

Title The impact of fruit maturity on internal browning of stored 'Pink Lady' apples
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Abstract

A study was conducted in Tasmania, Australia, to evaluate the tools for reducing internal browning in long stored fruits, by identifying the effect of rootstock and harvest date, and to identify the role of root disease in the expression of internal browning of apple cv. Pink Lady. In 2001, rootstock and maturity trials were conducted on 5-year-old trees grafted as single tree plots onto MM106, MM106/9 interstem, MM26 and Ottawa 3. Fruits were harvested one week before commercial harvest (CH), at CH (23 April 2001) and one week after CH. In 2002, rootstock and maturity trials were conducted on 10-year-old trees grafted as 3 tree plots onto MM106, MM106/27 interstem, MM106/9 interstem. Fruits were assessed at 10 days before CH, CH and 10 days after CH. Another maturity trial was conducted on a mature orchard in 2002, with trees grafted onto MM106/9 interstems. Fruits were harvested at one and two weeks before CH, CH (22 April 2002) and one week after CH. In 2001, the incidence of internal browning in Ottawa 3 (most dwarfing rootstock) was double the other rootstocks after storage and simulated transport; CO₂ in the fruit internal cavity was lower than that in fruits from MM106/9 and MM26. In 2002, internal browning incidence was higher regardless of rootstock. However, rootstock type had an impact, with fruits from the dwarfing combination MM106/27, having a higher internal browning incidence than the other two interstems. In both years, harvest date was important, with the later harvests having greater internal browning incidences. In both years, fruits from the trees that showed symptoms of root disease had extremely high internal browning levels (47% in 2001 and 100% in 2002) compared with symptomless trees (10% in 2001 and 44% in 2002).