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# Pest-disease control in CA

Pests are organisms or entities that disturb or disrupt the normal growth of plants or reduces the yield of the plants. These include weeds and/or insects. Pathogens are microorganisms that cause diseases in plants and animals. They include bacteria, fungi, viruses or nematodes.



## Why we need to control them

Crop losses due to pests and diseases are a major threat to incomes and food security of thousands of rural families worldwide.

At a global scale, pathogens and pests are causing wheat losses of 10 percent to 28 percent, rice losses of 25 percent to 41 percent, maize losses of 20 percent to 41 percent, potato losses of 8 percent to 21 percent, and soybean losses of 11 percent to 32 percent, according to the study, published in the journal Nature, Ecology & Evolution.

Protection against losses caused by crop pests and plant diseases can therefore play a critical role in improving food security and meeting the growing demand for food quality and quantity in Africa, Ethiopia included.

## How to control pests & diseases in CA

The control of pests & diseases in CA requires the integration of several management components, which include the use of disease resistance varieties, biological diversity on-farm, and preventive and curative measures. Preventive measures focuses on keeping existing pest populations & diseases low. Control focuses on killing pests and diseases.

### Preventive crop protection measures

- Selection of adapted & resistance crop varieties
- Selection of healthy & disease free clean seed and planting material
- Selection of optimum planting time & spacing of crops
- Integration of diversity through crop rotations, intercropping, alley cropping, multi-tier cropping
- Balanced nutrient management and addressing secondary or micronutrient deficiency
- Maintenance of soil health & biological activity through timely incorporation of organic manures
- Timely weed management
- Effective water management preferably through efficient irrigation systems
- Conservation & promotion of natural enemies
- Use of proper sanitation measures & timely removal of infected plant parts from the ground to prevent the disease from spreading, eliminating residues of infected plants after harvesting

### Preventive crop protection measures

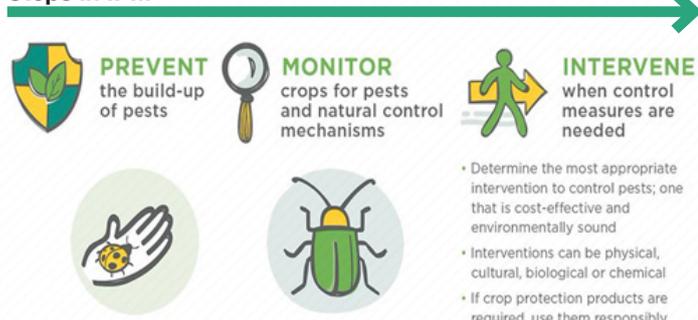
These may involve physical or chemical measures or a combination of the two. Physical methods are non-chemical & involve physical detection of pests & using different methods to eliminate them. These methods are mostly used for macro pests such as rodents. Chemical control measures involve use of chemical substances (pesticides & insecticides) to get rid of pest-diseases from the farm. Chemicals, while very effective, are highly poisonous & toxic, harmful to humans & the environment, and should be used judiciously, preferably in combination with other control measures. They also tend to be costly, may not be readily available and require specialized equipment to apply.

### Integrated Pest Management (IPM)

IPM is a holistic approach to pest management. IPM is an effective and environmentally sensitive approach to pest management that relies on a combination of common-sense practices. IPM programs use current, comprehensive information on the life cycles of pests and their interaction with the environment. This information, in combination with available pest control methods, is used to manage pest damage by the most economical means, and with the least possible hazard to people, property, and the environment.

IPM takes advantage of all appropriate pest management options including, but not limited to, the judicious use of pesticides

### Steps in IPM



### The IPM Pyramid

