

MARO, Godsteven P., MBWAMBO, Suzana G., MONYO, Harrison E., NKYA, Emmanuel O. and MOSI, Epafra J.

Tanzania Coffee Research Institute (TaCRI), P.O.Box 3004, Moshi, Tanzania
*Corresponding author: godsteven.maro@tacri.org, marogp2011@gmail.com



Introduction

The advent of 19 improved Arabica varieties resistant to CBD and CLR would naturally preclude the application of copper-based fungicides; if not for the perceived tonic effect, described by Van der Vossen and Browning (1978). Furthermore, coffee soils in Tanzania have recently shown a general Sulphur deficiency, calling for a NPKS formulation (Cordingley, 2010). A study was conducted to assess the effect of copper, sulphur and a ready-made cocktail “Polyfeed” on leaf retention, plant characteristics and yield of selected new varieties.

Materials/Methods

Two trials were established at Lyamungu onstation and a nearby APK estate following a split plot RCBD (three replications). Varieties KP423 (check), TaCRI-6F (new compact) and KP423-1 (new tall) were the main factors and the nutrient cocktails (60g copper oxychloride - Cobox as foliar spray, 60g Cobox and 75g Polyfeed as foliar spray, 75g Polyfeed alone, 50g of SA 21%N applied to the soil, and an untreated control) were sub factors. The trials were run for 3 years with leaf retention and yield data captured. Data were exposed to ANOVA; with means separated by Tukey’s HSD method at $p < 0.05$.

Conclusion/Perspectives

The dominance of copper oxychloride and SA in the first two rankings partly confirms the tonic effect of copper application in coffee and the soil’s responsiveness to sulphur. We therefore encourage the use of NPKS formulations, and recommend a twice-yearly application of 60g copper oxychloride even for the improved varieties.

References:

- Cordingley, J. (2010). Soil fertility survey of Tanzania’s smallholder coffee sector for developing lime and fertilizer recommendations. Report to Tanzania Coffee Board. Crop Nutrition Laboratory Services, Nairobi, Kenya. 60pp.
- Van der Vossen, H.M.A and Browning, G. (1978). Prospects of selecting genotypes of *Coffea arabica* which do not require tonic sprays of fungicides for increased leaf retention and yield. J. of Hort. Sci.53, 225-233.

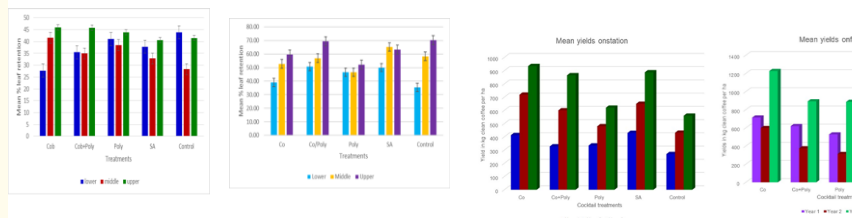


Figure 1: Mean % leaf retention onstation (left), onfarm (right)

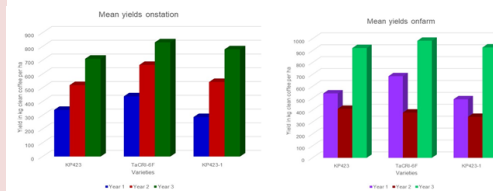


Figure 2: Influence of variety on yields onstation (left), onfarm (right)

Figure 3: Influence of cocktail on yields onstation (left), onfarm (right)

Results/Discussion

Leaf retention was not significant ($p > 0.05$), implying that the number of active leaves, and

therefore photosynthetic capacity, is not affected by the added cocktails as long as the major nutrients are optimally supplied. Varieties had a decreasing significance trend in yield over the years, implying, probably, that yields of different varieties tend to normalize with age. The treatment cocktails onstation had an increasing significance trend in yield, whereas they were consistently very highly significant ($p < 0.001$) onfarm. Comparing the graphs it is clear that, regardless of variety, yield was steadily increasing onstation while there was an obvious case of biennial bearing onfarm.