

Title Conditioning temperature and harvest maturity influence induction of ripening capacity in 'd'Anjou' pear fruit

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Abstract

The relationship between 'd'Anjou' pear fruit maturity at harvest and the postharvest conditioning duration necessary to induce ripening capacity at -0.5 , 5 , or 10 °C was studied at two locations in Oregon. Fruit were harvested weekly for five weeks beginning at the onset of fruit maturity, and conditioned for 10, 20, 30, 40, 50, or 60 d at each temperature. After 7 d ripening time at 20 °C, fruit firmness was measured and the duration of conditioning corresponding to fruit softening to ≤ 17.8 N was calculated. At -0.5 °C, approximately 60 d were required to induce ripening capacity in fruit harvested at initial maturity. This decreased over the series of harvest timings to a minimum of approximately 22 d when pears were harvested 28 d after initial maturity. At 5 °C, fruit harvested at initial maturity required approximately 30 d to achieve ripening capacity, while those harvested 28 d after initial maturity needed only 2 d. At 10 °C, fruit harvested at initial maturity required approximately 18 d to achieve ripening capacity; pears harvested 21 and 28 d after initial maturity ripened in less than 10 d at 10 °C, and most of the fruit from these harvest timings were deteriorated at all durations ≥ 10 d at 10 °C. The relationship between harvest timing and the conditioning duration necessary to induce ripening at each temperature was well-described by second-order polynomial regression. Using this relationship, the duration of conditioning necessary to induce ripening capacity in 'd'Anjou' pears at -0.5 , 5 , or 10 °C corresponding to specific harvest timings can be calculated from the regression equations.