Participatory Development of Sustainable Soil Fertility Management Practices Through Innovative Training in Southeastern Tanzania

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Abstract

The study was implemented in three districts of Masasi, Newala in Mtwara region as well as in Nachigwea district in Lindi regions, where soil fertility is one of the major constraints to crop production. The overall objective of the research was to develop sustainable soil fertility management practices using participatory and innovative research and training approaches. This was achieved through training followed by field demonstration of selected practices which was undertaken by the farmers during one growing season. Practices selected for evaluation across districts and villages were: Control (without fertilizer source); Wood Ash (WA); Minjingu Mazao Rock Phosphate (MMRP); and Farm Yard Manure (FYM) applications in either flat bed or ridge cultivation. Maize crop was used as a test crop using 'Taxepeno' and 'Staha' varieties. During the growing period, farmers observed plant growth rates and maturity periods per treatments, while researchers measured plant heights and maize weights per plant. The results showed that in most sites, MMRP was able to perform better in terms of growth rates and plant maturity followed by FYM. Researchers' evaluation indicated that a maximum average plant height of 4.18 m was reached with application of MMRP, while 2.20 m per plant was reached in the Control, suggesting positive impact of MMRP. Maize plant weight was also the highest with application of MMRP followed by FYM, whereby the highest weights of 3.60 and 0.75 kg/plant were observed in MMRP and Control treatments respectively. The overall performance were in MMRP>FYM>WA>Control order. Based on both farmers evaluation and researchers and stakeholders views, MMRP and FYM were both recommended for further dissemination.

Key Words: Development, Management, Innovative