

Title Modified atmosphere packaging of leafy vegetables in Cambodia and Laos

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Abstract

Leafy vegetables quickly deteriorate in quality after harvest due to rapid moisture loss and wilting – a serious marketing constraint in developing countries such as Cambodia and Laos where refrigerated storage facilities are scarce. Modified atmosphere packaging using polymeric film is known to be effective in reducing weight loss and senescent processes. Trials were conducted using three commercially available plastic films with 25-micron thickness: low-density polyethylene, high-density polyethylene, and polypropylene films with and without 5 mm-diameter perforations (4 holes/kg produce). Storage in the open served as control. Commercial varieties of cabbage (Cambodia and Laos), Chinese kale (Cambodia), and Chinese mustard (Laos) were used. Cabbage shelf life was improved most effectively by low-density polyethylene in both country trials. Weight loss was reduced below 5% after 8-14 days storage whereas the control lost 19-22% weight. However, perforations were necessary in the Laos trial. In perforated low-density polyethylene, shelf life (<50% trimming loss due to decay and/or wilting of outer leaves) was the longest (30 days) while that of the control, the shortest (16 days). For Chinese kale, polypropylene was most effective, keeping weight loss below 1% after two days. The control had a weight loss of 37.5% after two days but wilted severely in less than one day of storage. For Chinese mustard, perforated high-density polyethylene was most effective, reducing weight loss to 5% from 28% for the control after two days of storage, and increasing shelf life threefold.