

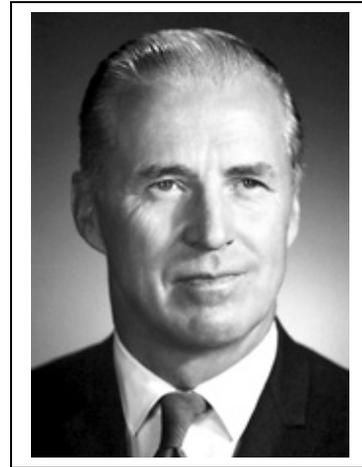
Norman Borlaug

1970

“I cannot live comfortably in the midst of abject poverty and hunger and human misery if I have the possibility of doing something about improving the lot of young children ...”

Norman Borlaug was born on a farm in Iowa in 1914 to Henry and Clara Borlaug. He never forgot the lessons of the farm, or the strong influence his grandfather had on his education. His grandfather told him “Feed your head now if you want to feed your belly later on, Norm.”

After attending public school in Cresco, Borlaug attended the University of Minnesota where he studied forestry. He received his degree in 1937 and worked for the US Forestry Service in Massachusetts and Idaho. He returned to the University of Minnesota to study plant **pathology**, received his master’s degree in 1939, and his doctorate in 1942.



- **Developed disease resistant wheat**
- **Father of modern “Green” Movement**
- **Saved more than one billion lives worldwide**
- **Worked in the fields with his students**

“The forgotten world is made up primarily of the developing nations, where most of the people, comprising more than fifty percent of the total world population, live in poverty, with hunger as a constant companion and fear of famine a continual menace.”

From 1942 to 1944 he was a **microbiologist** on the staff of the Du Pont de Nemours foundation where he was in charge of research on industrial and agricultural bactericides, **fungicides** and preservatives. In 1944 he was appointed **geneticist** and plant pathologist for the Cooperative Wheat Research and Production Program in Mexico. This was a joint Foundation funded by the Rockefeller Foundation and the Mexican government. It was formed to research genetics, plant breeding, plant pathology, **entomology**, **agronomy**, soil science, and cereal technology.

Within twenty years Borlaug was highly successful in finding a high yield short-strawed disease resistant wheat. He became interested in the humanitarian issues of feeding the hungry people of the world. His goal was to provide “a temporary success in man’s war against hunger and deprivation” and a breathing space to deal with the **“population monster.”** Borlaug wanted to

deal with environmental and social problems that often lead to conflict between men and between nations.

His new wheat was planted with great success in Mexico, India, Pakistan, six Latin American countries, six Near and Middle East countries and several countries in Africa. His work was questioned by environmentalists who claimed dependence on a single genetically engineered crop could result in serious problems if that crop were to fail. They also believed that the chemicals used to grow the crop could be harmful to humans. A single crop was seen as having less nutritional value than traditional multi grain crops. Finally, **biodiversity** of crops was seen as a better way to maintain a good food supply than a **mono-crop**.

The Rockefeller and Ford Foundations worked with the Mexican government to create the International Maize and Wheat Improvement Center to create a research training institute with an international staff. Borlaug was made director.

He has been able to reach one third of his goal to train young scientists in research and production methods. He has developed an intern program and more than 2000 young scientists from sixteen countries have studied and worked in the Center.

Dr. Borlaug is currently working with triticale, a man made species of grain that is a cross between wheat and rye. It may be a better grain than either wheat or rye in productivity and nutritional quality.

Borlaug was awarded the Nobel Peace Prize for his work in feeding the world in 1970. In his acceptance speech he stated:

“Civilization as it is known today could not have evolved nor can it survive without an adequate food supply. Yet food is something that is taken for granted by most world leaders despite the fact that more than half of the population of the world is hungry. Man seems to insist on ignoring the lessons available from history.”

He is credited with saving more lives than anyone in history—one billion lives—and has been called one of the 20th century’s ten greatest contributors to humankind.

He has also received recognition from organizations in six countries: Canada, India, Mexico, Norway, Pakistan, and the United States. In 1968 he received a tribute from the people of Ciudad Obregon, Sonora, Mexico the location of some of his early work. The town named a street after him.

Borlaug worked in Mexico for more than twenty-seven years. For the last several years he has **collaborated** with scientists from other parts of the world, especially India and Pakistan, in adapting new wheats.

For over half a century, Dr. Norman Borlaug fought to eliminate poverty and hunger. He is known as “The Father of the Green Revolution,” Borlaug is best known for his hybrid wheat and modern agricultural techniques, but his success is largely related to his work as an educator and policy maker. Throughout his career, Dr. Borlaug taught the importance of staying connected to the land. His work developing resilient strains of wheat and **replenishing** worn out soils began in Mexico during WWII. Few resources were available. He frequently slept on the ground in old sheds, hitched rides and pieced together tractors from broken-down parts. Dr. Borlaug, unlike many scientists at the time, was not afraid of getting his hands dirty. He often met important visitors in work boots and shirtsleeves, showing hard work is for everyone. Dr. Borlaug believed that the work in the fields was a vital part of understanding the farmers he was helping. Over the

next twenty years, the Mexican program became an internationally renowned center for developing hybrid wheat and corn, providing expertise in combating world hunger across the globe.

Dr. Borlaug continues to work with President Jimmy Carter (Nobel Laureate 2002), continuing his hunger fight in Africa.

Suggested Classroom Activities

Norman Borlaug

Introduction/Warm Up

The article states that Borlaug has “been called one of the 20th century’s ten greatest contributors to humankind.”

As a class, try to reach consensus on who the other nine greatest contributors might be.

Discussion Questions

1. What is the ‘population monster’ Dr. Borlaug is concerned about? (Level 1)
2. What did Borlaug’s grandfather mean when he said “Feed your head now if you want to feed your belly later on, Norm?” (Level 1)
3. What is the “Green Revolution”? (Level 2)
4. How would you resolve the conflict between biodiversity and monocrop farming in countries where hunger is a major problem? (Level 3)
5. What is the relationship between wheat and world peace? (Level 3)

Vocabulary Terms:

1. **Biodiversity**
2. **Pathology**
3. **Geneticist**
4. **Microbiologist**
5. **Agronomy**
6. **Entomology**
7. **Resilient**
8. **Mono-crop**
9. **Collaborated**
10. **Replenishing**

Activity

List five organizations that are currently working on issues related to world hunger. Write a letter to one of those organizations expressing your thoughts about the work they are doing and its importance.

Technology Option: Use the Internet to learn about the World Food Prize and the role that Dr. Borlaug played in starting it.

Resources

<http://macserver.independence.k12.ia.us/~jlang/Education/HSLesson.htm> This is the resource page for the activity above.

<http://macserver.independence.k12.ia.us/~jlang/Education/NormanBorlaugResources.htm> Borlaug quotes, facts, and information

<http://macserver.independence.k12.ia.us/~jlang/Education/BorlaugIntro.htm> Exploring the Life and Science of Norman Borlaug – Nobel Peace Prize Recipient and Native Iowan

<http://www.worldfoodprize.org/> The World Food Prize home site

<http://macserver.independence.k12.ia.us/~jlang/Education/EducationalActivities.html> The Norman Borlaug heritage foundation

http://www.oxfamamerica.org/whatyoucando/act_now/fast Oxfam world hunger site

http://nobelprize.org/nobel_prizes/peace/laureates/ Nobel Peace Laureates

<http://www.worldfoodprize.org/>