

Influence of plant density on the yield of chilli (*Capsicum annuum*) grown in paddy fields under heavy thrips incidences

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Chilli is one of the most important cash crops grown in paddy fields during Yala Season (Mar.- Sept.) season in the dry zone (rainfall 1200-1500 mm) of Sri Lanka. In many instances, severe thrips damage was found to be the major factor that retard growth leading to poor harvest and low income. This study was undertaken during 2000 Yala to investigate the possibility of enhancing chilli yields by early picking through higher plant density. The following plant densities, 22.22 plants /m² (30x15 cm), 14.81 plants /m² (45x15 cm), 11.11 plants /m² (30x30 cm), 11.11 plants /m² (60x15 cm), 7.40 plants /m² (30x45 cm), (5.55 plants /m²) (30x60 cm), 4.93 plants /m² (45x45 cm), 3.70 plants /m² (45x60 cm) and 2.77 plants /m² (60x60 cm) were tested. Thirty one-days-old seedlings (cv. MI-2) were transplanted on flat beds in a paddy field with moderately well drained soils under irrigation. Plant height, canopy width, pods per plant, weight of 100 pods and dry chilli yields were recorded. Only two picks were able to obtain due to heavy thrips attack. Yield was positively and linearly increased with the tested plant density ($r^2 = 0.97$). The lowest yield of 536 kg/ha was recorded from the lowest density of 2.77 plants /m² (60x60 cm) and the highest of 1569 kg/ha was observed from the highest density of 22.22 plants /m² (30x15 cm) which was 28% higher than the recommended density of 7.40 plants /m² (1224 kg/ha). Pod number per plant negatively correlated with the plant density. Major contributing factor for higher yields at higher density was higher pod number per unit area due to increase plant density despite decreasing per plant pod number. Plant height and 100 pod weight were not significantly affected ($p= 0.05$) by plant density. No significant effect for canopy width was observed among densities except 22.22 plants /m² (30x15 cm), which gave the smallest canopy. This study revealed that high density planting is the best option to obtain higher chilli yield under the situations where the thrips damage is high.

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