

FOOD SECURITY: WHY PLANT HEALTH MATTERS



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Rapid food price rises have highlighted serious concerns about food security globally and have had a huge impact on achieving Millennium Development Goal 1.

Feeding a predicted world population of 9.5 billion in 2050 when there are an estimated 1 billion still going hungry today will be a challenge requiring the application of the best scientific techniques as well as the development of new approaches.

Over the last 30 to 40 years there has been chronic under-investment in agriculture at all levels. Development aid to agriculture has declined and often in-country policies do not support the sector. Low crop yields are common in many developing countries.

Improved productivity is vital to reducing rural poverty and increasing food security. Scientists throughout the world are working on developing new crop varieties, improving land use, and enhancing soil fertility and water management. This work is important, but there is also a way that we can feed millions more people right now, without the need for extra land, water, fertilisers, or chemicals – and that's by making sure that we lose less of what we already grow.

Currently, it is estimated that one third to one half of all food produced is lost from 'field to fork'. This is due to pre- and post-harvest losses as well as waste in the retail sector and at the consumer's table. Quantitative data on crop losses is very limited, but estimates of 30 to 40 per cent are common in scientific literature. A large proportion of this is due to pests and diseases. And with climate change, trade flows, and population movement all increasing, the rate at which these plant health problems arise and spread is also multiplying.

For example, the wheat rust Ug 99, which was discovered in Uganda in 1998 and reported in 1999, is now established in the Eastern Africa highlands and

spreading. In Kenya, wheat losses due to Ug99 are over 70 per cent of total production in some areas. Production losses have led to higher prices in local markets with a resulting impact on low income families and an increase in food insecurity. Imagine what will happen as it spreads into the high-yielding production systems of South Asia and beyond.

Another example of a disease that has had a significant impact is Coffee Wilt disease, which attacks coffee species in Central and Eastern Africa. Whilst coffee is not a staple food crop, its production has indirect implications for food security through decreasing income security. Coffee Wilt disease kills coffee bushes so that, very soon after its detection, farmers experience a complete loss of income from coffee. A 77 per cent loss in yield of robusta coffee at the national level in Uganda was reported in 2009.

Trans-boundary pests and disease such as these are serious threats to food security. They jeopardise the livelihoods of millions, and therefore national economies and political security too. Ug99 is also a threat to wheat production worldwide – and yet few people outside the specialist scientific community are aware of it. There is a need for increased awareness about plant health issues by the public, by policy-makers, and by decision-makers who should be aware of the impact on food security and should be committing funds to dealing with plant health issues.

Management of pests and diseases is heavily dependent on early detection so that eradication can be attempted and, if this is not possible, management practices can be established. Just as there are few systems in place to gather data on pest losses, so systems for effective detection, identification and monitoring are not in place, and in some cases information about new threats are ignored by the authorities.

With the right knowledge we could identify pests and diseases earlier, slow down their spread and provide the correct treatments before yields are significantly affected. For every 1 per cent reduction in crop losses, we could potentially feed up to 25 million more people.

So how do we get that knowledge? A solution will be to develop better systems for monitoring and detection. In order to do that we need to make the general public more aware of the issues involved, as well as governments and aid agencies. But with the appropriate support, a "knowledge bank" covering all major food and cash crops could be up and running within three years. Indeed, CABI has already made a start on developing a prototype that could be delivering useful data on a few key crops within a year. Using this in conjunction with the CABI-led Plant Health Clinics, which provide advisory services to the hardest to reach smallholder farmers, we will have the beginnings of a field-based early detection system.