

Performance of Lettuce (*Lactuca sativa* L.) Genotypes Under Poly House and Open Field Condition in Nuwakot District

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Abstract

A field experiment was conducted at Kakani Rural Municipality, Nuwakot district during November 2021 to February 2022 to evaluate the performance of different genotypes of Lettuce (*Lactuca sativa* L.) in open and protected field conditions. The experiment was laid out in factorial RCBD with two growing condition and five genotypes (Iceberg, Mini Cos, Red Coral, Green Oak, Red Oak) and each treatment of two factors was replicated for three times. Observations were made on growth parameters like leaf number, leaf length, leaf breadth, plant height, root length and a benefit cost ratio of open vs protected of lettuce cultivation. Interaction effect of (genotypes and growing condition) didn't show the significant difference however genotypes were differed significantly on their performance. The growing condition also had great impact on overall performance. The highest yield was observed on protected condition for all the genotypes while Iceberg had highest yield ($587.87a \pm 91.17$ gm/plant) among genotypes. Plant height seen highest in Red Coral, Leaf length in Mini Cos and root length was seen in highest on Iceberg. Green Oak had maximum number of leaves per plant followed by Red Oak. The fresh leaves production of lettuce was 28% higher in protected condition as compared to open field. Protected condition produced the highest BC-ratio in all genotype and highest in Iceberg (3.43 ± 0.74). Considering economic and desirable quality, Iceberg was the appropriate genotype while Green Oak was appropriate among leafy types on both protected and open field condition of Nuwakot.

Keywords: Genotypes, protected structure, yield