

### Wheat Breeder Wins World Food Prize

One hundred years ago, Dr. Norman Borlaug was born. His semi-dwarf, disease-resistant wheat spurred the Green Revolution and saved more than a billion lives from starvation. It is fitting that the 2014 World Food Prize, which Borlaug created, will be awarded on October 16 to a wheat researcher for the first time. And Dr. Sanjaya Rajaram is not just any wheat breeder - he was Borlaug's successor.

Rajaram amplified Borlaug's legacy of innovation at the International Maize and Wheat Improvement Center (CIMMYT) in Mexico. His 480 wheat varieties have been released in 51 countries on six continents, planted on more than 140 million acres, increased yield potential by 20 to 25 percent and resulted in 200 million more tons of grain delivered to global markets each year.

Rajaram's childhood on a small farm in Uttar Pradesh, a state in northeastern India, inspired him with the desire to improve world food production. His parents enabled his education by sending him to primary and secondary school in a village five kilometers (3.1 miles) away at a time when roughly 96 percent of rural India had no formal education.

Rajaram repeatedly earned top honors and scholarships as well as a bachelor's degree in agriculture from the University of Gorakhpur and a master's degree in genetics and plant breeding from the Indian Agricultural Research Institute. But, his doctorate mentor would introduce Rajaram to Borlaug.

At the University of Sydney, Rajaram earned his doctorate degree in plant breeding, studying under Dr. I.A. Watson. Watson referred his new student to his old classmate at the University of Minnesota, and Rajaram began his work at CIMMYT in 1969.

Rajaram and Borlaug worked side-by-side in the fields of El Batán, Toluca and Ciudad Obregón. Just three years later, in 1972, Borlaug asked Rajaram to be his successor as the head of CIMMYT's wheat breeding program.

Rajaram extended Borlaug's great work. According to the World Food Prize website, Rajaram's focus was on "wide adaptation of new plants to differing climate and soil conditions; superior grain quality; and increasing the resistance to diseases and pests that had devastated farmers' crops."

Rajaram utilized Borlaug's shuttle-breeding approach, under which two generations of wheat are produced each year by planting a crop in both the northern and southern hemisphere. This cut breeding times for new varieties in half.

He also crossed winter and spring varieties, resulting in lines that had higher, more reliable yields under a multitude of climatic conditions and geographic locations. Rajaram's new varieties could be grown in marginal areas, including small mountain plots in Pakistan, remote regions of China and acidic soils in Brazil.

His concept of "slow rusting" incorporated multiple genes that each have minor effects on rust's development. Working together, the genes minimized the devastating disease's effect

on wheat yields without causing the pathogen to mutate.

In addition to his own work, Rajaram helped establish a worldwide exchange of information and resources between researchers, which did not exist in the global scientific wheat network. His work continues, although he now operates his own seed company, Resource Seeds International.

Borlaug's own words in a 2007 letter described Rajaram's legacy best: "You have developed into the greatest present-day wheat scientist in the world...have made and continue to make many important contributions to further improve world wheat production...have learned to work effectively in many different countries with political leaders of different ideologies...and are a scientist of great vision."

Rajaram will officially receive the World Food Prize on October 16 during the Borlaug Dialogue in Des Moines, Iowa.

### ***World Food Prize***

Nobel Peace Prize winner Dr. Norman Borlaug established the World Food Prize in 1986. The Prize honors "those who have made significant and measurable contributions to improving the world's food supply." The international award recognizes contributions from all around the world in a multitude of fields, from political leadership to nutrition to food and agricultural research. For more information, visit the official website at [www.worldfoodprize.org](http://www.worldfoodprize.org).