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# Effect of organic manures and micronutrients on yield of brinjal (*Solanum melongena*)

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The field experiment was conducted at Horticulture Farm, SKN College of Agriculture, Jobner (Jaipur), Rajasthan, during *kharif* season, 2018, in a randomized block design with three replication. There were altogether 48 plots each of 2.25 m × 2.40 m size. Transplanting was done on 21 July 2018 with spacing 60 cm × 45 cm. Hoeing, weeding and irrigation were provided at proper time so as to facilitate better growth and development of crop. The treatments were organic manure, *i.e.* control, FYM (40 t/ha), vermicompost (6.6 t/ha), poultry manure (6.6 t/ha) and micronutrients, i.e. control, Zn (0.5%), Fe (0.5%) and B (0.3%) foliar spray. The observation were recorded on number of branches/plant, number of leaves/plant, fruit yield/plot (kg/plot) and fruit yield (q/ha). The data on growth and yield were statistically analysed according to the method suggested by Fisher and Yates (1959).

The maximum number of branches (3.19, 9.17, 13.36 and 15.35 at 30, 60, 90 and 120 DAT) and number of leaves (13.79, 77.32, 187.78 and 219.58 at 30, 60, 90 and 120 DAT) were observed with the treatment vermicompost @ 6.6 t /ha ($M_2$), which was statistically at par with treatment poultry manure @ 6.6 t /ha. But 50 % flowering was non-significantly influenced by various micronutrients. The positive influence of organic manures could be because of increase in shoot length and plant vigour, application of organic manures which have helped in plant metabolic activity through the supply of important micronutrients in early growth phase, which in turn encouraged early vigorous growt. These results are in accordance with those of Mamta *et al.* (2012), Agarwal and Sharma *et al.* (2014); Samadhiya *et al.* (2015) and Barman *et al.* (2017).

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The maximum number of branches (3.24, 9.27, 13.50 and 15.49, respectively) and number of leaves (14.03, 78.41, 191.51 and 222.49, respectively) were observed with the treatment Zn @ 0.5 per cent ($N_1$). But 50 % flowering was non-significantly influenced by various micronutrients. This perceptible increase in growth parameter is due to active synthesis of tryptophan, in the presence of Zn which acts as precursor of IAA, which stimulates the growth of plant tissues. There is an enhancement in cell multiplication and cell elongation resulting in more plant height. Similarly results were also reported by Solanki *et al.* (2017); and Uikey *et al.* (2018).

The maximum fruit length (8.17 cm), fruit diameter (7.31 cm), number of fruits/plant (6.59), fruit weight (129.67 g), fruit yield (17.13 kg /plot) and fruit yield (317.20 q /ha) were recorded under the treatment vermicompost @ 6.6 t /ha ($M_2$), which was statistically at par with poultry manure @ 6.6 t /ha ($M_3$), while, minimum fruit length (7.06 cm), fruit diameter (6.09 cm), number of fruits/plant (5.14), fruit weight (111.08 g), fruit yield (11.52 kg /plot) and fruit yield (213.40 q /ha) were observed in treatment $M_0$ (control). (Table 1). These results are in accordance with Agarwal and Sharma *et al.* (2014).

Application of micronutrients significantly increased fruit length (8.30 cm), fruit diameter ( 7.41 cm), number of fruits/plant (6.63), fruit weight (131.05 g), fruit yield/plot (17.39 kg /plot) and fruit yield (321.99 q/ha) recorded under the treatment Zn @ 0.5 per cent ($N_1$), which was significantly superior than other treatments. While, minimum fruit length (7.20 cm), fruit diameter (6.19 cm), number of fruit/plant (5.23), fruit weight (113.67 g), fruit yield/plot (12.02 kg /plot) fruit yield (222.59 q /ha) were observed in treatment ($N_0$) control.

**Table 1: Effect of organic manures and micronutrients on yield and yield attributes of brinjal**

| Treatment | Fruit length (cm) | Fruit diameter (cm) | Number of fruits/plant | Fruit weight (g) | Fruit yield (q/ha) |
|---|---|---|---|---|---|
| **Organic manures** | | | | | |
| $M_0$ , control | 7.06 | 6.09 | 5.14 | 111.08 | 213.40 |
| $M_1$, FYM (40 t /ha) | 7.58 | 6.56 | 5.89 | 121.55 | 265.87 |
| $M_2$, Vermicompost @ 6.6 t /ha | 8.17 | 7.31 | 6.59 | 129.67 | 317.20 |
| $M_3$, Poultry Manure @ 6.6 t /ha | 8.01 | 7.11 | 6.28 | 128.08 | 297.21 |
| SEm± | 0.18 | 0.19 | 0.17 | 2.68 | 7.09 |
| CD (P= 0.05) | 0.54 | 0.55 | 0.49 | 7.73 | 20.47 |
| **Micronutrients** | | | | | |
| $N_0$ _ control | 7.20 | 6.19 | 5.23 | 113.67 | 222.59 |
| $N_1$- Zn (0.5%) foliar spray | 8.30 | 7.41 | 6.63 | 131.05 | 321.99 |
| $N_2$- Fe (0.5%) foliar spray | 7.72 | 6.80 | 6.02 | 124.00 | 277.84 |
| $N_3$- B (0.3%) foliar spray | 7.62 | 6.66 | 6.01 | 121.67 | 271.25 |
| SEm± | 0.18 | 0.19 | 0.17 | 2.68 | 7.09 |
| CD (P= 0.05) | 0.54 | 0.55 | 0.49 | 7.73 | 20.47 |

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