International Weed Genomics Consortium Celebrates Three Years of Achievements

IWGC and its collaborators help sequence more than 60 genomes for 45 detrimental weed species since 2021

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WESTMINSTER, Colorado – April 9, 2024 – Since its founding in April, 2021, the International Weed Genomics Consortium (IWGC) has been steadily advancing weed science via collaboration. These advancements include weed species genome sequencing, assembly, and annotation that are accessible via the IWGC weed species website, WeedPedia, and other collaborative databases. Additionally, IWGC offers multiple conferences and training opportunities to share its findings with others each year.

"From the outset, the IWGC targeted 10 of the most detrimental agronomic weed species for complete genome assembly to help researchers understand weeds better and ultimately develop new weed control strategies worldwide," says Eric Patterson, Ph.D., a Michigan State University assistant professor, AgBioResearch scientist, and IWGC executive committee member. "In three years, IWGC has greatly exceeded that initial goal, sequencing more than 30 genomes for 19 critical species independently while collaborating with organizations around the world to assist in sequencing and annotating 30 additional genomes for 26 species."

Making these discoveries, and sharing them on an ongoing basis through conferences and training initiatives, has been possible only through funding from the Foundation for Food & Agriculture Research (FFAR), industry sponsors, and founding members BASF, Bayer, Corteva, and Syngenta, says Todd Gaines, Ph.D., associate professor of molecular weed science at Colorado State University, who leads the IWGC executive committee. "We're not only energized about current IWGC achievements, which will be spelled out in an upcoming research review on weed genomics, but by our plans for future achievements to come," he adds.

"Weeds are notorious for their ability to adapt and thrive in stressful environments, and the IWGC has made great strides in the last three years towards unlocking the genetic secrets behind these traits," says Kathy Munkvold, Ph.D., FFAR scientific program director. "Not only can

these genomic resources aid in the development of new tools for farmers to combat weeds that have become resistant to existing herbicides, this knowledge may also help improve the resilience of commonly consumed crops to stress, where it would be more beneficial."

Continual genomic discoveries by IWGC and its collaborators are constructing a path to better weed control advancements. "This lighthouse project has achieved tremendous progress," says Jens Lerchl, Ph.D., a member of the IWGC Strategy Board and part of BASF. "The high-quality genomes in one database help to advance our understanding of weed biology and strongly support the discovery of new target genes and herbicidal modes of action. Therefore, it provides an important contribution to the development of better herbicide products."

However, to continue to build on the numerous advancements that have resulted since IWGC's founding, ongoing support will be needed, says Lee Van Wychen, Ph.D., Executive Director of Science Policy for the Weed Science Society of America (WSSA). "It takes money and people to grow the plants; collect tissue; sequence, assemble and annotate the genomes; upload and store the data; and publicize the findings," he says. "So, we're making a case to renew funding from all possible sources to continue this innovative work."

The potential to create entirely new and much more effective strategies to control weeds is at stake. "The long-term vision for this collaborative effort is to use weed genomics discoveries to offer new paradigms in weed control," says Van Wychen. "Future IWGC weed genomics discoveries promise to create effective weed control methods that could far exceed current chemical, cultural, mechanical or biological control practices by targeting the traits that make the worst weeds so successful."

To join the consortium and its efforts to control detrimental weeds worldwide, contact IWGC.

About the Weed Science Society of America

The Weed Science Society of America (WSSA), a nonprofit scientific society, was founded in 1956 to encourage and promote the development of knowledge concerning weeds and their impact on the environment. The Society promotes research, education and extension outreach activities related to weeds, provides science-based information to the public and policy makers, fosters awareness of weeds and their impact on managed and natural ecosystems, and promotes cooperation among weed science organizations across the nation and around the world. For more information, visit www.wssa.net.

About The International Weed Genomics Consortium

The International Weed Genomics Consortium (IWGC) is a collaborative platform to promote and facilitate genomics research in weed science. The consortium includes members from industry and academic institutions worldwide. To learn more, visit https://www.weedgenomics.org.

About the Foundation for Food & Agriculture Research

The Foundation for Food & Agriculture Research (FFAR) builds public-private partnerships to fund bold research addressing big food and agriculture challenges. FFAR was established in the 2014 Farm Bill to increase public agriculture research investments, fill knowledge gaps and complement the U.S. Department of Agriculture's research agenda. FFAR's model matches federal funding from Congress with private funding, delivering a powerful return on taxpayer investment. Through collaboration and partnerships, FFAR advances actionable science benefiting farmers, consumers and the environment.

Media Contact:

Lee Van Wychen
Executive Director of Science Policy
National & Regional Weed Science Societies
Lee.VanWychen@wssa.net; 202-746-4686