Lower Temperatures in Cases with Doors Improve Produce Quality and Safety with Reduced Energy Consumption

Storing packaged fresh-cut leafy green vegetables at elevated temperatures could compromise food safety, because human pathogenic bacteria, such as *E. coli* O157:H7 *and Salmonella enterica*, grow rapidly when held at 41 °C or above. The new US Food Code requires all packaged fresh-cut leafy greens to be maintained at 41°F or less at all times to reduce food safety risks. However, at retail, this is technically challenging, because these foods are often displayed in open refrigerated cases that cannot meet the Food Code temperature limit requirement at the front of the display case without also freezing products in the rear. Project team members at USDA-ARS performed extensive studies evaluating the best options for improving temperature uniformity throughout the display case, and concluded that retrofitting an open case with clear glass doors is the best option to enable compliance with FDA Food Code at the retail level. Products displayed in cases with doors did not support growth of pathogenic bacteria on the cut salad, had better quality and longer shelf life. The retrofitted cases had the added benefit of reduced energy costs by as much as 69% compared to open cases. The cost of installing doors is recoverable in less than two years through the reduced energy cost alone. The option of doors for retail display of leafy greens is truly a win-win-win solution at the intersection of food safety, food quality, and energy efficiency. Download the poster presentation. Download the publications.