

Title Increasing pineapple fruit resistance to chilling injury during storage by temperature preconditioning

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Abstract

The potential for storing fresh fruit effectively by lowering the degree of fruit susceptibility to chilling injury was explored in pineapple cv. N36. Temperature preconditioning was applied by holding fruits for 24 hours at 15 and/or 10°C before storage at 5°C. Fruit was removed weekly from the cold room and held further for up to 6 days at ambient temperature (25°C) for observation. Development of chilling injury was observed on fruits on removal and during the subsequent days at ambient temperature. Step-wise temperature reduction at 15 and 10°C for 24 hours at each temperature allowed fruit to be stored at 5°C for up to 5 weeks without developing chilling injury. Control fruits (without any treatment) developed symptoms of chilling injury after 3 weeks at 5°C. Expression of chilling injury symptoms were more pronounced when the fruits were exposed to ambient temperature. They are characterized by development of dull appearance of the skin and flesh, fruit failure to ripen satisfactorily, yellowing/drying of the crown leaves and severe mould infection. The study provides an opportunity to extend the storage life of pineapple beyond the period achievable under the normal optimum temperature.