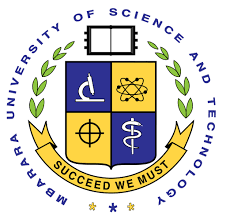


Crop disease diagnosis

DATABASE PROJECT PROPOSAL



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1. What is the problem?

The lack of accessible, efficient, and accurate diagnostic tools for crop diagnosis for farmers. Traditional plant disease detection methods often rely on visual inspection and are time consuming and subjective. This leads to delayed interventions and ineffective control measures.

1. Where is the problem?

This issue is most acute in developing countries where smallholder farmers depend on agriculture for their livelihood but lack the resources and access to reliable disease management tools. Regions with tropical climates, such as Central Africa, Sub-Saharan Africa, and parts of Asia, are particularly vulnerable to the spread of crop diseases due to favorable environmental conditions and insufficient infrastructure for early diagnosis and response.

1. Why should we care about the problem?

Without improved diagnostic and disease management systems, food security is at risk on a global scale. Crop diseases not only lead to economic losses but also drive up food prices, contribute to food shortages, and worsen poverty in farming communities. Strengthening disease detection can help stabilize food supplies, secure farmer incomes, and reduce reliance on chemical treatments that can harm soil health in the long term.

1. Who says there is a problem?

Agricultural experts, such as the Food and Agriculture Organization (FAO), International Institute of Tropical Agriculture (IITA), and researchers like Professor Sarah Gurr of the University of Exeter, emphasize the need for enhanced disease management to safeguard food security. Numerous studies and reports by institutions like the UN and World Bank warn that inaction could lead to serious consequences for the global food supply.

1. How big is the problem?

The global population is projected to grow to around 9.6 billion by the year 2050 and continue increasing to 10.9 billion by the end of the century. Given the current trends and projected population growth, an increase in food production by 60% - 70% is required for the global food supply to keep pace with the growing population. While there is a demand for increased food production, pests and disease remain major challenges to global food productivity responsible for up to 20% - 40% of food loss while costing the global economy $220 billion. The inability to provide interventions may lead to more loss, thus, several measures have to be taken to prevent 100% yield loss and exacerbate food insecurity.

**References**

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