



Norman Borlaug Special, Sept. 2009

Together we will protect our crops

Dr. Norman Borlaug's was a life time singular achievement to feed millions of less fortunate around the world starting from Mexico and spreading over most of Asia and Africa. Even on his death he will continue to inspire all those concerned with hunger, malnutrition and food security. He left the World a legacy that includes billions of lives saved from the misery of starvation and the education of thousands of scientists worldwide who will continue to carry on his work today & tomorrow.

Members of the Association for Advancement in Plant Protection, Bidhan Chandra Krishi Viswavidyalaya, Kalyani, India extends its condolences to daughter Jeanie Borlaug Laube and her husband Rex; son William Gibson Borlaug and his wife Barbie; five grandchildren and six great-grandchildren.

The AAPP Group



Dr. Norman E. Borlaug, NL
March 25, 1914 - September 12, 2009

NORMAN BORLAUG, perhaps one of the best known among the wheat pathologist-cum-plant breeders, was born in a small farm near Cresco, Iowa in 1914 to Henry and Clara Borlaug.

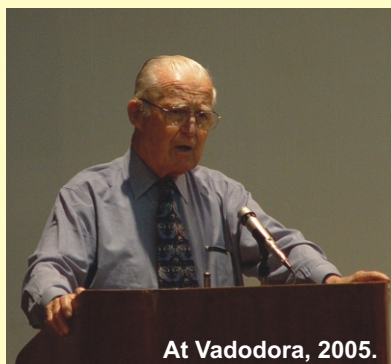


Photo Courtesy Dr.S. Maity ,Director DMAPR

After completion of primary education at Cresco, Borlaug enrolled in the University of Minnesota for a degree in Forestry and after receiving his B.S. degree in 1937, following a short stint with U S Forestry Services, he joined Minnesota University for

M.S. degree under pathologist Dr. Stakman and obtained his doctorate degree in 1942. The same year he married Margaret.

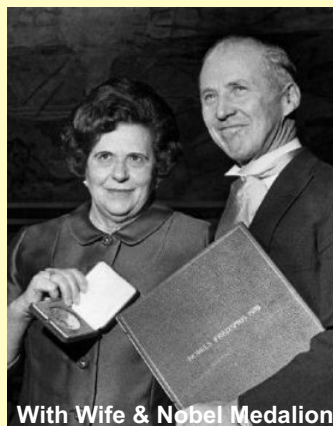
In 1944 Dr. Borlaug joined a Rockefeller Foundation programme for co-operative wheat production in Mexico. Within 20 years he was able to find a high yielding short duration, disease resistant wheat. Borlaug used a practice considered controversial at the time: *shuttle breeding*. With this technique he successfully shortened the time needed to obtain varieties from about ten years to five - its wide adaptability being attributed to eliminating day-length sensitivity (photoperiodism) in flowering.

In 10 years, varieties yielded 1370 kg/ha from a base of 365kg/ha and Mexico stopped importing wheat from 1956. India and Pakistan were having trying times and huge imports regularly appeared to be the order of the times. On being consulted, Dr. Borlaug visited India in 1963 on invitation from Ministry of Agriculture, roamed the fields of N. India with Dr. Swaminathan and provided a range of materials in Sept. 1963. The semi dwarf varieties performed very well under Indian conditions given good fertilization and irrigation. Soon India and Pakistan both became self sufficient in cereal production. Chinese Scientists ultimately followed in the footsteps of western researches, using semi dwarf varieties to establish food security in China in eighties, setting the stage for its rise as an industrial power.

Borlaug's scientific work led him to being awarded the Nobel Prize for Peace in 1970. He was also a recipient of

the Padma Vibhushan in 2000 - India's second-highest civilian honour.

His successes along with his colleagues in wheat and rice breeding are now referred to as '*green revolution*'. In addition, Dr. Borlaug also received



Source : hinduonline 13.09.09

extensive recognition from Universities and organizations of six countries that included Canada, India, Mexico, Norway, Pakistan and U.S. When CIMMYT was established, Dr. Borlaug was made the Director of its International Wheat Programme.

