

Effect of calcium, boron and zinc on growth and physiological attributes in tulip (*Tulipa gesneriana* L.) cv. Apeldoorn

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ABSTRACT : The present investigation was undertaken to study the effect of calcium, boron and zinc on growth and physiological attributes in tulip (*Tulipa gesneriana* L.) cv. Apeldoorn. Three different nutrients Ca (0, 5.00 and 10.00 kg/ha) B (0, 0.5 and 1.00 kg/ ha) and Zn (0 and 8.00 kg/ ha) were applied in soil before planting of bulbs. The study revealed that soil application of Ca at 10.00, B at 1.00 and Zn at 8.00 kg/ha showed significant improvement in plant growth and physiological attributes in tulip. The plant height, number of leaves per plant, wrapper leaf area, leaf chlorophyll content, leaf Ca, B, Zn, N, P and K content, petal membrane stability index were observed to be maximum during harvest with the above treatment. However, per cent of malformed leaves was found to be minimum in this treatment. Enhancement in growth and improved physiological characters with lowest stem topple percentage of 0.00 was noticed with soil application of Ca at 10.00 kg, B at 1.00 and Zn at 8.00 kg/ha. Hence, application of these nutrients proved to be beneficial to get higher yield of standard quality flowers.

Key Words: *Tulipa gesneriana* L. cv. Apeldoorn, physiological attributes, boron, calcium, zinc.