

## Effect of growing environment on growth & performance of hydroponically grown *Lactuca sativa* (lettuce)

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An experiment was conducted at the Faculty of Agriculture, University of Ruhuna, Mapalana, Kamburupitiya [March- April, 2002], to assess the performance of hydroponically grown lettuce (*Lactuca sativa*, Var. *Lollorosa*) when grown in three different environments viz. Protected House, Net Box (protected house with adjustable roof) & Open Corridor. The design of the experiment was a Completely Randomized Design with ten replicates.

The Albert solution was used as the growing medium and pH and electrical conductivity of the nutrient solution were kept within 6-6.8 & 1.2-1.6 ppt, respectively. Air temperature, light intensity, and relative humidity (RH) were measured four times daily (8.00 am, 12 noon, 2.00 pm, 4.00 pm). Number of leaves per plant, shoot length and root length were measured at weekly intervals. The length and the width of the 7<sup>th</sup> leaf, wet and dry weights of shoots and roots were measured after the harvest.

The average air temperature of the protected house was 32.13 °C, which was 1.5 °C higher compared to corridor. The adjustable roof helped to bring down the temperature by 0.82 °C compared to protected house. Light intensities in all treatments were fluctuated between 8,445 and 40,669, lux which was below the optimum range for *Lollorosa* (42,000-51,000 lux). When the adjustable roof was kept open, the light intensity was increased by 72.79 X 10<sup>2</sup> lux. There was no significant difference in the RH in the three environments and maintained at 70.16-73.47 %.

Results revealed that the increase in shoot fresh weight of plants grown in the protected house and the net box over that of the corridor were 34.10 % & 27.88 % and the increment of number of leaves per plant were 32.86 % & 30.95 % respectively. It could be concluded that lettuce (var. *Lollorosa*) can be successfully grown in Mapalana in open corridors, protected houses or net boxes. The economic yield of lettuce grown in protected house or net box has no significant difference between them and constitutes 66.02 g/plant 62.93 g/plant respectively. However, when plants are grown in the corridor, the economic yield is reduced by 25.46% and 21.80% as against the protected house and net box, respectively.