Borlaug was especially proud of his role in establishing the World

Food Prize in 1986. This prize has grown in stature and is now considered equivalent to the 'Nobel Prize' for food and agriculture. In 1986, he joined forces with former U.S. President Jimmy Carter and the Nippon Foundation of Japan, under the chairmanship of Ryoichi Sasakawa, to develop an African agricultural initiative. Over a 20-year period, the Sasakawa-Global 2000 agricultural program, as it is known, has been working in 15 African countries to transfer improved agricultural technology to several million small-scale farmers.

Borlaug was voted a member of the academy of agricultural Sciences of 11 nations, received 60 honorary doctorate degrees from those countries and honoured by farmer and civic associations of those countries. At the United States at the federal level he received the Presidential Medal of Freedom (1972), the National Medal of Science (2002) and the Congressional Gold Medal - the nation's highest citation award in 2007. His wife expired in the same year.

"*Father of Green revolution*" and India's "*annadata*", Norman Borlaug, died of cancer in Dallas on Saturday, 12 Sept. 2009. May his soul rest in eternal peace while his innumerable, able disciples resolve more determinedly to try and free the World of hunger through technology driven food security measures.

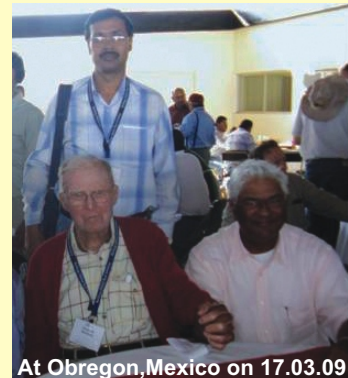
Global Rust Initiative

The Borlaug Global Rust Initiative (BGRI), chaired by Dr. Norman E. Borlaug, was established as an outcome of the May 2005 Expert Panel report on wheat stem rust race Ug99 in Kenya and Ethiopia and its potential impact in neighbouring regions and beyond. The BGRI has the overarching objective of systematically reducing the world's vulnerability to stem, yellow, and leaf rusts of wheat and facilitating the development of a sustainable international system to contain the threat of wheat rusts and continue the enhancements in productivity required to withstand future global threats to wheat.

The 2009 Technical Workshop of the BGRI was held in Ciudad Obregón, Mexico, 17-20 March. The meeting focused on the progress made in developing durable resistance in wheat to black stem rust - particularly the new strain Ug99, which is spreading rapidly; already present in at least six countries, and threatening many others in West Asia, South Asia and North Africa. The workshop began with a keynote address by Dr Norman Borlaug, Nobel laureate and Chair of the BGRI.

Three other meetings were held immediately preceding, or in parallel with the Technical Workshop.

● I HAD an opportunity to meet and interact with Dr. Borlaug during my CIMMYT, Mexico visit in the month of March, 2009. He mentioned that India is one of his most loved countries and advised us **"Don't relax, pathogen never sleeps"**. I cannot but mention that even at the age of 95 and with his ailing health (sitting in wheelchair), he was the leader to take us to the experimental fields at Mexico. His amicable behaviour and charming personality attracted many of his followers in the meet.



At Obregon, Mexico on 17.03.09

Source : Dr. A.K. Chowdhury,UBKV

--**Apurba Kumar Chowdhury**, Department of Plant Pathology, Uttar Banga Krishi Viswavidyalaya, Cooch Behar, West Bengal. Mail:apurba1996@yahoo.co.in

● MY INTERACTION with Prof. Norman Borlaug relates to our organising 2-3 conferences on Ug 99 (Uganda 99) race of black rust of wheat, being viewed as threat to world wheat cultivation. BGRI is the latest borlaugian initiative to help nations to understand and fight Ug99 race of black rust from becoming pandemic. The major funding to BGRI is from Melinda & Bill Gates Foundation. At Simla & Delhi, we did surveillance meeting and a conference respectively where wheat-growing countries showed solidarity in both taking up research programmes and donating funds. In March (16-20), 2009 we met at Obregon, Mexico for finalizing inter-country collaborative research programmes. I saw at Obregon this untiring personality who is revered by Mexican farmers as THE GOD; they gave him a huge cultural show at the luncheon in CYMMIT. On his wheel chair, he went around all the CYMMIT fields where international wheat collections were exhibited.



