

Title Boron nutrition on yield and post harvest life of papaya in semi arid tropics of South India
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Abstract

As papaya is a latex yielding plant, these plants need high metabolic boron. Further B is involved in pollination which affects yield and quality and post harvest life because of its involvement in calcium mobility and cell wall formation. Hence, this study was initiated at IIHR, Bangalore in 1999–2001 to develop methods for regular supply of boron to papaya. Two cultivars low yielding cv. Surya and high yielding cv. Red Lady were planted in red loamy soil (Acquic Haplustalf) in November 1999. The soil had 0.40 ppm HWS boron, which is low. Six treatments: (1) no boron control, (2) B at 2 kg/ha as Borax, (3) 2 kg of B as borax in organic matrix, (4) 2 kg B as Colemanite as slow release B, (5) spray of Solubor at 0.05% once in 3 months, and (6) B at 1 kg as borax and 0.05% foliar spray once in 4 months were imposed in RBD. The NPK at 200 g urea 100 g MOP was given in alternate month. The sixth leaf was monitored for by azomethine method. The results indicated that B in the 6th was sufficient (above 25 ppm) in T₃, T₄, and out of these T₄ proved best due to the slow release Colemanite (36 ppm), followed by T₃ (30 ppm) and T₆ (28 ppm) whereas control had 18 ppm B only yield was high in T₄ at 26 kg/plant with slow release B fertilizer since it raised B in all the leaf samples with highest B (38 ppm) indicating steady supply. The fruit sizes were big, surface was smooth and healthy. The control fruit yield was 18.5 kg/plant. Out of all treatments, T₄ was showing a significant yield increase followed by T₃, and T₆. B supply only through soil (T₂) or foliar spray (T₅) was not effective since their yield was on par with no boron control. The response with ‘Surya’ to B was significantly higher at 18% for ‘Red Lady’ whereas it is 8%. The boron applied fruits had smooth skin, bigger in size and healthy seeds whereas in control the seeds were few aborted and size was small and the control (no boron) fruits set in summer had rough skin and the pulp and cavity were not filled symmetrically and were unmarketable. It is conclusively established a slow release fertilizer boron like Colemanite and combined foliar and soil application has resulted in continuous B supply and high yield.