

Influence of Agroforestry Trees Leafy Biomass and Nitrogen Fertilizer on Crop Growth Rate and Relative Growth Rate of Maize

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Abstract : The use of legume tree pruning as mulch in agroforestry system is a common practice to maintain soil organic matter and improve soil fertility in the tropics. The study was conducted to determine the influence of agroforestry trees leafy biomass and nitrogen fertilizer on crop growth rate and relative growth rate of maize. The experiments were laid out as 3 x 4 x 2 factorial in a split-split plot design with three replicates. Control, biomass species (*Parkia biglobosa* and *Albizia lebbek*) as main plots were considered, rates of nitrogen considered include (0, 40, 80, 120 kg N ha⁻¹) as sub-plots, and maize varieties (DMR-ESR-7 and 2009 EVAT) were used as sub-sub plots. Data were analyzed using descriptive and inferential statistics (ANOVA) at $\alpha = 0.05$. Incorporation of leafy biomass was significant in 2015 on Relative Growth Rate (RGR), while nitrogen application was significant on Crop Growth Rate (CGR). 2009 EVAT had higher CGR in 2015 at 4-6 and 6-8 WAP. Incorporation of *Albizia* leaves enhanced the growth of maize than *Parkia* leaves. Farmers are, therefore, encouraged to use *Albizia* leaves as mulch to enrich their soil for maize production and most especially, in case of availability of inorganic fertilizers. Though, production of maize with biomass and application of 120 kg N ha⁻¹ will bring better growth of maize.

Keywords : agroforestry trees, fertilizer, growth, incorporation, leafy biomass

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