ABSTRACT

Soil acidity and micronutrient deficiency is a major constraint affecting common bean production in Western Kenya. Farmers in the region have access to the two fertilizers Mavuno and Sympal fortified with different micronutrients and recommended for legumes; however, the performance of beans in the region remains low. A field experiment was, therefore, conducted in two sites in Nandi county, western Kenya, to determine the effect of using customized micronutrient fertilizer with lime on common bean yield. A factorial experiment was set up in a randomized complete block design consisting of three fertilizer types and lime treatments applied at two levels (0 and recommended rate). The fertilizer treatments were Mavuno (0 and 185 kg ha-1), Sympal (0 and 125 kg ha-1), Diammonium phosphate (0 and 62.5 kg ha-1) and lime (0 and 1.6 or 2.0 tons ha-1 depending on the lime requirement for the site). The experiment was run for two seasons, 2019 long and short rain seasons. Data were collected on nutrient uptake, crop growth and yield. The application of Mavuno fertilizer with lime significantly increased grain yield by 42, 30 and 27 % compared with control, Sympal and DAP, respectively. The application of Sympal and DAP did not have a significant effect on bean grain yield. Mavuno fertilizer with lime performed better in improving bean yield compared to the standard practice (DAP) and Sympal fertilizer. These results demonstrate the importance of using Mavuno fertilizer containing micronutrients Mo and B in combination with lime in improving legume production in Western Kenya.

Key words: Common bean, customized fertilizer, lime, macronutrient, micronutrients, soil acidity