Abstract:

Efficacy of controlled atmosphere (CA) conditions for decay control in 'Thompson Seedless' table grapes was evaluated. Early (16.5% soluble solids content = SSC) and late harvested (19% SSC) grapes were exposed to 5, 10, 15, 20 and 25% CO_2 combined with 3, 6 and 12% O_2. Grapes were initially SO_2 fumigated and air stored grapes were used as controls. Storage atmospheres did not affect SSC, TA, SSC:TA, or berry shatter. The main storage limitations for early harvested 'Thompson Seedless' table grapes were rachis and berry browning development, which resulted from exposure to >10% CO_2. However, ≥15% CO_2 was needed to control total decay and nesting development independent of O_2 concentrations. CA was more effective in decay control without detrimental effects on quality when late harvested grapes were used. The combination of 15% CO_2 with 3, 6 or 12% O_2 is suggested for up to 12 weeks storage only for late harvested 'Thompson Seedless' table grapes; CA should not be used for early commercially harvested grapes.