

Title The effects of nitrogen on postharvest disease in mango (*Mangifera indica* L. 'Keitt')

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Abstract

Postharvest diseases in mango (*Mangifera indica* L.) are a major constraint to the shelf life of fruit and have a major impact on domestic and export marketing. The most important of these diseases are anthracnose caused by the pathogenic fungus *Colletotrichum gloeosporioides*, and stem-end rot caused by *Dothiorella* spp. (teleomorph *Botryosphaeria* spp.) and *Lasiodiplodia theobromae*. Currently the control of these pathogens relies mainly on the pre- and postharvest use of synthetic chemicals, postharvest hot water dips and controlled ripening and storage. Little is known of the effects of nutrition on the ability of mango fruit to resist these pathogens. Our aim was to determine the effects of preharvest nitrogen fertilization on the development of these postharvest diseases. Fruit from trees grown under high nitrogen (350 g tree⁻¹) applied in three applications during fruit growth had significantly higher anthracnose severity (20.6%) than fruit from trees grown without nitrogen (0 g tree⁻¹) (9.9%). When nitrogen was applied at rates between 0 and 417 g tree⁻¹ during fruit development, fruit from trees with more than 125 g N tree⁻¹ had significantly higher anthracnose severity (>8.2%) than trees receiving less nitrogen (2.8%). Fruit from trees with nitrogen applied at flowering and mid fruit development, had significantly higher anthracnose severity than trees with nitrogen applied 2 weeks prior to harvest, or no nitrogen. There were no treatment effects on the severity of stem-end rots in any of the experiments. These data confirm the detrimental effects of high preharvest nitrogen on postharvest fruit anthracnose, and suggest that nitrogen should not be applied during flowering or fruit development unless applied just prior to harvest, if nitrogen stimulated anthracnose is to be reduced.