

Response of Common Bean (*Phaseolus vulgaris* L.) Cultivars to Water Hyacinth (*Eichhornia crassipes* [Mart.] Solms) Compost in Kisumu, Kenya along the Lake Victoria Basin

## Abstract

**Aims:** This study aimed at enhancing common bean production among the small holder farmers along the Lake Victoria basin, Kenya through the use of water hyacinth compost.

**Study Design:** Randomized Complete Block Design with a split-plot structure with three replications. The bean cultivars formed the main plots while fertilizers formed the sub-plots.

**Place and Duration of Study:** Field trials were conducted on small holder farms in Kisumu, Lake Victoria basin during the short and long rains in 2012/2013.

**Methodology:** Fresh water hyacinth weeds were cut into smaller pieces and left to completely dry in the sun and allowed to decompose naturally for 45 days. The treatments consisted of control (no fertilizer), water hyacinth compost and diammonium phosphate (DAP) fertilizer (DAP). The fertilizers were applied at the rate of 46 kg ha<sup>-1</sup> of DAP or 8 T ha<sup>-1</sup> of compost along the rows and thoroughly mixed within the top 15 cm of soil to avoid direct contact with the seeds or the rhizobia inocula.

**Results:** Water hyacinth compost significantly ( $P < 0.05$ ) increased nodulation and improved yield while diammonium phosphate also enhanced yield but suppressed nodulation of the beans. Other agronomic characteristics such as plant height, number of flowers and pods of beans were not significantly ( $P > 0.05$ ) influenced with the application of either compost or diammonium phosphate.

**Conclusion:** Application of water hyacinth compost has the potential for use as an alternative to expensive inorganic nitrogenous fertilizers in restoring soil fertility and improving bean crop productivity in Kenya.

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