

**Title** Keeping quality of pomegranate fruit during prolonged storage and transport by map: New developments and commercial applications

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### **Abstract**

The main problems associated with prolonged storage of pomegranate fruit are weight loss and shrinkage, decay development, appearance of skin blemishes, especially scald, and impaired quality and taste. In previous studies, we found that implementation of modified atmosphere packaging (MAP) technology is a simple and low-cost method to alleviate these problems and maintain fruit quality for up to 3-4 months after harvest. The present research focused on studying recent innovations in MAP technology for pomegranates. Overall, for short periods of 3-4 weeks until marketing, the fruit can be held in cold storage without any need for MAP technology or special handling. For moderate storage periods of up to 2 months after harvest, we recommend packing the fruit in Xtend® Easy-Tear® bags in small 4-5 kg retail cartons. This type of bag includes a notch, which allows the final user to easily tear and remove the top part of the bag for retail display. The main advantage of using this strategy is that packing the fruit in Xtend® Easy-Tear® bags in export cartons maintains fruit quality and reduces shrinkage and scald development both during the storage period and subsequent transport and marketing. For prolonged storage periods of up to 3-4 months after harvest, we suggest packing the fruit in 20 kg bulk bags in plastic crates or in newly available 80 kg bulk bags suitable for storing fruit in harvest bins. This strategy is optimal for storage of large volumes of fruit for long periods, but necessitates resorting and removing damaged fruit after storage and repacking in export packages. Furthermore, for best maintenance of fruit quality during transport, distribution and retail storage, we recommend repacking the fruit that were stored in bulk bags into Xtend® Easy-Tear® bags and thereby the MAP storage conditions are maintained throughout the entire storage and supply chain.