

# **Identification of the Best Legume for Maize (*Zea mays* L.) Intercrop for Improved Maize Productivity**

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## **Abstract**

Smallholder farmers are the most important food security stakeholders in Sub-Saharan Africa, who majorly practice subsistence agriculture associated with low crop productivity due to the soil nutrients depletion. Most of these farmers lack adequate capital to purchase sufficient amount of inorganic fertilizers to replace soil nutrients removed through harvested crop products, crop residue and through loss by runoff, leaching and gases. The objective of the study is to contribute towards increased maize production for improved livelihoods through identifying the best legumes that can increase maize yield in maize-legume intercrop. The experiment was conducted at the University of Embu farm located in Embu West Sub-County in a randomized complete block design [RCBD] with four treatments in three replications. First treatment [Maize sole crop], second treatment [Maize + common beans], third treatment [Maize + Groundnuts] and fourth treatment [Maize + Soya beans]. Planting was done on January 2017 during the season of short rains, irrigation was also applied to meet the crop water need. Data on maize plant height, ear length, number of above ear leaf, days to 50% flowering, days to 50% silking and number of ears was collected at physiological maturity. The grains produced by both maize and legumes per plot was collected at harvesting. The data collected was subjected to analysis of variance using GenStat statistical software with Least Significant Differences [LSD] at  $p < 0.05$ . The statistical analysis of data revealed that non-significant variation was observed between the monocrop and intercrop on the number of ears and number of leaves. Maize + soy bean had significantly highest ear length and plant height followed by maize + groundnut then maize + common beans and the least, maize sole crop. It was also noted that intercrop can give higher yields, good soil moisture conservation and better weed control. The intercrop of maize with soy bean gave the highest ear length and growth rate in maize. It is recommended that the experiment be repeated for another season since the observations are based on one season.