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PAPER

Effect of Different Levels of Inorganic Fertilizer, Compost and Animal Manure as Basal Application on Growth and Yield of Red Onion (A*llium ascalonium*) in NCB Soil

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An experiment was conducted to find out the yield and qualities of cluster onion with different organic manure applied in Non-calcic Brown (NCB) soils (altisols) and to assess the feasibility of cutting down the inorganic fertilizer (Recommended by the Department of Agriculture for onion by 25% with organic fertilizer).

The experiment was designed in a Randomized Complete Block Design with three replicates. Sixteen different treatments were defined by replacing NPK levels by 25% and replaced rest using compost and animal manure. Control treatment was fertilizer recommend by the Department of Agriculture for *Allium ascalonium.*

Different treatment combinations were applied as a basal application for the plots. Soil data were measured before and after harvest. Growth parameters were measured in 2 week intervals and in the harvest, quality parameters (bulb diameter, bulb length, TSS) were recorded. Finally the total yield of bulb and clusters were recorded. Data were statistically analyzed by analysis of variance and mean separation has done using DNMRT test at 0.05 % level using SAS package.

Results revealed that there were significant differences in onion plant, bulb diameter, total soluble solid (TSS), bulb weight per plant and dry bulb yield between the different treatments. Highest yield (30t ha^{-1}) was obtained from the combined application of 100% NPK and cattle manure, while lowest yield of (11.6tha^{-1}) was recorded by the 100% NPK (control) plot. Among the organic manure tested, use of cattle manure (10t/ha) can be recommended to increase the growth and yield of cluster onion. It was clearly demonstrated that the substitution of 25% NPK fertilizer by organic manure, did not show a significant reduction in growth, quality and bulb yield of cluster onion.