

Title European pear softening as influenced by picking date, storage time and temperature
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Abstract

Most European pears require chilling before they will soften to their characteristic juicy, melting texture. A promising new PrevarTM selection of European pear was used for this study. Fruit were picked in Nelson, New Zealand on three occasions at c. 10-day intervals from 28 March to 17 April 2008 and stored for up to 24 weeks at 0.5 or 3.5°C, followed by an examination after 7 or 14 days of shelf life at 20°C. This matrix enabled us to quantify the chilling requirement in coolstore for development of the melting texture of this selection as influenced by fruit maturity, storage temperature and time in storage. After storage, flesh firmness and eating texture were assessed. Eating texture was scored on a 0-100 scale, with 0 = 'hard and rubber-like' and 100 = 'a soft melting butter-like texture'. A texture score >75 was the most desirable eating experience for this variety. Texture score, determined by mouth sampling by trained assessors, was closely related to flesh firmness by instrumental measurement. Coolstore temperature played a major role in both softening characteristics of this pear and its storage life. Cooler temperatures not only maintained flesh integrity for longer but also resulted in a slower decline of flesh firmness with time in store. Chilling requirement for softening of this pear depended on both coolstore temperature and date of picking. Later picking resulted in more rapid softening. The characteristic melting texture of this pear was achieved for the first harvested fruit after 4 weeks at 3.5°C and 14 days of shelf life at 20°C compared with only 2 weeks of storage for fruit from the third harvest. In contrast, 4 weeks at 0.5°C was not sufficient time to induce adequate softening for fruit from the first harvest. Consequently, the inherent softening characteristics of this pear will enable storage temperatures to be adjusted to release fruit with the ability to soften over a long period of time.