



ENSURING RESILIENCE OF MAIZE PRODUCTION AND QUALITY IN A CHANGING CLIMATE

Locations Democratic People's Republic of Korea

Dates 01/04/2020 - 31/03/2024

Summary

Climate change is impacting on the agricultural sector in DPR Korea (DPRK), with extreme weather events becoming more common. This has led to increased damage to the main staple crops, rice and maize. Maize in particular is vulnerable to damage in the field and subsequent colonization by toxin producing fungi. These toxins are an immediate and long-term hazard to health, particularly for vulnerable groups such as children. CABI is working with the Ministry of Agriculture (MoA) in DPRK, and key local stakeholders, to increase the resilience of the maize value chain to the impacts of climate change, and in particular reduce contamination by these harmful fungal toxins.

The problem

Climate change, in DPRK, has resulted in extreme weather conditions; long periods of drought and high temperatures, followed by intense rainfall. This has led to an increasing amount of damaged maize cobs, colonised by fungi. Fungal presence can be linked to contamination by mycotoxins (toxic chemicals produced by some fungi), especially aflatoxins produced by *Aspergillus* species.

Maize is particularly prone to contamination by these fungi pre and post-harvest. The contamination risk increases in the field with high temperature, drought stress and pest damage, and during storage with high temperature, humidity and pest damage. Consumption of foods containing high aflatoxin concentrations can cause acute health effects (e.g. liver cirrhosis) and even death, while chronic exposure may cause cancer, stunting in children, immune system suppression and an impaired ability to absorb nutrients.

CABI is working with the MoA in DPRK to make the maize value chain more resilient to current and future impacts of climate change, through the application of Integrated Crop Management. Reduction in the incidence of pests and fungal pathogens will help to increase yields, reduce post-harvest losses and maintain maize quality. Through the reduction in contamination by aflatoxin producing fungi, it will ensure maize quality and yield are maintained and contribute to the improved health of the population, in particular children.

What we are doing

The project aims to enhance awareness and institutional capacity in the maize production sector to detect, manage and mitigate climate change-related increase in aflatoxin contamination at pre and post-harvest stages and at multiple stakeholder levels (household, co-farm and county).

Key activities of the project:

- A situational analysis of aflatoxin incidence, awareness and current management strategies, and a project implementation plan agreed by all partners
- Assessment of good agricultural practices to mitigate climate change-related increase in pre-harvest/harvest aflatoxin incidence in maize
- Identify and validate best practices to minimize aflatoxin contamination at post-harvest and storage
- Dissemination of aflatoxin best management practices for large scale uptake and sustainability

Donors

European Commission, Directorate-General for International Cooperation and Development

Partners

Academy of Agricultural Sciences, DPR Korea, Ministry of Agriculture, DPR Korea

CABI Project Manager

Keith Holmes



<https://www.cabi.org/what-we-do/cabi-projects/>