

The Effect of Postharvest Hot Fungicidal Dip and Exogenous Ethylene Gas Application on the Incidence of Dendritic Spot & Stem End Rot in Kensington Pride (KP) Mangoes

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Postharvest hot fungicidal dips of mango fruits have been demonstrated to be an effective postharvest management strategy to control stem end rot (*Neofusicoccum parvum*, *Lasiodiplodia theobromae*) and dendritic spot (*Neofusicoccum parvum*, *Colletotrichum gloeosporioides*). Fruit exposure to exogenous ethylene gas for early ripening is a common practice used by many mango growers in Queensland. As postharvest diseases emerge after fruit ripening, this hastened maturity may also quicken the development these diseases. A study was designed to determine the influence of hot fungicidal dips and ethylene gas exposure on the incidence of these two diseases during the 2010 and 2012 mango seasons. Mature mango fruit (variety Kensington Pride) were collected from the DAFF Ayr Research Facility and from a commercial orchard in Ayr, north Queensland. The fungicide Fludioxonil (Scholar[®]) was applied at a commercial rate of 120ml per at 52°C for 5 minutes using a fruit dip. The fruit was exposed to exogenous ethylene gas at the commercial rate of 10ppm using a trickle ethylene injection system with continuous venting at the commercial pack house. These two treatments were applied on the fruit in the following combinations: hot fungicidal dip only, exogenous ethylene gassing only, hot fungicidal dip followed by exogenous ethylene gassing and untreated control fruit. Five trays of 20 fruit were subjected to each treatment. The results showed that, the fruit exposed to exogenous ethylene gas and untreated fruit developed 100% incidence of dendritic spot during the 2010 season while more than 40% incidence developed during the 2012 season. The hot fungicidal dip treatment resulted in no incidence of dendritic spot during both seasons. Dipping followed by gassing showed 1.25% incidence of dendritic spot during the 2010 and 5% incidence during the 2012 season. Fruit exposed to exogenous ethylene gas and untreated control fruit developed 45 – 50% incidence of stem end rot during 2010 and 2012 mango seasons respectively. For stem end rot, fruit treated with hot fungicidal dip developed 13% incidence during the 2010 season followed by 1% incidence during 2012 season. Fruit exposed to a hot fungicidal dip followed by exogenous ethylene gas exposure developed 26% incidence during the 2010 season and 21% incidence during the 2012 season. The study confirms the effectiveness of hot fungicidal dips followed by exogenous ethylene gas exposure to quicken fruit readiness and prolong market shelf life of saleable fruit with less disease pressure.

The incidence of *Huanglongbing* (HLB) on 2-3 year old tangerine trees (*Citrus reticulata*) grown from disease free nursery stock

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Huanglongbing (HLB) was previously known in many countries as greening disease. HLB is a bacterial disease of citrus that until recently was considered the most serious problem of citrus worldwide. HLB affects citrus trees by blocking the phloem or the vascular system of the tree limiting its ability to uptake nutrients and it is vectored by the Asian citrus psyllid *Diaphorina citri* (Hemiptera: Psyllidae). Occurrence of HLB disease after infection was continually monitored between 2012 and 2013 in an experimental planting of tangerine trees (*Citrus reticulata*) which seedlings from disease free nursery stock in Chiang Mai, Thailand. An early symptom of HLB on tangerine is the yellowing of leaves on an individual limb or in one sector of a tree's canopy. Field trees can be identified as suspect by their foliar but verification of HLB infection requires DNA detection methods. Polymerase chain reaction (PCR) was performed by using Las606/LSS primer to detect symptomatic leaves. Specific primers, forward primer Las606 (5'- GGA GAG GTG AGT GGA ATT CCG A-3') and reverse primer LSS (5'- ACC CAA CAT CTA GGT AAA AAC C -3') were used for amplification of the 16S rDNA of 'Candidatus' *Liberibacter asiaticus* (Las), producing specific bands of 500 bp. The study area showed the percentage of disease incidence ranging from 0.3% in 2012 to 2.0% in 2013. It appears that there is a high incidence of HLB-infected trees at the edges of the plantation. One of potential HLB pathways is infected Asian citrus psyllids from natural movement. It is known that the Asian citrus psyllid vector of HLB has a wide host range, can achieve high populations at citrus vegetative flush, can be spread over long distances, and its control demands both continuous inspection and regular insecticide applications.