

Looking Back and Looking Ahead: What Norman Borlaug Might Say Today

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In October 2000, the very first year I led the World Food Prize, I arranged for Norman Borlaug and about 8 or 9 Laureates to hold a press conference in order to draw attention to our events. The subject they chose to emphasize was the need for increased public funding of research on agriculture. They stressed the importance of such research in having produced the gains of the previous decades as part of the Green Revolution, but lamented what they saw as declining support to both U.S. Land Grant institutions and international agricultural research centers such as CIMMYT, IRRI and CIP where many of them had served.

If Norm were speaking in 2020, I believe that increased support for public research would still be at the top of his agenda for the next 30 years. Given the need to dramatically increase the amount of food produced in order to feed the 9 to 10 billion people who will be on our planet by 2050, Norm would say that we have two choices: Either we invest in science and research in order to significantly increase the yields of crops planted on the land currently under cultivation; or people will plow under the remaining forests and animal habitats in order to increase the amount of land on which to plant staple crops.

In his valedictory address in 2004 at the World Food Prize, entitled "My 60 Years of Fighting Hunger," Norm took great pride that the crop yield increases during the Green Revolution had saved a billion people from starvation and death AND at the same time had spared one billion acres of land that did not have to be plowed and cultivated. With a smile. Norm noted that he may have saved more forests through his work as a plant scientist than he ever would have as a forester (which was his original undergraduate major at the University of Minnesota). But in 2020, I believe that Norm would even more lament the declining levels of support to public agricultural research in the United States. He would warn that unless this trend is reversed, that

the unthinkable could occur: America could lose its place as the world leader in agricultural science and production, a position it has held for over 100 years.

In looking back, from 1944 when his work began with the Rockefeller Foundation in Mexico up to the mid-1960s when he brought his new "miracle wheat" to South Asia and the Middle East, Norm gave great emphasis to the impact of increased irrigation and fertilizer use in dramatically increasing yields of wheat and rice. At the same time, given growing global water insecurity as well as the importance of careful and limited use of any agricultural amendments including fertilizer and pesticides, I feel certain that Dr. Borlaug would be a powerful advocate for precision agriculture, which can determine the timing for injections of precise amounts of water and other added elements to each seed.

Norm said that he believed deeply in the power of science and particularly the great benefits that transgenic innovations could have. Biotechnology, Norm posited, was a science that could uplift poor, smallholder farmers (particularly women farmers) out of poverty by giving them the ability to deal with the vagaries of climate volatility, such as droughts, floods and salt water intrusion. This he believed was particularly the case in Africa and South Asia.

One of his actions in 2008, the last World Food Prize Norm ever attended, was to meet with the Laureate Selection Committee to urge their consideration of awarding the Prize to the pioneers of biotechnology. This he believed would provide a stamp of approval for the science and the genetically modified seeds. Five years later, those three individuals were honored with the World Food Prize. But, Norm would likely be dismayed that GMOs have, nonetheless, continued to be demonized, including in the U.S. where "GMO-Free" advertising is prevalent in supermarkets. At the same time, I think Norm would be extremely pleased that the development of CRISPR technology was honored with a Nobel Prize.

In looking ahead in 2020, I believe Norm Borlaug would feel compelled to address a subject that he never had to confront in life: Whether his own country still has it as a national goal to reduce

hunger and food insecurity around the globe. For Norm, it was a given that American agriculture and US agricultural policy would be guided both by ensuring a nutritious diet for Americans at home, while also sharing our science, experience and surplus food production to eradicate hunger in the world. In 2020, however, I believe Dr. Borlaug would perceive reduced levels of U.S. foreign aid and a greater focus on America just taking care of itself, as being a potential fundamental shift of priorities. Given his lifelong commitment to eradicate hunger and poverty, and particularly to uplifting Africa through a Green Revolution which began with his first trip there in 1986, the same year he founded the World Food Prize, Norm would be calling on both presidential candidates to include increased focus on Africa in their campaigns.

If Norm were to look back over the 50 years since he was awarded the Nobel Peace Prize in 1970, I believe he would refer to the first World Food Prize Laureates M.S. Swaminathan of India and 2004 Laureate Yuan Longping of China. Together, they are arguably the three most significant agricultural scientists during those five decades. Norm would say that the legacies of India and China clearly show that increased agricultural production through scientific innovation combined with enhanced rural infrastructure such as roads are the keys to meeting the great challenge before our planet in the coming three decades, particularly across Africa. He would endorse M.S. Swaminathan's call for an "EverGreen Revolution," with broad support for biodiversity.

He would observe how proud he is that Laureate Catherine Bertini of the United Nations is receiving reflected recognition through the Awarding of the Nobel Peace Prize to the World Food Programme, the organization that she led for a decade. Ensuring that no one starves or becomes malnourished is critically important, particularly during wars and conflicts.

And then, Norm would call on all of the living Laureates and say how very proud he is of their achievements in so many areas, referring to them as the leaders of what has been the single greatest period of food production and hunger reduction in human history. And then Norm would

shout so that everyone could hear him that the challenge before our planet is that we have to do it again. He would warn that it will be even more difficult given the vagaries of climate volatility, the re-emergence of insect swarms and the devastating impact of COVID 19 in increasing food insecurity.

With all of the above in mind, Norm would conclude with several final calls to action:

First, to encourage the innovations needed to greatly increase crop yields and enhance nutrition, in addition to increased funding for research he would urge more nominations for the World Food Prize. Norm would express his great pleasure that there are now six women Laureates, six from Latin America, six from Africa and one from the Middle East, whereas there had been none in any of these categories in 2000, when Norm and I began our decade of working together. But, never one to dwell on compliments, Norm would say that this was a good start, many more were needed.

Second, to world political leaders, Norm would encourage them to join together in collaboration to build and maintain the peace needed to end global hunger and provide the funding to build roads and needed infrastructure. Reflecting the theme of Peace Through Agriculture, Norm would urge that governmental leaders, agribusiness CEOs, research scientists, NGO executives, educators and hunger advocates all come together with leaders from organizations such as the Gates and Rockefeller Foundations, the World Bank and regional banks such as the African Development Bank, the CGIAR system, AGRA, IFAD etc. to assess whether we are on course to feed 9 to 10 billion people. Norm would say that only if these scientists and experts and organizations can work together in a peaceful environment, could we hope to sustainably produce sufficient nutritious food to feed all 9 to 10 billion people who will be on our planet by 2050.

Then, recalling the key point from his 2004 valedictory address during which Norm linked low education levels with increased incidence of hunger and conflict, he would stress the critical

need for roads and schools being built in the poorest parts of Africa. Roads, Research and conflict Resolution were key to uplifting Africa.

Finally, Norm would note that it was absolutely essential to "inspire the next generation." Speaking directly to young teen age students attending the World Food Prize Global Youth Institute and Youth Institutes across America and around the globe, he would exhort them to commit themselves to this the greatest challenge that their generation must confront - - ending hunger and promoting global food security. He would tell young women that they have a special role in leading this endeavor.. As he did in 2004, Norm would urge all youth to "Reach for the Stars," reminding them that "you just might get stardust on your hands."