

Ending hunger: Can we achieve humanity's elusive goal by 2050?

Bram Govaerts' Remarks for The Oxford Farming Conference

Hunger has been humanity's enemy since the beginning. Even today 13 percent of the world population suffers from hunger. In other words, there are 780 million people that go to bed hungry every day. Although there have been important achievements in the fight against hunger in the past century, we have not been able to eradicate hunger. For that reason, the new sustainable development goals still address this basic need: *End hunger, achieve food security and improved nutrition and promote sustainable agriculture.*

How can the world achieve an elusive goal in the face of climate change and population growth? What needs to be done today to feed an estimated 9.3 billion population in 2050?

According to Megan Clark from the Commonwealth Scientific and Industrial Research Organization (CSIRO) the world will need to produce over the next 50 years as much food as has been consumed throughout history to feed a 9.3 billion population. Moreover, global food production gains will have to be achieved despite climate change and without expanding the agricultural frontier at the cost of forests and wildlife. Farmers around the world will have to produce more with the same amount of natural resources or even less.

The answer to achieve this goal lies in sustainable intensification strategies based on sound agronomy and crop science, but also on new technologies tailored to the needs of small and resource-constrained farmers, and enabling public policies. At the International Maize and Wheat Improvement Center, we are working in different aspects of this sustainable intensification strategy to fight hunger and poverty across the developing world.

There are two ingredients key to increasing basic grain production: improved seeds and sustainable farming practices. To develop improved seeds, we must apply cutting-edge crop science to increase crop yield potential, disease resistance, climate resilience and nutritional content. We improve yield potential to harvest more grain in the same arable land and in the most resource efficient way. CIMMYT is very strong in this area of research having developed 70 percent of the high-yielding wheat varieties and 50 percent of the modern maize varieties currently grown in developing countries.

At the same time, we have to strengthen crop resistance to old and new diseases. At present, CIMMYT is developing and releasing new maize varieties that are resistant to Maize Lethal Necrosis and Tar Spot Complex, two new diseases present in Africa and Central America, respectively, that have devastating effects in maize production. In addition, we are working on wheat and maize tolerance to the heat and drought conditions observed more frequently across the world as a result of climate change.

However, all these improvements cannot bear fruit without agronomic innovation, without sustainable farming practices. Agronomy is necessary to make an efficient use of scarce natural resources, such as water and fertilizer. But we also need agronomy to conserve soil health and nutrients which is essential to raise and maintain agricultural productivity.

To put it simply, growing improved crops without agronomy is like running a Ferrari on gravel roads. You are not going to be able to realize the full potential of the crop, or the engine if you will, without sustainable farming practices.

There is more to agronomy than hard field work. There is a dire need for research, development and adaptation of information and communication technologies to answer the specific needs of small farmers around the world. Almost every farmer in Mexico and other countries around the world has a mobile phone. Why not develop an application that helps these farmers estimate optimal fertilizer doses for their plots of land?

Mobile technology could also be used to the benefit of larger farmers who receive alerts from sensors on a satellite to fertilize or irrigate large extensions of land. These technologies have been developed and are currently used in the US and Europe but also in Mexico, parts of Africa and India.

Sometimes the answer to food security is not to produce more but to produce more efficiently and to reduce food losses. To help with that we have also developed 16 prototypes of smart machinery adapted to different scales, from self-consumption to commercial agriculture. We also design and promote the use of postharvest technologies that help reduce losses of up to 40% in places where farmers have little or no access to storage facilities.

These are just but a few examples of the solutions that need to be developed and perfected for sustainable farming. I cannot believe that, to this date, there is more technology in a soda vending machine than in a four-wheel tractor!

The agricultural sector needs to attract more talent and more resources for research and capacity building activities. I believe that the Oxford Farming Conference is a great and commendable effort in that direction.

But we also need to accompany this effort with enabling public policies. Governments have a key role to play in investing resources in public agricultural research, in offering farmers training and technical advice, in building infrastructure and making credit accessible to small farmers.

We cannot cut subsidies from one day to the next. But we have to prepare the terrain and invest in small and family farming to increase agricultural productivity and market access across the world to achieve the production gains that we need to feed a growing and wealthier population.

The work ahead may look daunting but I believe there is a lot of potential and talent in this room, in Oxford University, and in many other higher education institutions that could raise to the challenge. The problem is that people do not eat potential or talent. So if we fail to attract and retain your talent in the agricultural sector we are not going to be able to feed the world population by 2050.

So help us make agriculture sexier! Help us find the resources, help us develop the new technologies and transfer them to the farmers of the world. Help us make the decisions today to end hunger tomorrow!