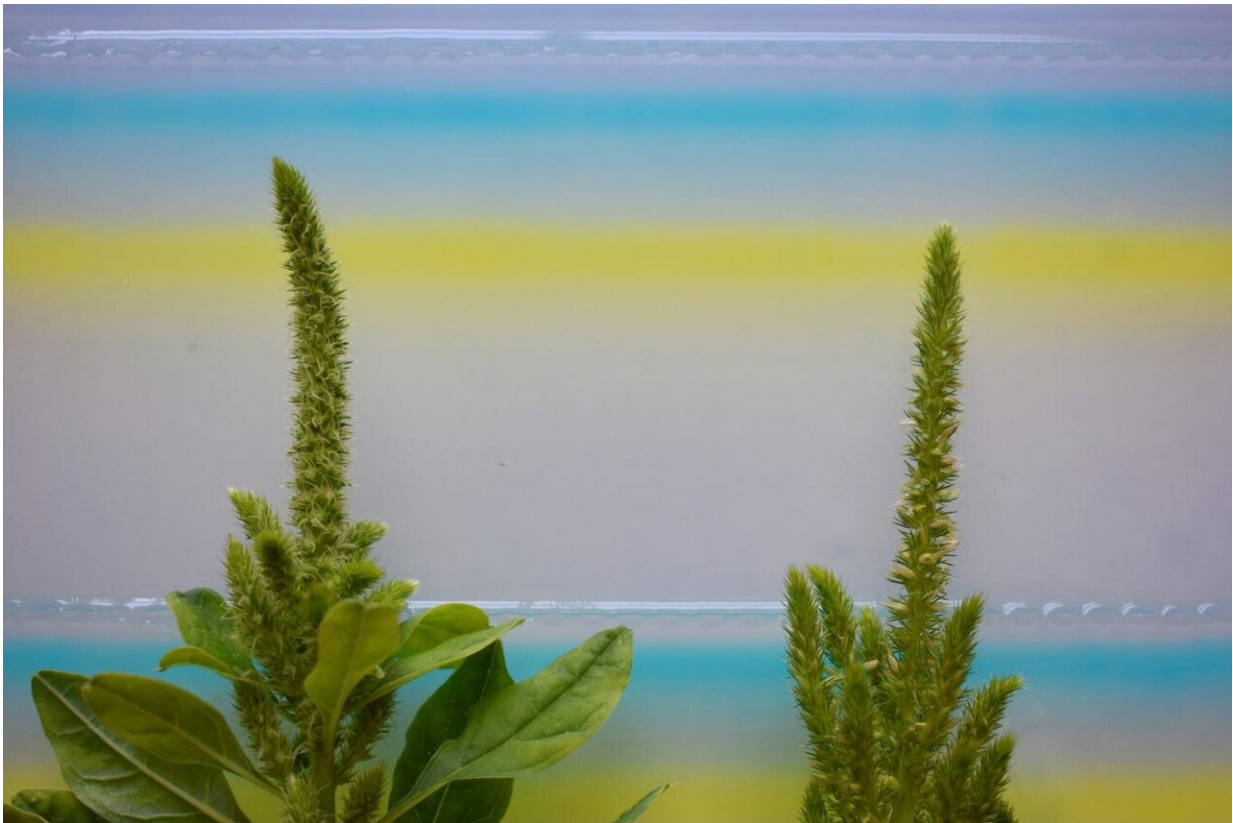


Scientists hope genetic research will lead to new breakthroughs in weed control

July 18 2019



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

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)

Provided by Cambridge University Press

Citation: Scientists hope genetic research will lead to new breakthroughs in weed control (2019, July 18) retrieved 15 August 2024 from <https://phys.org/news/2019-07-scientists-genetic-breakthroughs-weed.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.