At Obregon on a wheelchair, 17.03.09

Source : Dr. T.P. Rajendran, ICAR

Dr Norman Borlaug repeated his oft-repeated quote, **"the rust sleeps"**. His word of advice to us was: **"But don't relax. Rust never sleeps"**. He shared with the Indian delegation the nostalgic memories of his association from Green-revolution times to his visit in 2005. He recalled his meetings with Indian scientists and farmers as well as with present Prime Minister and Chief Ministers of many states.

To quote Ronnie Coffman, who directs BGRI, in his today's message to me: *"Today is the first time for all of us to experience a world without Norman Borlaug. Mourning is not something that Dr. Borlaug would appreciate. I think we need to celebrate his life and rededicate ourselves to sustaining the BGRI"*. Durable

solution is finally in hand for black stem rust and this would cause Dr. Borlaug to rest in peace.

--**T. P. Rajendran**, Assistant Director General (Plant Protection), ICAR, Krishi Bhavan, New Delhi-110 114.

● I AM very much emotionally disturbed on receiving the news about the sudden demise of Dr. Norman Borlaug. I had the honour of receiving him in Vadodara airport of India on behalf of the ICAR when he was visiting Anand on 20th March, 2005. After meeting him, I was moved by his grace and his love for Indian farmers. His strength and stamina to work in the field at that ripe age was also a matter of admiration for all of us present there. I feel incredibly fortunate to come close to him even though it was very short and brief.

My prayers for the family of Dr. Borlaug and thanks for letting me share my feelings. World will miss Dr. Borlaug very greatly.

--**Satyabrata Maiti**, Director, Directorate of Medicinal and Aromatic Plants Research (DMAPR), Boriavi 387 310, Anand, Gujarat, India

BEYOND GREEN REVOLUTION (GR)

● **It is said that GR has lead to overexploitation of soils, chemical pollution, and environmental chaos. Your opinion, please.**

Borlaug : The GR is an ongoing continuum. Millions of people are still undernourished in the World. By 2025, the World population will touch 8.3 billion requiring another billion tonnes of additional grain to feed. We have to increase production per unit area or sacrifice millions of acres of forest, destroying wildlife habitat, will have to use more herbicides, further damaging environment. Technology allows us to have less impact on soil erosion, biodiversity, wildlife, forests and grasslands, Higher yield are especially important now due to spreading urbanization which takes away agricultural land. We will need to use both conventional breeding and biotechnology methods to meet the challenges of the country.

● **What do you say to those who oppose the use of agricultural biotechnology (AB) in developing countries. What about allergenic risks of BT products?**

Borlaug : A BT will help these countries accomplish things that they could never do with conventional plant breeding. The technology is more precise and farming becomes less time consuming. In short

- ▶ AB is essential in developing nation.
 - ▶ AB double or triple crop yields.
 - ▶ Herbicide resistant crops are important in places like Africa.
 - ▶ Traditional plant breeding methods remain important.
 - ▶ There is no real evidence of toxicity in GM foods.
 - ▶ AB helps force produce higher yield in less land - a very environmentally friendly benefit.
 - ▶ Finally, better agricultural methods for increasing yields will be needed as global population escalates.
- (Source: 2002, American Institute of Biological Science - An Action Bioscience org original interview).



