

Source: <https://www.flickr.com/photos/cgiarclimate/7255139398>

**5. Crop management practices:** These practices involve timely planting, appropriate use of inorganic fertilizers, utilization of manure, crop rotation, timely weeding, earthing up, and intercropping.



*Inorganic fertilizer, DAP*



**6. Integrated pest management (IPM)** encompasses various strategies, including avoidance through the selection of tolerant varieties and/or early planting, field sanitation, scouting, cultural, biological, mechanical, and chemical methods, all aimed at controlling pests while ensuring the safe use of pesticides.

Other strategies include agroforestry, renewable energy and improved postharvest handling and processing practices.



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## CLIMATE-SMART TECHNOLOGIES AND MANAGEMENT PRACTICES IN POTATO PRODUCTION





## Introduction

Climate-smart technologies and management practices in potato production offers sustainable solutions to mitigate the impact of changing environmental conditions on crop yield and quality. Given the adverse effects of climate change, including extreme weather events like hurricanes and droughts, implementing such strategies becomes crucial. These technologies and practices can help counteract the negative consequences such as complete crop loss, intensified pest pressure, and elevated postharvest losses attributed to accelerated deterioration.



*A field of potatoes flooded after a heavy storm*

Conventional potato production practices, including land preparation, fertilizer application, water supply, pest management, harvesting, and postharvest handling technologies, among others, have contributed to the release of greenhouse gases such as methane, nitrous oxide, and carbon dioxide, which are responsible for climate change. However, potatoes must continue to be produced to feed

growing populations and ensure food and nutritional security. Therefore, the agri-food system must adapt to climate change and drastically reduce greenhouse gas emissions.

## What is Climate-Smart Agriculture (CSA)?

Climate-Smart Agriculture (CSA) encompasses a collection of technologies and practices aimed at enhancing productivity, resilience, and reducing greenhouse gas emissions. It addresses climate change within the agri-food system, considering synergies and trade-offs between productivity, adaptation, and mitigation. The CSA practices comprise a diverse range of tailored techniques and technologies, including the adoption of climate-smart crop varieties, conservation agriculture, agroforestry, precision farming, water management strategies, and improved livestock management.

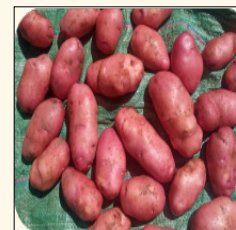
In potato production, climate-smart technologies and practices are divided as follows:

### 1. Adoption of climate-smart potato varieties

KALRO has developed potato varieties Shangi and Unica, which are resilient to changing climatic conditions and offer high yields. By adopting these varieties, farmers are empowered to effectively mitigate risks and adapt to the challenges posed by climate change.



*Potato Variety Shangi*



*Potato Variety Unica*

**2. Sustainable land preparation practices-** Conservation Agriculture technologies (bush clearing, minimum tillage and zero tillage)

**3. Soil fertility management** – They include use of agro-weather advisory, soil testing, mulching, composting and vermiculture, use of cover crops, use of lime, use of inorganic fertilizers and use of manure

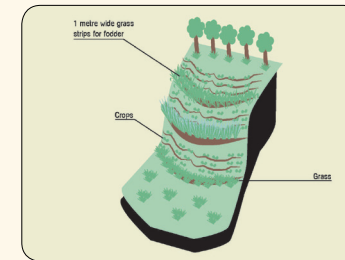


*Soil sampling in farmer's field for Soil testing*

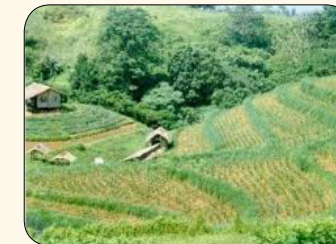


*Healthy soils*

**4) Soil and water conservation practices:** These practices include cut-off drains, terracing, vegetation strips, water harvesting and storage, agroforestry, and irrigation



*Vegetation strips (Source: Climate Resilient HandBook, 2020)*



*Terracing done on small scale farms*