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Influence of growing media, irrigation regime, integrated nutrient management and mulching on the performance of sweet pepper (*Capsicum annuum* L. cv. GROSSUM) hybrid under polyhouse condition

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ABSTRACT

A polyhouse experiment was undertaken at Coimbatore during December, 2002 to June, 2003 to evaluate the effect of different levels of growing media, irrigation regime, integrated nutrient management and mulching on the performance, in terms of growth and yield of sweet pepper hybrid Indra. The growth, yield and quality parameters varied significantly among the treatments. The package consisting of soil: FYM: coir pith (2:1:1) as growing medium, irrigation at 20 kPa, INM with 50 kg each of NPK ha⁻¹ as basal with straight fertilizers and 150 kg each of NPK ha⁻¹ through fertigation with water soluble fertilizers and with mulching was found to be effective in improving the performance in terms of growth, yield and quality.

Key words : Polyhouse, Coir pith, Irrigation regime, Water soluble fertilizer, Mulching.

INTRODUCTION

Sweet pepper is one of the most popular and high value vegetable crops grown for its immature fruits throughout the world. It occupies a place of pride among vegetables in Indian cuisine because of its delicacy and pleasant flavour coupled with the rich content of ascorbic acid and other vitamins and minerals. Despite its economic importance, the productivity under open field was adversely affected by weather factors (Ochigbo and Harris, 1989). Though polyhouse cultivation comes as a rescue from such deleterious weather situations, the performance of the crop differs under different cultural practices like growing medium, irrigation regime, nutrient management and mulching. Therefore, the present study was undertaken to find out the influence of different combinations of growing media, irrigation regime, integrated nutrient management and mulching on growth, yield and guality parameters of sweet pepper hybrid under polyhouse condition.

MATERIALS AND METHODS

A polyhouse experiment was conducted with sweet pepper hybrid Indra as a test crop during December, 2002 to June, 2003 at the College Orchard, Horticultural College and Research Institute, Coimbatore. The experimental site is situated between 11°02' North latitude and 77°03' East longitude and at an altitude of 426.72 m above MSL. The seeds of the hybrid Indra were sown in protrays and 48day old seedlings were transplanted adopting a spacing of 45×30 cm. The experiment was laid out in a RBD with three replications. A plot size of 3.5 m^2 was adopted. There were totally eight treatments with different combinations of growing media, irrigation regime, integrated nutrient management and mulching as presented in Table 1.

Fertilizer application:

- SF- straight fertilizers urea, SSP and MOP for basal as well as fertigation
- ▶ WSF water soluble fertilizer polyfeed (19:19:19),

applied once in 3 days except T (once in 5 days) starting from third week after plashting and up to 20 week after planting

Biofertilizers - Azospirillum, Phosphobacteria and VAM
@ 35: 35:175 g/ 3.5 m² bed

Irrigation regime:

20 and 40 kPa, monitored using tensiometer which was placed in between two rows of plants

Mulching:

A black polyethylene sheet of 200-gauge thickness was used as mulching material for all the treatments except ${\rm T}_{\rm g^{\prime}}$

Observations recorded:

Growth parameters observed on 30, 60, 90 and 120 days after planting and at final harvest were:

- 1. Plant height
- 2. Number of branches/plant
- 3. Dry matter production/ plant

The following yield parameters were studied from second to fourth harvest:

- 1. Number of fruits/plant
- 2. Single fruit weight
- 3. Fruit length
- 4. Fruit breadth
- 4. Pericarp thickness

The quality parameters analysed were:

- 1. Ascorbic acid
- 2. Total soluble solid

I. Growth parameters

Three plants in each treatment were selected at random and utilized for recording observations. The height

^{*} Author for corrospondence.