



Effect of Artificial Light and Rate of Albert Fertilizer on Growth and Yield of Cabbage (*Brassica oleracea*) under the Controlled Environmental Condition

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Abstract

Adequate light condition is a vital factor which optimize photosynthesis to enhance crop productivity. Therefore, an experiment was conducted in two poly tunnels at Faculty of Agriculture, University of Ruhuna, Sri Lanka to study the effect of artificial lights and rate of Albert fertilizer on growth and yield of cabbage (*Brassica oleracea* L. var Green Coronet). The experiment was carried out in a two-factor factorial (2 x 2) Completely Randomized Design with five replicates. The tested two factors were light; (with artificial lights provided from 6.00 a.m. to 7.00 a.m. and from 5.00 p.m. to 6.00 p.m., and without artificial lights) and rate of fertilizer; (1 g/plant/day, and 2 g/plant/day). Treatments were applied daily. Growth parameters (plant height, canopy diameter and number of loose leaves per plant) were taken at fortnight intervals while cabbage heads and total biomass yield were taken as yield parameters at harvesting. The data were analyzed using ANOVA and means were separated by least significant difference (LSD) at 5% probability level. Results revealed that, there was an interaction effect for plant height and total biomass yield. Albert fertilizer 2 g/plant/day with artificial lights gave the significantly highest plant height (58.61 cm) while Albert fertilizer 1 g/plant/day with artificial lights gave the significantly highest total biomass yield (1.72 kg). Canopy diameter (73.15 cm) (74.80 cm), head weight (0.6897 kg) (0.7203 kg) and head perimeter (40.35 cm) (41.89 cm) were significantly influenced by rate of Albert fertilizer and artificial lights. Albert fertilizer 1 g/plant/day with artificial lights gave significantly higher values for above parameters. Significantly highest number of loose leaves per plant (33.45) was obtained from Albert fertilizer 2 g/plant/day treatment. Therefore results can be concluded that Albert fertilizer 1 g/plant/day with artificial lights provided from 6.00 a.m. to 7.00 a.m. and from 5.00 p.m. to 6.00 p.m. can be recommended to obtain higher economic yields from cabbage grown under controlled environmental conditions.

Keywords: *Albert Fertilizer, Artificial Lights, Cabbage, Poly Tunnel.*

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