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Influence of fertigation on yield and nutrient status in soil and leaf of papaya (*Carica papaya* L.) var. MADHU BINDU under south Gujarat condition

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ABSTRACT : A field investigation was conducted at Regional Horticultural Research Station, ASPEE College of Horticulture and Forestry, Navsari Agricultural University, Navsasi, Gujarat during 2007-08 and 2008-09 to study the influence of fertigation on yield and nutrient status in soil and leaf of papaya (*Carica papaya* L.) var. Madhu Bindu under South Gujarat conditions. The investigation comprised of 9 fertigation treatments and a control (surface irrigation @ 1.0 IW/CPE ratio + 100 % fertilizer through soil) laid out in Randomized Block Design with three replications. The results of experiment revealed that the maximum yield was obtained due to application of drip irrigation @ 0.8 PEF + N and K_2O @ 100 % RD (T_9). However, it was remained at par with treatment drip irrigation @ 0.8 PEF + N and K_2O @ 80 % RD (T_8). The higher yield of papaya fruits in above treatments was attributed to higher number and weight of fruits. Leaf N and K showed significant variation while P exhibited no variations due to the treatments. The higher level of fertigation treatments maintained its superiority in improving soil properties such as organic carbon and available N and K_2O however, P_2O_5 was remained unchanged due to different treatments.

KEY WORDS : Papaya, Fertigation, Yield, Leaf nutrient, Soil properties

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Papaya (*Carica papaya* L.) is cultivated throughout the tropical world and into the warmest parts of the subtropics. The importance of papaya in the world's economy is demonstrated by its wide distribution and substantial production in tropical countries. In India it is cultivated in an area of 106 thousand ha with a production of 4196 thousand MT having productivity of 39.6 MT/ha (Anonymous, 2011 a). It ranks 9th in area among fruit crop next to mango, citrus, banana, apple, guava, sapota, grapes, pomegranate, where as it occupies 4th position in production next to banana, mango and citrus (Anonymous, 2011 a). Gujarat is the second largest state in the country after Andhra Pradesh holding an area of 17,796 ha with a production of 9,73,973 MT and a productivity of 54.73 MT/ha (Anonymous, 2011 b). Water stress or low moisture condition causes shifting of floral sex towards female sterility and results in low yield while, over irrigations causes root-rot diseases. So optimum soil moisture is essential for better yield. The right choice of adoption of fertigation technology is very much require for reducing quantity of fertilizers, saving of water and labour, increasing yield and for congenial soil environment. The positive influence of fertigation on yield and yield parameters revealed by Jeyakumar *et al.* (2010) and Sadarunnisa *et al.* (2010). The present investigation was therefore, under taken to study the influence of fertigation on yield and nutrient status in soil and leaf of papaya var. MADHU BINDU.

RESEARCH METHODS

The field experiment was conducted at Regional Horticultural Research Station, ASPEE College of Horticulture and Forestry, Navsari Agricultural University, Navsasi, Gujarat during 2007-08 and 2008-09. The soil of experimental field was deep black having moderate drainage as well as good water holding capacity with 7.8 pH and falls in soil group Vertic