



Effect of integrated nutrient management on growth yield and quality parameters in tomato (*Lycopersicon esculantum* Mill L.)

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ABSTRACT

An experiment was conducted in a Randomized Block Design at Farm of Krishi Vigyan Kendra, Poonch 2008-09 to study the effect of Integrated nutrient management on growth, vegetable yield and quality of tomato hybrid cv. KUBER GEETA. Combined application of seedling dip with *Azotobacter* @ 2kg/ha +75% N + full dose of PK+ full dose of FYM (T) treatment combination significantly increased growth, yield and quality characters over RDF or organic manures alone thereby a saving of 25% chemical nitrogen application during the year of study also the maximum net returns to the tune of Rs.148089/- and highest cost : benefit ratio of 1:2.51 was recorded with the same treatment combination in the intermediate zone of Jammu division.

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Key words : Integrated nutrient management, Quality parameters, *Azotobacter*, Tomato, FYM, Poultry manure, Phosphorous, Potassium

Tomato (*Lycopersicon esculantum* Mill.) is an important mineral and vitamin rich crop playing a vital role in Indian economy by virtue of its various uses as vegetable and processed forms as well as industrial product. Fertilizer application plays major role for harnessing optimum and good quality fruits in tomato. Although chemical fertilizers particularly nitrogenous and phosphatic fertilizers contribute a lot in fulfilling the nutrient requirement but their excessive, regular and unbalanced use may lead to health and ecological hazards and deteriorate physico-chemical properties of soil. Substances like urea which are either absorbed by the plant roots or converted to nitrates which are absorbed or lost in leaching or converted to gases in N cycle. So, there is need to find an alternate or complimentary source of nutrients that may enhance the yield without having adverse effects on soil properties and fruit quality. Organic manures and bio-inoculants produce organic acids which have capacity of holding cation and anions so integration of nitrogenous fertilizers with organic manures and bio-inoculants is more beneficial in releasing cations slowly to the plants. Addition of organic manures and bio-inoculants can buffer soil pH

making more availability of nutrients to the plants. (Bhadoria *et al.*, 2005). Very less work has been done on the integration of chemical fertilizers with organic manures and bio-inoculants in tomato hybrids. The experiment was laid out to find out the integrated effect of chemical fertilizers in combination with organic manures and bio-inoculants to achieve maximum economic return on growth, yield and quality of tomato hybrid under intermediate zone of J&K.

MATERIALS AND METHODS

The study was carried out at the Farm of Krishi Vigyan Kendra, Poonch of Sher-E-Kashmir University of Agricultural Sciences and Technology of Jammu during summer 2008-09. The experimental farm is situated on Southern slopes of Pir Panjal range and is rugged with spurs and valleys. It lies between 33° 25' -34° 10' North latitude and 73° 58' -74° 35' East longitude. The experiment was laid out in Randomized Block Design with three replications. The seed of hybrid tomato Kuber Geeta was sown in the last week of February and seedlings