ABSTRACT

This research project aimed to assess the response of various climbing bean varieties to Diammonium Phosphate (DAP) fertilizer in the agricultural context of Musanze District. The study was conducted to enhance understanding of the growth and yield of different climbing bean varieties in the soil fertilized by DAP fertilizer, with the ultimate goal of optimizing crop yield and promoting sustainable agricultural practices.

The experiment was carried out in a randomized complete block design (RCBD) with three replicates. Four popular climbing bean varieties (KORTA, KIRYUMUKWE, NKUNGAHARE and NYIRAGIKOTE) were selected as treatment groups, and DAP fertilizer was applied at recommended rates. Key agronomic parameters, including plant height, number of leaves, number of branches, and yield, were monitored throughout the growing season. By using SPSS, the field data were processed and gave descriptive statistics and the ANOVA results.

The findings revealed significant variations in the response of climbing bean varieties to DAP fertilizer. Some varieties exhibited enhanced growth and yield in response to fertilizer application, while others showed optimal performance without additional fertilization. The yields obtained underscore this distinction, with Nkungahare Variety yielding 5.5 tons/ha, outperforming Nyiragikote and Kiryumukwe at 4.16 tons/ha and Korta at 3.83 tons/ha. The study identified the Nkungahare variety as superior and showcasing a substantial response to DAP fertilizer.

As conclusion, this research contributes valuable insights into the tailored application of DAP fertilizer for maximizing the yield of climbing beans in Musanze District. These findings contribute valuable insights for optimizing climbing bean cultivation strategies, farmers also are recommended to grow Nkungahare variety and use DAP fertilizer to maximize beans production.