

## A Women in Crop Science Conversation with.....Maria Fernanda Alvarez

Alison Bentley<sup>1</sup>

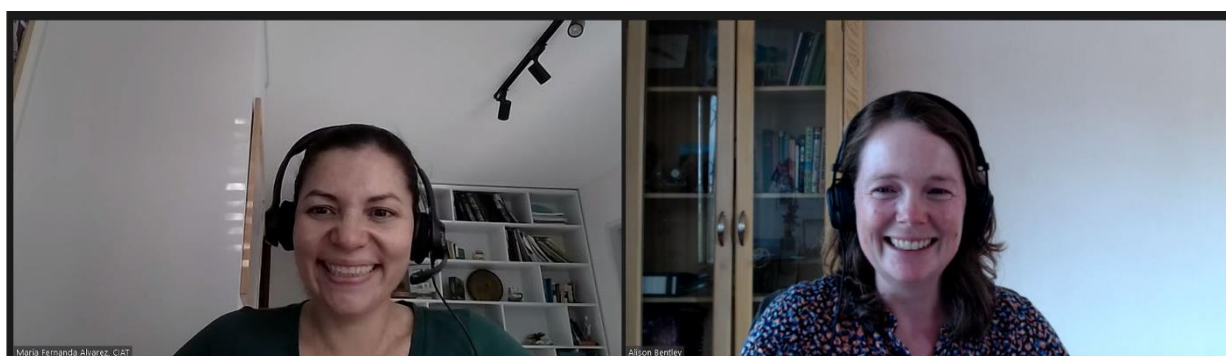
<sup>1</sup>International Maize and Wheat Improvement Center (CIMMYT), Texcoco, Mexico

Contact: [a.bentley@cgiar.org](mailto:a.bentley@cgiar.org)

### Background

Women are historically under-represented in the field of plant breeding, although there is a clear exception to this at the Alliance Bioversity-CIAT (ABC). Alongside Maria Fernanda Alvarez who leads the rice program, female plant breeders lead the forages and bean breeding activities in the respective crop programs. This team of dynamic and inspiring women are delivering improved germplasm to support farmer livelihoods around the world and are also fostering a supportive, collaborative, and equitable environment in which to build the future.

It was a real pleasure to interview Maria and I am grateful to her for giving her time during recovery from knee surgery (an occupational hazard of rice breeders). Maria is the Rice Breeding and Genetics Program Leader at ABC, based in Cali, Colombia (<https://alliancebioiversityciat.org/who-we-are/maria-fernanda-alvarez>) and her current role sees her managing day-to-day breeding operations, driving the integration of numerous enabling technologies and interacting with numerous stakeholders and partners.



Maria Fernanda Alvarez (L) takes time out from her recovery from knee surgery to share her work, career journey and passions with Women in Crop Science Conversations.

### A Women in Crop Science Conversation

*Briefly describe what you do?*

I am the rice program lead at ABC as well as being the hybrid and inbred rice breeder. I am based in Colombia and the focus of my program is on developing improved tropical and temperate rice for Latin America. Over the past four years much of my attention has been focused on optimizing and improving breeding processes to accelerate genetic gains (productivity improvements over time). I've also been work on the adoption of new statistical designs to support data-driven breeding decision-making.

As program lead, it is my role to ensure the interaction between all the units supporting breeding operations: I need to make sure that everyone has what they need which involves juggling resources and demands, logistics, administration in order to find a way to make it all work. ABC and the rice program are part of the wider CGIAR system and rice breeding efforts are coordinated with IRRI and AfricaRice under the OneCGIAR. This allows us to share processes and pipeline approaches whilst targeting different regions and market segments of the world with different product profiles.

*Why did you get into research, and crop science in particular?*

I had an early interest in genetics from around the time I was 5 years old. My father is a botanist, my mother a biologist and my godmother was a geneticist who completed a PhD in the early 1970s (very rare for women at that time). Growing up in Bogota, all three had a big impact on my developing interest in genetics and were role models for my career. I had my first experience of working in a (human) genetics lab when I was finishing high school and made a karyotype in the lab run by my godmother. My love of plants grew over time and during University I helped my father in his botany lab and also joined a field trip to CIAT (now part of ABC) during University. When I finished my undergraduate degree, a position opened at CIAT and my journey in rice genetics began. However, I then moved to potato genetics for my PhD, working on the complex genetics of late blight resistance in diploid potato. Following my PhD, I returned to CIAT as a post-doctoral scientist working on floral biology to create new paths forward for hybrids in rice before joining the hybrid rice breeding team.

*Lab or field? Field (preferably a muddy one!).*

*Conference or stakeholder meeting? Stakeholder meeting.*

*Literature review or project report? Literature review.*

*Conventional or molecular methods? Molecular methods.*

*Hybrid, inbred or vegetative? Hybrids are more fun.*

*Qualitative or quantitative research? Quantitative.*

*GenStat or R? R*

*Favourite crop & why? Rice because it is a good model for genetics, it allows you to test different interesting concepts and to see lots of lines and combinations within your breeding career. It is also globally important, covering diverse geographies and contributing to meeting food security needs.*

*What do you love the most about your job?*

To be able to see final product of my work in the field: how it performs and how it can change people's lives. This, plus the interaction with stakeholders which ensures I know what our partners require moving forward.

*What is your dream to achieve in your field of expertise?*

For me it is not just about seeing varieties or hybrids in the field, but about a greater shared effort to impact smallholder farmers who don't currently have full access to the latest varieties and technologies for production and for maximising benefits.

*Who has influenced you the most and why?*

Joe Tohme (ABC Director, Improving Crops and ABC Managing Director, Americas) has been the person who has influenced me most over the last five years. He is a great mentor who gives you freedom but also wisdom when it is required. He gives me powerful advice: both on my career and on my research. He has a broad view and really appreciates the bigger picture.

*What is your favourite aspect of your research?*

To be able to integrate disciplines: this is a key element for achieving breeding success. I am excited about the future opportunities and potential to work out how to further integrate new technologies and achieve even more in future.

*What is the best career decision you ever made and why?*

The best decision I made was to do my PhD research outside of the CGIAR and working with several organizations. I had the opportunity to do my research at the Colombian National University in collaboration with the James Hutton Institute in the United Kingdom, and the Max Planck Institute in Germany. This allowed me to understand the research system in Colombia, but also to expand my skills and network by working with and collaborating with teams in different parts of the world.

*Beach or mountain?* Mountain.

*Tea or coffee?* Coffee.

*Appetizer or dessert?* Dessert.

*Instagram or Twitter?* Twitter.

*Fame or fortune?* Neither, delivering impact.

### **Final word**

It was fantastic to have the opportunity to talk one-to-one with Maria. We have met in various CGIAR breeding meetings and by email but have never had the opportunity to connect directly. It was inspiring to hear about the enabling environment for success that has been fostered at ABC, and about Maria's passion for delivering impact through plant breeding. Listening to Maria talk about the influence of Joe Tohme on her work and career was also encouraging. In many of our Women in Crop Science events and interactions we discuss how good mentors are not always easy to find. Joe is certainly one of a kind and the world of plant breeding certainly needs more Joe's!