

**Title** Tomato precooling using simple hydrocooler and fruit quality changes during ambient and cold storage

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#### **Abstract**

A simple and portable hydrocooler developed for small farms and packhouses was tested to rapidly cool tomato (cv. 'Perfect 89') at color break stage before storage at ambient (25°C) and low temperature (10°C). Water temperature was lowered to 10°C using ice and fruit were submerged until fruit temperature decreased to 13°C which was kept for 4, 8 and 12 min. Fruit dipped in ambient water served as control. Ripening-associated fruit reddening and softening was expectedly slower at 10°C than at 25°C. Hydrocooling slowed reddening more than softening based on changes in colorimetric a\* values and firmness, respectively. Longer cooling times were generally more effective in eliciting these effects. Soluble solids content (SSC) of hydrocooled fruit was either higher than or comparable to that before storage (initial SSC). SSC of control fruit decreased with increasing duration of storage at both temperatures. Titratable acidity decreased with storage regardless of treatment. At 10°C, fruit acidity decreased more rapidly in the control than in hydrocooled fruit. At 25°C, hydrocooling had no appreciable effect on TA. It had also no marked influence on fruit decay which was mainly due to fungal growth. At 10°C, decay was lower in hydrocooled fruit.