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Research Note

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Impact of different spacing on growth and yield of indeterminate tomato grown under shade house

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ABSTRACT : Indeterminate tomato variety Himsona was grown 50 per cent shade house during *Rabi* season of 2010-11 at division of medicinal and aromatic plants, Sector no. 41, University of Horticulture Sciences, Bagalkot, Karnataka. Planting was done in two rows per bed leaving 50 cm path between two beds following the spacing of 60 x 60 cm (T_1), 60 x 30 cm (T_2), 60 x 45 cm (T_3) and 45 x 45 cm (T_4). The data was analyzed statistically by Randomized Block Design. The results revealed that the 60 x 60 cm (T_1) had significantly higher leaves per plant (44.80 no.), fruits yield per plant (3408.10 g) but significantly higher yield per m^2 (15.14 kg) was recorded in 60 cm x 30 cm (T_2).

KEY WORDS : Spacing, Shade house, Indeterminate Tomato

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Tomato is one of the most important vegetable among the commercial and popular vegetables we can't substitute other vegetable for tomato. In tomato there are two types *viz.*, determinate which are generally grown under open field condition and indeterminate tomato which are normally grown under shade house or poly house condition *i.e.*, under protected cultivation. The shade house protects the crop from adverse climatic conditions like high light intensity and temperature. The shading was effective in reducing the green house there by creating a better microclimate inside the shade house for production of higher yield and quality fruit (Tiwari *et al*., 2002). Plant density play a key role in efficient use of the area in side protected structure called shade house and to get higher returns. Hence, the study was initiated to find out suitable spacing for indeterminate tomato grown under shade house.

The experiment was conducted under shade house established with 50 per cent shade net at medicinal and aromatic division, Sector no. 41, University of Horticulture Sciences (UHS), Bagalkot, Karnataka. *Rabi* season of 2010-11. The seedlings of tomato variety Himsona (Indeterminate) were planted in two rows per bed leaving 50 cm path between two beds. The plants were trained *i.e.*, one main shoot which was called primary shoot and two branches which were called secondary shoots and these shoots *i.e.*, one primary and two secondary shoots were remained constant during entire crop period and maintained by removing of side branches or water shoots growing on primary as well as secondary shoots. The treatments consisted of four spacing *viz.*, 60 x 60 cm (T_1), 60 x 30 cm (T_2), 60 x 45 cm (T_3) and 45 x 45 cm (T_4). During the growing period at every 10 to 15 days interval all side shoots were pruned. Plants were trained along the plastic thread tide to galvanized iron wire stretched over head along the bed. The experiment was laid out in a randomized block design with five replications. The observations like growth parameters *viz*., plant height (cm), girth of primary shoot (mm) by digital vernire caliper, girth of secondary shoot (mm) by digital vernire caliper, leaves per branch (No.), leaves per plant (No.) and yield attributing parameters like flowers per cluster (No.), per cent of fruit set, fruits per cluster (No.), fruits per plant (No.), fruits yield per plant (g) and fruit yield per square meter (kg) were recorded.

The plant height was significantly more (196.28 cm) in T_1 (60 x 60 cm) compared to other spacing treatments which were 194.60cm in T_3 (60 x 45cm), 191.96cm in T_2 (60 x 30cm) and 190.10cm in T_4 (45 x 45cm). Girth of primary shoots numerically superior (1.38 mm) in T_1 (60 x 60 cm) was over other treatments and among the four treatments there was no significant