

Influence of ploughing and mulching on the growth and yield of chilli (*Capsicum annuum*) grown under irrigated conditions in paddy lands

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Chilli is one of the most important cash crops grown in paddy fields during yala season (March – Sept.) in the dry zone (rainfall 1200-500 mm) of Sri Lanka. Nearly 50% of the total area (30,000 ha) is grown during yala season under irrigation. High cost of production is one of the major constraints in chilli cultivation. The average cost of production of chilli under irrigated conditions is around Rs.75,000/ ha. More than 15% of the total cost of production is accounts for land preparation, irrigation and weeding. Therefore, the aim of this study was to investigate the possibility of adopting zero-tillage and mulching in chilli cultivation to reduce the cost of production. The following four treatment combinations involving and mulching 1) ploughing (ploughing up to 30 cm depth) and mulching (rice straw at 8 t/ha), 2) ploughing only 3) mulching only and 4) no ploughing and mulching were tested on chilli (cv MI-2) transplanted at the spacing of 60x45 cm with 2 seedlings per hill. Mulching were done immediately after planting. Data on soil moisture at 0-15 cm depth, Root Length Density (RLD) at 0-30 cm depth was determined, plant height, plant stand at harvest, number of pods per plant, 100 pod weight, weed dry weight and dry chilli yield were collected. There was no significant effect of ploughing on the soil moisture, plant height, pods number per plant and yield of chilli. Mulching significantly ($p=0.05$) increased the soil moisture by 33%, RLD by 64%, pods per plant by 48% and dry chilli yield by 39%. Mulching also reduced the weed dry weight by 48 percent. Final plant stand and 100-pod weight were not influenced either by mulching or by ploughing. Irrespective of the treatments RLD was significantly higher at 0 –15 cm depth. This study revealed the potential for adopting of zero-tillage and application of rice straw as mulch in chilli cultivation in paddy lands during yala season to reduce cost of production.

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