

CHARACTERIZATION OF VEGETABLES THROUGH ABSORPTION AND UTILIZATION EFFICIENCY OF LIGHT IN RELATION TO YIELD FOR AGROFORESTRY SYSTEM

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Extended Summary

The experiment was conducted for screening of some higher yielding and partial shade tolerant six summer vegetables under reduced light based agroforestry system during the period from March to June, 2014 at the experimental farm of Sher-e-Bangla Agricultural University, Dhaka. The aim of the study was to select best summer vegetables, suitable for inclusion under shade condition in agroforestry systems. The selected vegetables were also grown in control i.e., open field condition. The vegetables were Indian Spinach, Stem Amaranth, Kangkong, Okra, Eggplant and Chilli and treatments were (a) T_{sun} = planting summer vegetables under full sunlight and (b) T_{shade} = planting summer vegetables under shade condition (reduced light intensity). The experiment was laid out by Randomized Complete Block Design with three replications were used for each treatment for each crop. The actual light intensities inside the shade net as well as outside (full sunlight) were recorded and the maximum average light intensity reduction (%) was found in case of Chilli (42.2%) and minimum average light intensity reduction (%) was observed in case of Indian Spinach (22%) in shade. In case of Eggplant, Kangkong, Stem Amaranth and Okra light intensity reduction levels were 25.42%, 28.41%, 29.9% and 39.9%, respectively. Highest soil temperature was recorded in April-35.7°C in sun and 34.2°C in shade while highest soil moisture was recorded in June both in open and shade as 39.3% and 28.5%. From the experiment, significant result was observed in all morphological characteristics for all vegetables except Chilli under reduced light. Apart from this, highest yield was found in Kangkong (18.67 ton/ha) and Okra (22.54 ton/ha) in reduced light condition. Highest yield of Indian Spinach (8.93 ton/ha), Stem Amaranth (27.67 ton/ha), Eggplant (22.63 ton/ha) and Chilli (8.06 ton/ha) was recorded under full sunlight.

In the experiment it was clear that among leafy vegetables, Kangkong gave the highest yield in the shade condition. Among fruit vegetables Okra gave the highest yield in shade treatment. Stem amaranth showed promising result both in sunlight and shade condition but was insignificant. So, Kangkong and Okra under agroforestry systems allowing reduced light intensity might be encouraged in rural Bangladesh.

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