

Influenced for life – the Norm Borlaug effect

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The most inspirational research leader, whose dedication I most admire, has been Norm Borlaug.

While doing graduate studies in 1967 at the Waite Agricultural Institute section of the University of Adelaide I first learnt of CIMMYT, the International Wheat and Maize Improvement Centre, where Norm led the wheat program with the world's largest wheat breeding program.

The leader of plant breeding at Waite section was Keith Finlay, famous for his study of genotype X environment interaction whereby in varietal yield trials ranking changes when grown in different and widespread locations, and the formulation of specific and of general adaptability of varieties. This influences the choice of which variety to release to farmers, and was of great interest to Norm, both for wheat improvement in Mexico and for utilization of the new semi-dwarf Mexican varieties in India and Pakistan. Norm gave a very inspiring seminar at the Waite and within 2 years Keith had joined CIMMYT.

En-route to PhD studies at Cornell University, I had a stop-over in Mexico to visit CIMMYT. After graduating I was fortunate enough to obtain a post-doctoral fellowship there. In Mexico CIMMYT accelerated plant breeding with 2 breeding generations per year, at Obregon in north Mexico in winter with the main selection and breeding nursery over many hectares, followed by multiplication of just harvested selections at Toluca near Mexico City. Here selection was conducted for multiple disease resistance and immediately after harvest were transported to Sonora.

This very dynamic program saw Norm active in the field at each location. At Sonora the location was at a Mexican research station, where Norm was always in the field and any messages had to be relayed to him by office staff riding and moped around the fields to find him. Often, he would write a short reply on the spot to be couriered back, and continued the field work of selecting better genetic progeny from new crosses amongst the world's leading varieties. This very refreshing attitude towards the main focus, continued even after he won the Nobel Peace Prize in 1970.

I was amazed at my good fortune in having this experience, and benefit of Norm's field talks to international trainees who visited each year. Norm emphasized the importance: of good management and agronomy to obtain the best out of improved varieties, the vigilance required to monitor disease threats, and the need to provide farmers in their home countries a package of improved practices for the varieties selected for adaptation to the climates and diseases of their regions. This was repeated many times. The farmer was No 1, and improving his situation was the purpose of CIMMYT. The other part of the message was capacity building, and the key role of returning trainees in transferring these agricultural improvements around the world.

Norm was wholly dedicated, and he expected the same of the whole team, combined with a high standard of excellence in field work making crosses and taking disease notes, and writing up reports. I was imbued with the importance of this work, motivated and inspired with the opportunity to make a difference. I learnt that the key purpose in other countries was to assist the professional development of local staff, foster their capability and work my way

out of a job. Food security was a mission, which could only be achieved by the locals themselves. Change agents needed to be unselfish, generous and helpful. These values espoused by Norm had a lasting effect for my whole career.

In 1975 I was in northern Nigeria to help improve irrigated wheat production. Training of extension workers was a key part, as too was the establishment of a wheat research centre south of Kano. I joined the IITA cowpea program as a breeder in 1977, with a much wider target throughout the tropics, and international trainees each year. Besides an active involvement in training diverse staff from many countries with francophone translators, I also supervised graduate students. Norm visited IITA at that time, and I took him on a tour of the cowpea breeding program, where he again emphasized high quality field work and disease assessment. News came through of Glen Anderson being stricken with a fatal illness greatly upsetting Norm, as Glen was the designated next leader of the CIMMYT wheat program. I was very upset too having worked with both under the blazing Sonora sun. Together they took on impossible odds to enable India to become self-sufficient in wheat and food secure. Glen Anderson died in his home town in Canada in 1978.

Back in Australia in 1982 as a legume breeder I established collaboration with the International Phaseolus Bean program of CIAT Colombia, the national legume program of China, and legume programs in India. The latter was led by Shyam Yadav who was also influenced by Norm Borlaug. Together we collated input from authors internationally and published various articles and 5 books on climate change and agriculture, the most recent being “Food Security and Climate Change”. This continued Norm’s message of placing the farmer and agricultural development first, but now with the added challenges of a changing world and threats to food security especially in many parts of Africa and the Indian subcontinent.

I had the privilege of leading a team in an ICRISAT commissioned review of its research program in Sub-Saharan Africa in 2012. This was another opportunity to put the farmer and local infrastructure first, and to suggest ways by which ICRISAT could be a more effective change agent to extend its excellent research and development. During this tour I had the opportunity to be acquainted with Ruth Oniang’o as a member of the review team.

Yesterdays’ trainees now lead regional research in Africa and India. The spirit and inspiration of Norm Borlaug continues to live on.