

Reducing post-harvest disease in Fuerte avocados by temperature management

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Abstract

The effects of temperature on the development of post-harvest disease caused by *Glomerella cingulata* var. *minor* and *Dothiorella aromatica* were studied in three experiments. In the first, avocados were ripened with ethylene at six constant temperatures from 15 to 30°C. The rate of disease development increased as the temperature increased and final disease levels in ripe fruit were higher at 27°C and 30°C than at 24°C and below. Alternative handling regimes were compared in experiment 2. Disease levels were high (rating 2.0 on a 0-5 scale) in fruit held at constant 27°C, and low (rating 0.3) after ripening with ethylene at constant 17°C. Low levels (ratings 0.4-0.7) were maintained when fruit were held at 7 or 27°C for up to 3 d before ripening with ethylene at 17°C. However, higher ratings (1.1-2.3) were recorded when partially-ripened fruit were transferred to 27°C after various periods of ripening at 17°C. In the third experiment, temperature management was assessed during April (ambient temperatures 18-28°C) and May (14-20°C). In April, the percentage of diseased fruit was reduced from 69% at ambient temperatures to 30% by holding at 17°C after the third day. In May, disease levels in both treatments were comparable (29 and 35% respectively). However the level increased to 71 % when May fruit were held at simulated April temperatures. The results demonstrated that high ripening temperatures increased the incidence of post-harvest disease. The high levels of wastage observed in Fuerte during late summer and autumn, when temperatures often exceed 24°C, should be reduced by ripening with or without ethylene at wholesale markets at 17°C, and by retailing at the same temperature after ripening.