Abstract:

‘Forelle’ pears produced in South Africa are prone to mealiness, or low extractable juice content. Mealiness was thought to result from insufficient postharvest cold storage, required to induce ethylene biosynthesis and ripening, but may also be the result of chilling injury. Consequently, the purpose of this study was to determine the role of cold storage on ripening, and specifically mealiness of ‘Forelle’. Fruit harvested at commercial maturity were stored at -0.5°C for up to 21 weeks. Samples were removed every third week and placed at 15°C. Maturity indices, ACC and ethylene levels were measured every third day for 12 days. Hue angle, flesh firmness, total soluble solids and titratable acidity showed that fruit ripened after 12 weeks at ?0.5°C, but all fruit were mealy after 6 weeks of cold storage followed by 6 days at 15°C. ACC accumulated and there was an ethylene climacteric after 12 weeks at ?0.5°C. Mealiness was related to electrolyte leakage. Fruit stored at 4°C and 7.5°C for 6 weeks ripened with little to no mealiness, in contrast to fruit stored at ?0.5°C (70% mealy). Mealiness in `Forelle’ appears not to be a ripening related disorder but rather chilling injury.