POSTHARVEST CONTROL OF WARE POTATO SPROUTING DURING STORAGE

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Introduction

• Potato plays an important role in national food security and nutrition, poverty alleviation and income generation, and generates employment in the production, processing and marketing subsectors

• 1/3 of population is food and nutrition insecure

• 2\textsuperscript{nd} most important food crop and an important cash crop
Introduction Cont’

• Efficient crop in converting natural resources, labour and capital into a high quality food with wide consumer acceptance

• Its short vegetative period, 2-3 crops/yr, thus producing several times more food/unit area

• Source of carbohydrates, proteins, vitamin B, ingredient of weaning foods
Problem statement

• Main problems faced by growers include:
  – low productivity & high postharvest losses
• High Postharvest losses (40%) can be attributed to inappropriate varieties and poor storage technology.
• A rising population threatens Kenya’s food security
• Potato’s role of solving country’s food needs has not been fully exploited
justification

• Poor postharvest handling practices result in high postharvest losses and on-farm storage is absent, thus further compounding the problem of food insecurity.

• Potato is good candidate to alleviate food insecurity due to its advantages of productivity/unit area and potential for intensive cultivation.

• Measures need to be put in place to prolong the postharvest life of ware potatoes to provide a greater window of time for consumption and marketing of the produce.
• Appropriate sprout inhibitors will help alleviate postharvest losses
• Pre-harvest applied sprout inhibitors have not been tried
• Tuber applied sprout suppressants have not been tried on Kenyan grown varieties
objectives

Overall objective
• Develop and validate technologies that enhances the keeping quality of ware potato

Specific objectives
• determine tuber applied sprout suppressants efficacy against foliar applied sprout suppressants in inhibiting sprouting of ware potato.
• determine effects of storage conditions on the efficiency of sprout suppressants
• Assess the effect of the treatments on tuber quality
MATERIALS AND METHOD

• Potato tubers will be field-grown at University farm in 2 lots
• The Experiment will be laid out in a RCBD with a Split plot arrangements.
• Main plot treatments will include application of sprout suppressants as spray in the field during growth (lot 1); and applied on potatoes during storage (lot 2).
• varieties will occupy the sub-plots
Varieties to be evaluated will include:

- short, medium and long dormancy, Red and white skinned types which are Kenya sifa, Tigoni and Kenya karibu respectively.
Foliar applied sprout suppressant treatment will include Ethrel and paclobutrazol applied at flowering and repeated two weeks after full bloom.
Tuber applied sprout suppressants treatments will include

Application of:-
Chloropropham (CIPC)
peppermint
dimethyl napthalene
hydrogen peroxide plus (HPP)
• The study is also designed to assess efficacies of some sprout inhibitors during storage at 10°C, 15°C and RT on their sprout suppressing abilities
Measurement of parameters

Storability:

- sprout weight will be assessed for each potato tuber as a percentage of the sum of the total weight of the potato tuber and the sprout
- Sprout length will be monitored once the ware potatoes begin to break dormancy
- Number of sprouts per potato
- Sprout vigor
- Days to 50% sprouting
Quality of Processed products: Chips and crisps
• Colour
Cost-benefit analysis
statistical analysis

• Analysis: ANOVA, $\text{LSD}_{0.05}$
• Experimental units will consist of 200 tubers per treatment replicated 3 times
Expected output

• Technologies for ware potato storage developed and validated leading to minimization of spoilage, improved ware potato quality

• Cost benefit analysis of technologies that enhance potato postharvest storage determined
# Plan of action

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## Budget

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Thank You