

Scientist Whose Biological Seed Treatments Helped Make Brazil A Global Breadbasket Named 2025 World Food Prize Laureate

Dr. Mariangela Hungria will receive \$500,000 award for work to harness microbiological processes to sustainably improve crop nutrition, yields and productivity

DES MOINES, IA, UNITED STATES, May 13, 2025 /EINPresswire.com/ -- A scientist whose discoveries helped Brazil become a global agricultural powerhouse has been named the 2025 World Food Prize Laureate.

Dr. Mariangela Hungria, a microbiologist from São Paulo, has developed dozens of biological seed and soil treatments that help crops source nutrients through soil bacteria, significantly increasing yields of major crops while also reducing the need for synthetic fertilizer.

Her products are estimated to have been used across more than 40 million hectares in Brazil, saving farmers up to US\$25 billion a year in input costs while avoiding more than [230 million](#) metric tons of CO2 equivalent emissions per year.

Dr. Hungria's work has helped improve yields of wheat, maize, rice, common beans, and other major crops, including soybean, which is now Brazil's top agricultural export. Over her 40-year career with the Brazilian Agricultural Research Corporation (Embrapa), national soybean production increased from [15 million](#) tons in 1979 to an anticipated 173 million tons in the coming harvest.

The announcement of this year's World Food Prize, the premier international award for food and agriculture, was made at the organization's international headquarters, the Norman E. Borlaug Hall of Laureates. The event was presided over by Iowa Governor the Honorable Kim Reynolds, and the Announcement was made by Foundation President Mashal Husain. Remarks were given by Foundation Board Chair Paul Schickler and Foundation CEO Tom Vilsack.

"Dr. Hungria's journey shows she is a scientist of great perseverance and vision — traits she shares with Iowa's own Dr. Norman Borlaug, founder of the World Food Prize and father of the Green Revolution," said Governor Reynolds. "As an industrial pioneer and mother, Dr. Hungria also serves as an inspiring example for women researchers seeking to embody both roles. Her discoveries and developments have launched Brazil to become a global breadbasket. The World Food Prize champions those whose courage and innovation transform our world, and I

congratulate Dr. Hungria for receiving this recognition.”

Under the mentorship of Dr. Johanna Döbereiner, Dr. Hungria was an early proponent of biological nitrogen fixation, the process in which crops form a mutually beneficial association with soil bacteria that provides nitrogen, an essential nutrient for plant growth. At the outset of her career, very little research existed on microbiology as a solution for soil fertility.

She began by studying rhizobia, a type of bacteria that interacts with the roots of legume plants to provide nitrogen in exchange for energy. She found that applying this strain to soybean through an inoculant every year could increase yields by up to eight per cent compared to the use of synthetic fertilizer.

She was also the first to release commercial strains of the bacterium *Azospirillum brasilense* that could improve the uptake of nitrogen and the release of phytohormones. Her research showed that combining and applying both *A. brasilense* and rhizobia could double the yield increase in common beans and soybeans. More than [100 million](#) doses of rhizobia or rhizobia with *Azospirillum* are applied across 40 million hectares alone.

Dr. Hungria, also a professor at the State University of Londrina, is now applying her research to restoring degraded pastureland. She has developed the first microbial inoculant for grass pastures, resulting in a 22 per cent increase in biomass to support more and better food for cattle.

“When I started out, nobody spoke about biological nitrogen fixation or other microbial contributions. But I loved microbiology, I loved basic science, and I had many ideas I wanted to investigate and study,” said Dr. Hungria. “Replacing the use of chemicals with biologicals in agriculture has been the fight of my life. I'm really proud of making a contribution towards producing food while decreasing the environmental impact. The goal was to increase yield with the least possible use of chemicals, and we achieved this through more biologicals.”

Dr. Hungria, who overcame prejudices against women and young mothers in academia to be named one of the 100 most powerful women in agriculture in Brazil by Forbes in 2021, said she was inspired by Dr. Norman Borlaug, the father of the Green Revolution and founder of the World Food Prize.

“I like to say that he made the Green Revolution possible, and we had this great opportunity to start a ‘micro green revolution’ - a green revolution, but with microorganisms,” she added. “I can’t quite believe I am now receiving the World Food Prize. Many people questioned me for being a woman, a mother and working with agriculture and biologicals in agriculture, but I believed in what I was doing and persevered. The role of women in agriculture, from farming to science, deserves more recognition. I hope my achievement inspires others to pursue their passions in science. I always believed that it is possible to achieve high yields necessary to mitigate world hunger, but in a sustainable way, preserving the planet.”

Author of more than 500 papers, chapters and publications, Dr. Hungria produced the first Portuguese-language manual for soil microbiology methods that were adapted to the tropics. She has been listed in the top one per cent of agricultural scientists by Stanford University since 2020 and received Brazil's highest honour in agriculture, the Frederico de Menezes Veiga award.

"Dr. Hungria was chosen for her extraordinary scientific achievements in biological nitrogen fixation that transformed sustainability of agriculture in South America," said Dr. Gebisa Ejeta, Chair, World Food Prize Laureate Selection Committee. "Her brilliant scientific work and her committed vision for advancing sustainable crop production to feed humanity with judicious use of chemical fertilizer inputs and biological amendments has gained her global recognition both at home and abroad."

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