IMPROVING MAIZE PRODUCTIVITY THROUGH THE PROMOTION OF SUSTAINABLE AND PROFITABLE USE OF FERTILIZER: THE ROLE OF COMPLEMENTARY AND MANAGEMENT PRACTICES

JOSEPH S. KANYAMUKA
(MSc Student, LUANAR/Bunda)

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Introduction

• Sustainable agric. is the successful mgt of resources to satisfy changing human needs while conserving natural resources (Zerihun et al., 2013)

• Levy (2005) identified three key challenges for sustainable agriculture in Mw:
  ➢ Lack of diversity in farming system has negative consequences for pests & disease control, food security & livelihoods & agric. biodiversity

  ➢ Intensity of maize cultivation/area has adverse consequences for soil fertility mgmt, food security & livelihoods at hh level

  ➢ Long-term deterioration of soil fertility has negative consequences for intensity of cultivation & for food security & livelihoods
Introduction ct’d

Key question

- How to make the use of fertilizer in FISP more sustainable and lower the costs?
FISP & Sustainability: Do Complementary Measures matter?

• Sustainable agric technologies can reduce the need for more input use (Kamau et al., 2013)

• Lower the costs-making the FISP less expensive

• Environmental benefits
• One of sustainable & intensified nutrient concepts that have proven successful in farmer’s field is Integrated Soil Fertility Management (ISFM) (Sommer et al., 2013)

• ISFM defined as ‘application of soil fertility mgmt practices & knowledge to adapt these to local conditions, which max. fertilizer & organic resource use efficiency & crop productivity

• These practices include appropriate fertilizer & organic input mgmt in combination with utilization of improved seeds
Problem Statement

• One of the major ironies in applied research is that use of modern inputs appears to be marginally profitable or even unprofitable.

• Input & technology intensification alone cannot raise farm productivity if attention is not also on complementary mgt practices enhancing soil fertility & promotes efficiency use of fertilizers & improved seeds.

• Policy challenge for Mw & African govts is adoption of practices (maize-legume intercropping, organic manure, etc) needed to restore soil properties & enhance response of inorganic fertilizer remains low.
Objectives

- **Overall Objective**
  - To identify the strategies to promote the sustainable & profitable use of fertilizer & improved seed use among smallholder maize farmers in Mw.

- **Specific Objectives**
  - To identify complementary & mgt practices to the expansion of fertilizer & improved seed use that can raise maize productivity among smallholder farmers in the four agro-ecological zones in Mw.
  - To determine key factors that influence farmers’ decisions on incidence & intensity of adoption of complementary & mgt technologies to FISP among smallholder farmers.
  - To provide appropriate & relevant policy guidance to the promotion of fertilizer input intensification strategies that can raise maize productivity & food security.
Methodology

Study Area (planning stage)

- Four agro-ecological zones in Mw which are major producers of maize & with high agricultural potential

- Four major agro-ecological zones categorised based on soil types, vegetation types & climatic conditions (Saka et al., 2006).
  - High altitude plateau,
  - Medium altitude plateau,
  - Lake shore plain
  - Shire Valley
Data Collection (planning stage)

- Experimental approach
- Following farmers through 5 months period of maize cultivation
- Monitoring & recording of field activities
- Data to be collected at hh & plot level.

Sampling Techniques

- Agro-ecological zones
- Districts - based on high inclusivity of maize crop.
- Extension planning area (EPA) will purposively be selected.
- Individual farmers will be randomly selected
Expected outcomes

• Appropriate complementary measures to FISP in each of the agro-ecological zones (maize-based farming systems)

• Less use of chemical fertilizer among the adopters
Point of discussion

Do you think the complementary technologies are feasible in the Malawian Context?

– Maize-legume intercropping, organic manure, agro-forestry, crop rotation, CA, etc
THANK YOU FOR YOUR ATTENTION!!