KENYATTA UNIVERSITY RESEARCH GRANTS

MAIN PROJECT TITLE: Training Programme In Integrated Soil Fertility Management

FUNDING AGENCY

ALLIANCE FOR A GREEN REVOLUTION IN AFRICA

GRANT NO:

NO 2009 SHP 024 KU

SCHOOL:

AGRICULTURE AND ENTERPRISE DEVELOPMENT

DEPARTMENT:

AGRICULTURAL RESOURCE MANAGEMENT

PROJECT TITLE (MSc research project)

Effects of Phosphorous Sources and Starter Nitrogen on Soil Properties and Soybean Yield in Central Highlands of Kenya.

DURATION

September 2010 to August 2012

RESEARCH TEAM (MSc Student 3)

Researcher: Abuli Sianje Jackson (Kenyan)

Supervisor: Dr. Jayne Mugwe

Kenyatta University

Supervisor: Dr. Monica Mucheru Muna

Kenyatta University

BACKGROUND

The farmers of central highlands of Kenya are experiencing low soil fertility that is affecting land productivity and incomes. Their attempts at addressing the situation have been hampered by high fertilizer prices. Integration of legumes into farming systems is one of the Integrated Soil Fertility Management (ISFM) options for improving soil fertility. By using legumes, farmers’ cost of production can be minimized considering; legumes can convert atmospheric nitrogen in association with Rhizobia. To function effectively as nitrogen fixers, legumes require phosphorous (P), which is inadequate in central highland farms. This study assessed the effects of different sources of Phosphorous on soybean’s Biological Nitrogen Fixation (BNF), yield and soil properties. The study also assessed the effects of Starter N on soybean BNF. The study areas were Kigogo in Meru South District and Kamujine in Tigania district. The study purposed to enhance production and improve soils through use of appropriate source of P, and small amount of starter N application. Triple Super Phosphate (TSP), Manjingu rock phosphate, Mavuno fertilizer, DAP, manure and fortified manure (manure with Manjingu fertilizer at 5:-50 ratio) were the P sources all giving 30kg P ha⁻¹. The study is completed and thesis under examination. The study results will contribute to existing body of knowledge on soybean production whose use may translate to improved soil fertility, higher yields, sustainable farming systems and better farm incomes.

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