

**Title** Shelf life of leafy vegetables in simple evaporative coolers in Cambodia and Laos

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### **Abstract**

Evaporative coolers cool produce by evaporation of water provided within a storage chamber; the temperature is reduced slightly while relative humidity can be increased appreciably – a favorable condition for slowing water loss and wilting of leafy vegetables. Storage trials for cabbage (Cambodia and Laos), Chinese kale (Cambodia), and Chinese mustard (Laos) were conducted using three types of commercial sized evaporation coolers: brick-walled coolers with moistened sawdust (Cambodia) or sand (Lao) as well insulation, and a box-type cooler covered with jute sacks sewn to fit the structure and kept moistened with water (Cambodia). Coolers decreased temperatures by about 1-8°C relative to ambient (27-34°C), with the brick-walled cooler being more effective in reducing temperature than the box-type cooler. Relative humidity increased by 8-40% compared to ambient relative humidity (48-90%). Temperatures and relative humidity in the evaporative coolers also showed less fluctuation than at ambient. Consequently, weight loss decreased by about 100-245% in cabbage after 8-14 days of storage, 225-550% in Chinese kale after two days of storage, and 85% in Chinese mustard after two days of storage. The brick-walled cooler was more effective than the box-type cooler in reducing weight loss of Chinese kale. Shelf life of cooler-stored cabbage increased by six days, Chinese kale and mustard by 2-3 days. At ambient, cabbage for 16 days before trimming loss exceeded 50% of the original weight, due mainly to wilting of outer leaves. In Chinese kale and mustard, shelf life at ambient was only one day or less because of rapid wilting.