

Research Article

Effect of foliar application of secondary and micro nutrients on yield and quality of tomato

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Summary

A field experiment was conducted during *Rabi* 2010-11 in the Hassan district of Karnataka with the objective to study the influence of foliar application of secondary and micro nutrients on yield and quality of tomato. Tomato was grown in plots of 6×3 m² size with nine different treatments in RCBD layout with 3 replications in a red sandy loam soil with slight alkaline pH. The foliar nutrition and soil amendment applications along with NPK fertilizers increased fruit weight significantly. Treatments receiving major nutrients and foliar sprays of secondary and micronutrients (T₂ - 2.34 kg plant⁻¹ and T₆ - 2.89 kg plant⁻¹) recorded slightly higher yield compared to T₁ (2.22 kg plant⁻¹) and T₅ (2.30 kg plant⁻¹). Treatment combinations of major nutrients, foliar sprays and soil amendment recorded the highest number of flowers and fruits in both UAS package and IIHR technology treatments. The shelf life of tomato increased with foliar spray and amendment applications (12-16 days) compared to major nutrients alone (9-11 days). The fruits from plots receiving all the three combinations recorded significantly higher TSS, acidity and ascorbic acid content. The quality parameters like TSS, ascorbic acid and acidity of tomato fruits in UAS package received plots was of the order T₄ > T₃ > T₂ > T₁. The trend remained similar with IIHR technology (T₈ > T₇ > T₆ > T₅). The plots receiving nutrients as per farmers practice produced lesser number of flowers and fruits. The fruit size and the yield was also lesser. Many of growth and yield parameters were found at par with T₁ and T₅ treatments. It was observed from the current study that the IIHR based treatments with foliar application of secondary and micronutrients and splits of N and K was better for increasing productivity.

Key words : Foliar nutrition, Yield, Quality, Tomato

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Introduction

Tomato, an important solanaceous fruit vegetable, plays a vital role in Indian diet by virtue of its nutrients, delicious taste and various modes of consumption and uses. India stands second in the world with respect to area (0.6 lakh ha) and production (111.5 lakh Mt). However, the average productivity is very low (18.6 Mt/ha). The decreased productivity may be due to improper cultural operations, fertility status of soil, varieties/hybrids used and application of nutrients. Balanced nutrients are paid little attention. Excess

applications of major nutrients are known to have antagonistic effect on secondary and micro-nutrients (Mangel and Kirkby, 1982). There are specific reports on phosphorus induced zinc deficiency (Takkar, 1996).

Foliar application, a relatively new technology of feeding plants by applying liquid fertilizers directly to their leaves, has been one of the approaches found beneficial to achieve an improvement in yield and quality of different vegetable crops including fruit crops to meet the demand. It reduces fertilizer input by avoiding losses by soil fixation, leaching and through runoff, correction of observed deficiencies can