



Early Beginnings

Norman Ernest Borlaug was born on March 25, 1914 in Cresco, Iowa to Norwegian-American parents. He was raised on a crop/animal farm and attended a one-teacher, one-room school house.

Education at the University of Minnesota

After completing high school in Iowa, he enrolled at the University of Minnesota in 1933, completing his B.S. degree in Forestry in 1937. During his undergraduate studies, Borlaug attended a seminar by preeminent Plant Pathologist Elvin C. Stakman who later encouraged Borlaug to pursue advanced degrees in Plant Pathology. Borlaug earned his M.S. (1940) and Ph.D. (1942) degrees in Plant Pathology at the university.

Mexico and The Green Revolution

In 1944, Borlaug was offered a position in the Rockefeller Foundation to make Mexico self-sufficient in wheat production. He and his team of Minnesota and Mexican colleagues built upon and expanded the principles they learned at the University of Minnesota. They made fundamental changes to wheat breeding protocols and developed sturdy, widely adapted, stem rust resistant wheats.



Stem rust is one of the most devastating diseases of cereals and has caused famines throughout history

The varieties of wheat developed by Borlaug allowed Mexico to become self-sufficient in wheat production and were later exported to South Asia. Cultivation of these varieties in India and Pakistan nearly doubled wheat production. These high yielding wheat varieties generated a "Green Revolution" and averted major famines in South Asia during the 1960's and 1970's.



Borlaug's Green Revolution wheats allowed many countries to become self-sufficient and avoid famines



Borlaug surveying a wheat crop developed from his Green Revolution wheats in Mexico

Honored on the World Stage

Some scholars have stated that Borlaug *has saved more lives than anyone in human history*.

He was awarded the Nobel Peace Prize in 1970 in recognition of his contributions to world peace through increasing the food supply. Borlaug also was awarded the Presidential Medal of Freedom in 1977 and the Congressional Gold Medal in 2007. He is one of only five people in history to have been so honored with these three awards.



Borlaug receiving Nobel Peace Prize in 1970



Nobel Peace Prize Medal and Congressional Gold Medal

The Borlaug Graduate Fellowships

To honor the great lifetime achievements of Borlaug and his continuing efforts to inspire young scientists in agriculture and humanitarian causes, the Department of Plant Pathology has established two Norman E. Borlaug Graduate Fellowships in International Agriculture. One fellowship will be for female applicants and the other for male applicants.

When fully endowed, the fellowships will provide a generous stipend and research funds to attract the best applicants from around the world to the Department of Plant Pathology.

In accordance with Borlaug's wishes, the Graduate Fellows must conduct their research on a small grain cereal crop (e.g. wheat, rice, barley, oat, or rye), and spend at least two growing seasons of their research and/or outreach and educational activities in an underdeveloped country before being granted their degree.



Graduate students in Kenya assessing the stem rust resistance of barley

Endowment Goal

To fully fund two Norman E. Borlaug Graduate Fellowships in perpetuity (with the 21st Century Fund match available for a limited time only), a \$1.5 million endowment will be needed.

How Can You Contribute?

Individuals interested in contributing to the Norman E. Borlaug Graduate Fellowships in International Agriculture, can contact Carol Ishimaru, Head, Department of Plant Pathology (612-625-9736 or cishimar@umn.edu) or Adam Fischer, Development Officer, College of Food, Agricultural and Natural Resource Sciences (612-625-5766 or afischer@umn.edu).

Your support to honor the legacy of Dr. Borlaug and the University of Minnesota is greatly appreciated.