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.