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Research Paper

Nitrogen management in guava (*Psidium guajava* L) cv. LUCKNOW-49 through fertigation under North Gujarat conditions

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ABSTRACT

Various fertigation treatments were applied to study their effect on the growth , yield and economic parameters of guava. The four years pooled data revealed that number of fruits and fruit yield of guava were significantly highest with treatments F_1L_3 (60 % recommended dose of nitrogen at 15 days intervals). However, F_1L_2 (80 % recommended dose of nitrogen at 15 days intervals) was at par with that of F_1L_3. Fertigation with only 60 % recommended dose of nitrogen at 15 days intervals was also found to be most economical and profitable fetching the highest net profit and the highest cost benefit ratio. So that, it can be concluded that farmers of North Gujarat should apply 60 per cent of the recommended dose of nitrogen at an interval of 15 days in the month of May-June and September- October. It gives 32 pert cent higher fruit yield and higher net return per hactare alongwith 40 per cent saving of nitrogen.

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Key words : Guava, Fertigation, Cost : benefit ratio

Guava (*Psidium guajava* L.) is an important one of the fruit crop of North Gujarat. Though it is grown in arid and semi-arid conditions, it responds well to nitrogen and farmers apply nitrogen in two splits in the month of June and September. Recently, drip irrigation system gets the prime position for efficient use of water and fertilizer. However, regular irrigation is essential during the reproductive phase (*i.e.* flowering to ripening of fruits) as irregular moisture conditions causes dropping of flowers and small fruits (Patil *et al.*, 2002).Among different management practices, fertigation plays an important role for enhancing yield and quality of product with saving of water and efficient use of fertilizer. Water is a limiting factor in the arid regions. The fertilizers are becoming costlier day by day. Therefore, even under these constraints, it is essential to utilize both these inputs on the scientific basis to get a remunerative crop. Drip system increases the growth and nutritional status of pomegranate under the salt affected soils. (Dwivedi *et al.*,1996) by leaching out excess salt and maintaining proper concentration through continuous dropping of water. This system also checks seepage and evaporation loses (Varsney *et al.*, 1993). However, there is no information available on the effect of fertigation on this fruit crop under North Gujarat conditions. Therefore, the present study was undertaken to generate information on the above aspects.

MATERIALS AND METHODS

A field trial on guava cv. L-49 was conducted at Fruit Research Station, Dehgam, Di: Gandhinagar during 2001-05. The twelve years old plants grown at 6.0 m x 6.0 m spacing were used for the experiment. Total nine treatments were laid out with four replications in Randomized Block Design. In this study two levels of irrigation *i.e.* 15 days interval (F_1) and 30 days interval (F_2) during May to June and September to October through drip (0.5 PEF) were applied and four levels of nitrogen *viz.*, 100 % (L_1), 80 % (L_2), 60 % (L_3) and 40 % (L_4) of recommended doze of nitrogen (500 g / tree) were also applied and studied their interaction effect also. Existing practice *i.e.* 100 % recommended doze of nitrogen was also tested.

RESULTS AND DISCUSSION

The results obtained from the present investigation as well as relevant discussion have been summarised