BORLAUG QUOTES

● *Almost certainly, however, the first essential component of social justice is adequate food for all mankind.*

● *Civilization as it is known today could not have evolved, nor can it survive, without an adequate food supply.*

● *The destiny of world civilization depends upon providing a decent standard of living for all mankind.*

● *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.*

● *There are no miracles in agricultural production.*

● *Therefore I feel that the aforementioned guiding principle must be modified to read: If you desire peace, cultivate justice, but at the same time cultivate the fields to produce more bread; otherwise there will be no peace.*

● *"There can be no permanent progress in the battle against hunger until the agencies that fight for increased food production and those that fight for population control unite in a common effort"-1970 Nobel Peace Prize acceptance speech.*

● *"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." - From his 1970 Nobel Lecture.

● *"I now say that the world has the technology either available or well advanced in the research pipeline to feed on a sustainable basis a population of 10 billion people. The more pertinent question today is whether farmers and ranchers will be permitted to use this new technology? While the affluent nations can certainly afford to adopt ultra low-risk positions, and pay more for food produced by the so-called "organic" methods, the one billion chronically undernourished people of the low income, food-deficit nations cannot." -30th Anniversary Lecture, The Norwegian Nobel Institute, Oslo, September 8, 2000.*



QUOTES ON BORLAUG

● *"Some credit him with saving more human lives than any other person in history." -Bruce Alberts, President, National Academy of Sciences, U.S.*

● *"Norman Borlaug is the living embodiment of the human quest for a hunger free world. His life is his message." M.S. Swaminathan, M.S. Swaminathan Research Foundation (India).*

● *"For fifty-two years, Dr. Norman Borlaug has been helping to provide more food to the most needy areas of the world... The passion that drives Dr. Borlaug's life is an inspiration for all of us to follow. Since 1986, we've worked together through Global 2000 of The Carter Center and the Sasakawa Africa Association to help small-scale farmers to improve agricultural productivity and crop quality, sometimes two or even threefold. It has been an*

honour to collaborate with Dr. Borlaug. He is a true humanitarian and a dear friend."- Jimmy Carter, 39th President of the United States and 2002 Nobel Peace Prize Laureate.

● *"It gives me great pleasure to add my voice to all those paying tribute to Dr. Norman E. Borlaug on his 90th birthday. As we celebrate Dr. Borlaug's long and remarkable life, we also celebrate the long and productive lives that his achievements have made possible for so many millions of people*

around the world. And as the United Nations continues its efforts to reach the ambitious but achievable Millennium Development Goal of reducing, by half, by the year 2015, the proportion of people who suffer from hunger, we will continue to be inspired by his enduring devotion to the poor, needy and vulnerable of our world. Dr. Borlaug, for your many contributions to the work of the United Nations, please accept my best wishes on this happy occasion."--Kofi Annan, Secretary General of the United Nations.

● *"If there's one thread running through Borlaug's life it's doing -- acting with fierce determination.... He is the scientist and the dirt farmer; the advocate of common sense and the master of political subtleties; the humanitarian and the pugnacious fighter; the idealist and the consultant to governments of every political ideology. He has been called a peaceful revolutionary, and the tension in that term - between benevolence and aggressiveness - seems particularly apt." -From the University of Minnesota College of Agriculture, Food and Environmental Science.*

**BGRI Members,
Dr. Ed Runge has let us know that a Memorial Service will be held on October 6th at 11 AM in Rudder Auditorium on the Texas A&M campus. Dr. Runge also indicated that a Symposium Celebrating Dr. Borlaug's life beginning at 2:00 or 2:30 PM will be an opportunity for colleagues of Dr. Borlaug to make brief comments on how they remember Dr. Borlaug. The location is not confirmed but it will be in the Rudder Conference Center and near the Rudder Auditorium. It will immediately follow the reception and lunch after the Memorial Service. Regards**

Ronnie Coffman, International Professor of Plant Breeding and Director, International Programs, Cornell University, Ithaca, NY 14853 USA

Thank you Norman Borlaug for providing us the tools of food security-AAPP Group