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Effect of inorganic nitrogen fertilisation versus legume green manure on the growth performance of maize

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ABSTRACT

The unaffordability and inaccessibility of inorganic fertilisers by smallholder farmers to improve the soil fertility has led to the adoption of organic fertilisers to improve yields in crop production. This inaccessibility has resulted to poor crop stand, lowered yields and consequently food insecurity. A research was carried out in Komani Estates (Mazowe District) at the Fig tree Horticultural trial site to determine the effect of legume green manure compared to inorganic fertilisers on the plant height, stem girth and the maize grain yield. The research aimed at assisting farmers to have clear information on how the green manures are used and how they provide nutrients to the succeeding crop to improve yields. A field experiment was carried out in randomised complete block design (RCBD) fertilisation being a single factor to be considered and different fertiliser types (Inorganic fertiliser, Green manure, Green manure + Inorganic fertiliser and the unamended) as factor levels. The treatments were replicated three times. The results showed that there was significance difference (P<0.05) in plant height, stem girth and grain yield from the 4th week to the 12th week after planting due to the addition of green manure. Inorganic fertiliser treatments provided the tallest, thickest stems and high grain content followed by the treatment with a combination of both green manure and inorganic fertilisers and finally the unamended had the lowest performance. Therefore farmers who cannot afford to purchase inorganic fertilisers are recommended to use legume green manures and those who can afford a little of the inorganic fertilisers can use a combination of both fertilisers.