



Research Paper

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Studies on the effect of nutrients, organics and bio-agents on growth, yield and cost economics of okra [*Abelmoschus esculentus* (L.) Moench] 'COBhH 1'

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ABSTRACT : The present experiment was carried out on okra 'COBhH 1' during 2010-11 with the objective of studying the effect of nutrients, organics and bio-agents on growth, yield and economics of okra. The results indicated that application of *Pseudomonas fluorescens* (seed treatment @ 10g kg⁻¹ + soil application @ 2.5 kg ha⁻¹ with FYM + foliar spray @ 0.2%) and foliar spray of humic acid @ 0.2 per cent improved most of the growth and yield parameters. Regarding growth parameters, plant height (96.80 cm) at harvest was found the highest with application of *P. fluorescens*. The shortest internodal length (4.66 cm), the lowest first flowering node (4.73) and earliness in flowering (39.33) were observed with application of 0.2 per cent humic acid as foliar spray. The highest value of yield contributing traits such as fruit length (15.36 cm), fruit girth 5.43 cm), fruit weight (15.50 g), fruits per plant (16.37), fruit yield per plant (253.67 g) and per plot (16.67 kg) and also marketable fruit yield per plant (242.67 g) and per plot (16.03 kg) were noticed in the treatment which received *P. fluorescens* and also application of *P. fluorescens* was found to record the highest net return (Rs 87,550) per hectare and benefit cost ratio (3.04).

KEY WORDS : Nutrients, Growth, Yield, Humic acid, Net profit, *Pseudomonas*

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Okra is one of the most important vegetables grown throughout the world covering an area of 0.45 million ha with production of 4.80 million t and productivity of 10.6 t ha⁻¹ in India (National Horticulture Board, 2011). The major producing states are West Bengal, Assam, Bihar, Orissa, Andhra Pradesh and Tamil Nadu and consumed by common people in all the states. The immature fruits are used as vegetables. Apart from its use as a vegetable, its stem and roots are used for cleaning the cane juice from which sugar is prepared (Bose *et al.*, 1993). With the dawn of green revolution during the mid sixties in India the use of chemical fertilizer and pesticides has been on rising scale. The detrimental effects of indiscriminate use of these chemicals have been felt in recent past. The lands which have been applied with application of abundant quantity of chemical fertilizers alone have turned out to be less productive (Hiraguli and Alloli, 2012). Use of nutrients, organics and bio-agents with little amount of

inorganic fertilizer were found to be most effective to enhance yield and maintaining soil health. Keeping these facts in mind, the study was undertaken to study the effect of nutrients, organics and bio-agents on growth, yield and economics of okra.

RESEARCH METHODS

The field experiment was laid out in Randomized Block Design at Horticultural College and Research Institute, TNAU, Coimbatore during the year 2010 with okra hybrid 'COBhH 1'. The crop was grown with different combination of nutrients, organics and bio-agents consisting of 9 treatments replicated thrice. Soil physical and chemical properties were determined by standard procedure. Initial soil properties were analysed and given in Table A. The treatments details are T₁ (sulphate of potash @ 1%), T₂ (micronutrient mixture {Zn (1.68%) + Fe (7.60%) + Mn (1.22%) + Mo (0.14%) + Cu (1.00%) + B (2.48%)