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Effect of fertigation on growth, yield and quality of papaya (*Carica papaya* L.) cv. MADHU BINDU under South Gujarat conditions

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Abstract : An experiment to study the effect of fertigation on growth, yield and quality of papaya (*Carica papaya* L.) cv. MADHU BINDU under South Gujarat conditions was carried out for two years at the Regional Horticultural Research Station, ASPEE College of Horticulture and Forestry, Navsari Agricultural University, Navsari, Gujarat in randomized block design with 9 fertigation treatments and a control having surface irrigation @ 1.0 IW/CPE ratio + 100 per cent fertilizer through soil. The results of experiment showed early flowering and maturity of first fruit, shortest bearing height, maximum plant height and stem girth, number of functional leaves and total leaf area were found due to application of fertigation @ 0.8 PEF + N and K₂O @ 100 per cent recommended dose of fertilizer (RD) which remained at par with treatment of fertigation @ 0.8 PEF + N and K₂O @ 80 per cent RD. The higher yield of papaya fruits in above treatments was about 31.90 and 31.07 per cent, respectively over control treatment which was attributed to higher number and weight of fruits. These treatments also maintained its superiority in improving quality of papaya fruits. While total carotenoids contents remained unaffected due to different treatments.

Key words : Papaya, Fertigation, Growth, Yield, Quality

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Papaya (*Carica papaya* L.) belongs to family Caricaceae is an important fruit crops of the tropics and sub tropics and deserves greater attention due to its high nutritive value and production potentiality. The crop is extremely sensitive to collar rot under flood irrigation where water comes in direct contact with the trunk. Application of water and soluble nutrients to growing plants through fertigation is an effective method to obtain higher and quality yield along with saving of water and labour. Fertigation involves not only efficient use of the two most precious inputs like water and nutrients but also ensures their simultaneous availability to plants. Jeyakumar *et al.* (2010) and Sadarunnisa *et al.* (2010) reported positive influence of fertigation on plant growth, yield and quality of papaya. Badgujar *et al.* (2004) also revealed the favourable response of fertigation on yield and yield attributing parameters of Grand Naine banana.

Gujarat is the second largest (14100 ha) state under papaya cultivation in India after Andhra Pradesh

(Anonymous, 2009). Warm and humid conditions of South Gujarat make papaya cultivation effective in this region. Hence, the present experiment entitled fertigation studies in papaya (*Carica papaya* L.) cv. MADHU BINDU under South Gujarat conditions was planned and carried out to know the effect of fertigation on growth, yield and quality of papaya.

RESEARCH METHODS

The present experiment was conducted during the year 2007-08 and 2008-09 at Regional Horticultural Research Station, ASPEE College of Horticulture and Forestry, Navsari Agricultural University, Navsari, Gujarat. The experimental soil was deep black having moderate drainage as well as good water holding capacity with 7.8 pH belongs to great soil group Vertic Ustochrepts under soil series of Jalalpor. Transplanting of papaya was done with healthy seedlings of 60 days age at a distance of 2.1 m x 1.9 m in triangular fashion. The treatments