

SOKOINE UNIVERSITY OF AGRICULTURE



DEVELOPMENT STUDIES INSTITUTE

RESEARCH PROPOSAL CONCEPT NOTE

COURSE: MA RURAL DEVELOPMENT

**AN ASSESSMENT OF THE AVAILABILITY,
TRANSFER AND UTILIZATION OF INDIGENOUS
GRAIN STORAGE PROTECTANTS IN TANZANIA:
*A Case Study of Morogoro District***

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Introduction

Agriculture is the main stay of the rural population representing 80% of the country and depends on it for their livelihood. However, this is the poorest of the community with 40% of it is food insecure, having insufficient food to meet their needs. But the National agricultural policy is to ensure food availability, accessibility, utilization and sufficiency from household to national level. Nevertheless, this is not the case due to a number of reasons including erratic rainfalls leading to low production, poor storage facilities, high grain loss experienced during post-harvest storage, and poor technology.

Farmers all over the world incur serious losses to stored produce due to insect and pests damage and are frequently forced to sell prematurely. Many use traditional storage protectants. The effectiveness of traditional protectants is variable as do synthetic pesticides. Farmers need and demand better options for protecting their grain from storage loss agents so as to be food secure. It has been realized that the indigenous protectants are environmental friendly, less health hazardous, cost effective, easily available, transferable and utilized within the farming community.

The fruits of eight principal cereal crops; wheat, barley, rice, corn, oats, rye, sorghum, and millet are the ones considered important for storage to ensure food security. The society is said to be food secure if it can have sustainable accessibility, availability, and proper utilization of food grain. Provided all other things remain constant including high production, indigenous grain storage protectants will ensure food availability, sufficiency, and eventually poverty eradication.

The researcher will discuss availability, transfer, and utilization of indigenous grain storage protectants in Tanzania. Availability of these protectants depends on the knowledge of the farmers on them and mode of their application. Transfer of this technology has been from parents to children, farmer to the neighbor farmer(s), however, sometimes through extension agents who shift it from one place to a new area. He will further tell some achievements, success and failure, globally, regionally, and in the country and finally to the case study area. He will finally suggest measures

or guidelines for failure resulted from either their transfer and/or utilization.

Problem Statement and Significance of Research

Poor farmers, particularly in Tanzania, lose a sizeable proportion of their harvested grain to pests during storage, and many consider this loss to be a serious problem. Reduction of storage losses helps to reduce the vulnerability of small-scale producers both through improvement in household food security itself, and also through greater income-generation from being able to choose profitable times to sell their grain to market. However, farmers are wary of mixing synthetic chemical pesticides with their food, even if they are available and affordable, and this has highlighted the need of alternative grain protection methods. Storage systems being developed make greater use of alternatives to synthetic pesticides, such as inert dusts, diatomaceous earth and plant materials, in this case indigenous protectants. Some of the natural plants used as storage protectants have provided medicinal curative effects to some ailments, this justifies that they are less lethal or not at all to people's health in comparison to synthetic insecticides.

Despite utilization of industrial chemicals/insecticides in preventing grain loss agents in the grain storage facilities yet there is still high loss resulting from these loss agents. It is estimated that about 900million ton of cereals are in storage around the world at one time (half the production), and that annual losses to insects and rodents are about 10% in North America and 30% in Africa and Asia, but the higher losses and contamination often occur locally (Anonyms, 1981; Hill, 1990). Insecticides have a dramatic short-term impact on stored-grain ecosystem but insects and mites recover or re-invade the system as chemicals degrade. Heavy reliance on chemical control has led to widespread insecticide resistance and control failures and reduced interspecific competition in many communities (Digvir, 1995). In some areas, the adulteration of conventional insecticides used for protection of stored grain has reached a stage that they no longer work (one farmer in **Shinyanga region, Tanzania**, actually managed to breed storage insects in what had been sold to him as pesticide).

Research Objectives

General Objective

To determine the availability, transfer and utilization of Indigenous Grain storage protectants in Morogoro District

Specific Objectives

1. To take inventory of indigenous grain storage protectant technologies available to the extension service.
2. To assess the extent of transfer and utilization of selected indigenous grain storage protectant technologies.
3. To identify factors contributing to success or failure in the transfer and utilization of the indigenous grain storage protectant technologies.
4. To recommend guidelines that will facilitate effective transfer and utilization of the indigenous grain storage protectant technologies.