Title Effect of ear orientations on hydrocooling performance and quality of sweet corn

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Abstract

Three cultivars of sweet corn were precooled immediately after harvest using a hydrocooler system. Combinations of two water flow patterns, immersed and spray, and two cob orientations, parallel and perpendicular to the water flow were tested. Corn cobs cooled passively in cold room served as control treatment. Both precooled and room cooled corn cobs were stored for 7 and 21 days at 1 °C and 90–95% RH. Half cooling time and quality attributes were measured to assess the performance of the hydro cooler compared to room cooling. Immersed-in-water type flow and perpendicular orientation of corn cobs reduced significantly the cooling time. On the other hand, hydrocooled sweet corn cobs kept a high standard of quality up to 21 days by conserving high total soluble solids and moisture contents and maintaining excellent quality index. The three cultivars of sweet corn were different in their keeping quality over time. However, sanitation of water is a must in order to avoid the contamination by spoilage organisms that can reduce significantly the overall quality of corn cobs after 21 days of storage.