

## ABSTRACT

Kenya's tea industry depends predominantly on imported NPK fertilizers to replenish nutrients removed through plucking. In this respect, two blended fertilizers containing NPKS 25:5:5:4+9Ca+2.6Mg and NPKS 23:5:5:4+10Ca+3Mg with trace elements have been produced in the country. However, contribution of the blended fertilizers to optimal tea yields had not been determined. The study aimed to evaluate the optimal levels of the two blended fertilizers on tea grown in the highlands of Kenya. The blended fertilizers were evaluated in two sites, i.e. Timbilil estate in Kericho and Kagochi farm in Nyeri. The trial was laid out in a randomized complete block design with two blended fertilizers and the standard NPK 26:5:5 as a control. The treatments were applied at four fertilizer rates (0-control, 75, 150 and 225 kg N ha<sup>-1</sup> yr<sup>-1</sup>), with three replications. The results showed that application of 225 kg N ha<sup>-1</sup> yr<sup>-1</sup> blended fertilizer NPKS 25:5:5:4+9Ca+2.6Mg in Timbilil produced mean yield of 2,995 kg Mt ha<sup>-1</sup> compared with 3,099 kg Mt ha<sup>-1</sup> from the standard NPK. In Kagochi, the highest yield was 1,975 kg Mt ha<sup>-1</sup> obtained from the application of the same blended fertilizer NPKS 25:5:5:4+9Ca+2.6Mg at 75 kg N ha<sup>-1</sup> yr<sup>-1</sup>. The highest yields in both sites were obtained during a warm-dry season except in 2015-2016. This study concluded that based on the annual and seasonal yields, the two blended fertilizers and the standard type had the same effectiveness, irrespective of clones and sites. However, the fertilizer rates affected the tea yield.