

Effect of different training systems on incidence of pest, diseases and yield of bitter gourd (*Momordica charantia* L.) cv. KONKAN TARA under Konkan conditions of Maharashtra

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ABSTRACT

Effect of different training systems on incidence of Pest and diseases in bitter gourd cv. KONKAN TARA was studied during *Kharif* season 2002. Four systems of training viz., Ground, Bush (dry bamboo sticks along with thorny branches), kniffin and bower system were tested in Randomized Block Design with five replications. Out of all these training systems, the bower system of training was recorded significantly less infestation of fruit fly (3.32 %) as well as significantly minimum incidence of different diseases viz., anthracnose (27.72 %), powdery mildew (23.80 %) and downy mildew (30.34 %) and recorded significantly more number of fruits per plant (30.46), longer and dark green fruits with maximum yield (78.25 q/ha.) and was found significantly superior over all other training systems. The per cent increase in yield over ground system was 71.83, 200.65 and 243.80 in bush, kniffin and bower training systems, respectively might be due to lowest infestation of fruit fly and incidence of major diseases.

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Bitter gourd (*Momordica charantia* L.) is one of the most important cucurbitaceous vegetable crop grown worldwide viz., China, Malaya and India. In India, it is grown in home gardens almost throughout the country. The total area under vegetables in India is about 6.2 million ha. with production of 71 million MT of vegetables (which contributes about 15 per cent of world production), having productivity of 11.45 MT/ha (Anon., 2002). In India, Maharashtra is known as horticulture state and the area under vegetables in Maharashtra is 3,41,200 ha. producing about 44,79,500 metric tonnes of vegetables. The per cent share of Maharashtra state in India's area and production is reported to be 4.05 per cent and 4.13 per cent, respectively, while, productivity of vegetables in Maharashtra is 13.1 MT/ha (Anon., 2001). The farmer grows this crop with a support or trailing over the ground.

The importance of providing supports to the vines has been emphasized by the number of workers viz., Abusaleha and Dutta (1994 a) and Joshi *et al.* (1994) in bitter gourd, Krishna Prasad and Singh (1987) and Yadav *et al.* (1989) in pointed gourd, Abusaleha and Dutta (1994 b) in ridge gourd and Rahaman and Hossain (1989) in bottle gourd, the advantages of these supports are attributed to efficient disease and pest management, easy harvesting and improving quality of fruits besides high yield.

Fruit fly is a major pest damaging the bitter gourd fruits to the extent of 50 per cent (Singh, 1965). As there

are not much reports on the effect of different training systems of cucurbits on incidence of fruit fly and diseases, the research was undertaken to evaluate the effects of different training systems on the incidence of fruit fly and on various major diseases as well as on fruit quality and yield.

MATERIALS AND METHODS

The experiment was laid out in Randomized Block Design with five replications during *Kharif* season (2002). The treatments included four different training systems viz., Ground, Bush (dry bamboo sticks along with thorny branches), Kniffin and bower system. The seed was dibbled at 2.5 x 1.0 m spacing in a plot of 5 x 4 m size accommodating ten plants in each plot. All recommended agro-techniques were followed to obtain optimum crop yield.

Vines were trained on the support, except in ground training system. In bush training system waste dry bamboo sticks along with thorny branches were fixed near the plants and vines were allowed to grow on this without disturbing growth habit. Kniffin and bower were prepared with the help of iron angles (7' x 2") and galvanized iron wire of 10 gauge and 16 gauge diameter. The jute strings were used for supporting the vines in both kniffin and bower systems. The incidence of various diseases during different growth stages were recorded and calculated by using 1-4 grade system and categorized as below and