

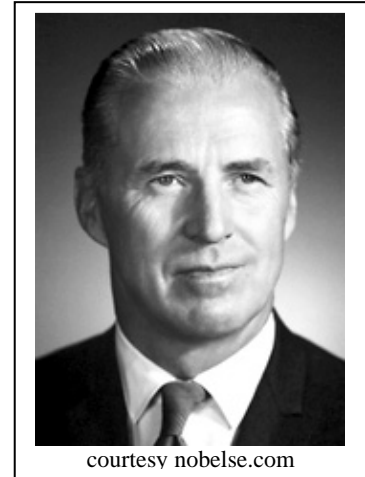
Norman Borlaug

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. Dr. Borlaug grew up on a farm near Cresco, Iowa. He never forget 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 and received his master’s degree in 1939, and his doctorate in 1942.



courtesy nobelse.com

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.

1914-

- 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.”

In 1944 he was appointed geneticist and plant pathologist for the Cooperative Wheat Research and Production Program in Mexico. This is 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 he 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. He wanted to provide “a temporary success in man’s war against hunger and deprivation” and a breathing space to deal

with the “population monster”. He 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

Use these quotes to discuss or write about Dr. Borlaug

“A hungry man is like a hungry beast.”

" It is a sad fact that on this earth at this late date there are still two worlds, the privileged world" and "the forgotten world". The privileged world consists of the affluent, developed nations, comprising twenty-five to thirty percent of the world population, in which most of the people live in a luxury never before experienced by man outside the Garden of Eden. 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."

Discussion Questions

1. What is the ‘population monster’ Dr. Borlaug is concerned about? (Level 1)
2. How did Borlaug’s Grandfather influence his work? (Level 1)
3. How is Dr. Borlaug sharing his knowledge about growing healthier grains? (Level 2)
4. What is the “Green Revolution”? (Level 2)
5. Why will developing grains that take a shorter time to grow and are disease resistant help bring peace to the world? (Level 3)
6. How has Borlaug’s work with Jimmy Carter helped bring peace to the world? (Level 3)

Vocabulary

1. Biodiversity
2. Pathology
3. Geneticist
4. Microbiologist
5. Agronomy
6. Entomology
7. Resilient
8. Mono-crop

Activity Grades 9-12**Questions for Hunger Scenarios**

1. What does hunger feel like? Why don't we talk about hunger?
2. Does it make us feel guilty? Is it not relevant to our lives?
3. What were you thinking as a member of the high/middle/low income group?
4. Do you think it's fair that the world is divided this way?
5. What do you think the term "accident of birth" means?
6. Do you think the people who got the big meal should help the others?
7. Do you think people in the 3rd tier don't work hard? Why are they there?
8. Any ideas about how we might impact unequal distribution?

Say you're a farmer in Mexico. Would it be better to plant wheat that produces more grain and take a risk that it won't get hit with rust, or wheat with lower yields that is resistant?

Talk through some of the scenarios, exploring possible choices of each student. Offer results of that choice for them. (For instance, you live in a small village in Africa. After three crop failures, you have the choice of moving to Nairobi or staying in the village. As a student makes a choice, suggest what the outcome will be. (Moving into a slum and becoming a prostitute

Explain the life boat theory on development (Earth can only handle so many people and some have to die)

Separate students into two groups to discuss if they agree/disagree to the general response of the quote, and then share why with the other group. I found students are more

comfortable arguing with each other than disagreeing with a speaker. Jump in to explain quotes if needed

“If a man is offered a fact which goes against his instincts, he will scrutinize it closely, and unless the evidence is overwhelming, he will refuse to believe it. If, on the other hand, he is offered something which affords a reason for acting in accordance to his instincts, he will accept it even on the slightest evidence.” Bertrand Russell, in Roads to Freedom

“Power always thinks it has a great soul and vast views beyond the comprehension of the weak; and that it is doing God’s service, when it is violating all His laws.”

-John Adams in a letter to Thomas Jefferson

Technology Option: Using this site, take the World Hunger Quiz
<http://macserver.independence.k12.ia.us/~jlang/Education/HungerQuiz.htm>

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