

**2024 American Oat Workers' Conference
Award for Distinguished Service to Oat Improvement**



Weikai Yan, PhD

Weikai Yan was born on May 7th, 1958, in Shanxi Province, China. His most enduring childhood memory is that of being cold and hungry. Despite that, Weikai did well in school, and received his BSc in Agronomy from Shanxi Agricultural University in 1981 and his MSc in Plant Breeding and Genetics from Northwestern Agricultural University in 1985. Weikai's MSc supervisor was Prof. Zhao Hongzhang, the most influential wheat breeder in China. Weikai became Associate Wheat Breeder at the same university with Prof. Zhao and remained there from 1985-1993.

In 1993, Weikai moved to Ithaca, NY, USA, to take up a Visiting Scholar position working at Cornell University with Prof. Don Wallace on dry bean breeding. In 1996, he moved to Canada to begin his PhD studies, and graduated from the University of Guelph with a PhD in Plant Breeding in 1999. Weikai's supervisor there was Prof. Anthony Hunt, a winter wheat breeder.

In 2002, Weikai moved to Ottawa to join what was then the Eastern Cereal and Oilseed Research Centre (now the Ottawa Research and Development Centre) of Agriculture and Agri-Food Canada (AAFC). He was a Visiting Fellow with Drs. Nick Tinker and Art McElroy until 2006, when he took over from Art as AAFC oat breeder for eastern Canada.

In the years since, Weikai has received many honours, including being made a Fellow of the Crop Science Society of America in 2018, being made a Fellow of the Agronomy Society of America in 2019, and being named Outstanding Associate Editor by the journal "Crop Science" in 2022. His greatest joy, however, has been in seeing his oat materials released as cultivars for producers not just in eastern Canada, but in other locations as well:

Impactful/important oat cultivars (by year of registration)

- AAC Dieter for mega-environment 2 (ME2; covering Northern Ontario, Quebec, and the Maritime provinces), 2008, inherited from Art McElroy
- AAC Bullet for ME1 (covering southern Ontario), 2012, selected from crosses made by Art McElroy/Klaus Jakubinek
- AAC Nicolas for ME2, 2014, selected from crosses made by Art McElroy/Klaus Jakubinek
- AAC Richmond for ME2, 2014, selected from crosses made by Art McElroy/Klaus Jakubinek
- AAC Banner for ME1, 2017
- AAC Roberval for ME2, 2019
- AAC Reid for ME1, 2020
- AAC Excellence for ME2, 2020
- AAC Zip for ME2, 2022

Newly registered Cultivars

- AAC Wight, 2023, ME2
- AAC Basil, 2023, ME1/ME3 (covering the western Canadian prairies)
- AAC Anthony, 2023, ME3
- AAC Wallace, 2023, ME2
- AAC Fedak, 2024, ME3
- AAC Molnar, 2024, ME2
- AAC Vernon, 2024, ME1
- AAC Captain, 2024, ME1
- AAC Marquis, 2024, ME2

Weikai initiated the “ENCORE” trials in 2013, with Dr. Jennifer Mitchell Fetch (AAFC Winnipeg/Brandon), Dr. Aaron Beattie (University of Saskatchewan), and Dr. Mike McMullen (North Dakota State University), to strengthen collaboration among breeding programs and to bridge breeding and genomics. More recently, he has also been working with Drs. Nick Tinker and Wubishet Bekele to assess the utility of using genomic selection methods in early generation oat breeding.

Earlier in his career, Weikai developed GGE Biplot Analysis, which has proven to be extremely valuable to many people around the world. His most important publications include the following:

Influential/important publications

- “Temperature response equation”, 1999, Yan and Hunt, cited by many *Nature Climate* papers
- “GGE biplot”, 2000, Yan, *et al.*, cited > 2600 times, according to a Google Scholar Search
- “GT biplot”, 2002, Yan and Rajcan
- “GGE biplot analysis” book, Yan and Manjit, 2002, CRC Press
- “Crop Variety Trials” book, Yan, 2014, Wiley Press

- “GYT biplot” for multi-trait selection, 2018, Yan and Fregeau-Reid
- “LG biplot” for mega-environment analysis, Yan, 2019
- “Theoretical Unification and Practical Integration of Conventional Methods and Genomic Selection”, Yan, Tinker, Bekele, *et al.*, 2019
- “Oat mega-environments in Canada”, 2021, Yan, Beattie, Nilsen, *et al.*
- “Mega-environment analysis and breeding for specific adaptation”, 2022, Yan, Beattie, and Nilsen
- “Biplots to integrate multi-trial and multi-trait information” Yan, 2024

Weikai will tell you that his favourite tool is his “breeder’s eye”. He has certainly been successful in putting it to use!



Weikai making selections in the early generation hill plots at ORDC, AAFC.