



A Model HACCP Plan for Small-Scale, Fresh-Squeezed (Not Pasteurized) Citrus Juice Operations¹

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It is the focus and intent of this document to provide assistance for management of small-scale citrus-juice processors to put in place and implement strategies that assure the safety and maximize the quality of non-pasteurized juice.

Background

Consumption of fresh-squeezed (not-pasteurized) citrus juices has increased nationwide. Fresh-squeezed juice--once produced and marketed primarily at roadside stands--is currently marketed throughout the United States and to some foreign countries.

The feature of fresh-squeezed (not-pasteurized) citrus juices that sets them apart from conventional juice products is the lack of heat pasteurization. The heat process used in pasteurization of conventional juices increases shelf life by inactivating certain enzymes and microorganisms (yeasts, molds, bacteria). However, heat processing also results in flavor loss and other changes which detract from the fresh, natural quality of the juice (Carter 1989).

It has long been recognized that shelf life and quality of fresh-squeezed juice products is directly related to the care and sanitation steps taken in

processing. If processed and stored under appropriate conditions, good quality juice may achieve several days' shelf life prior to quality deterioration. Likewise, caution and care in manufacture are necessary to assure microbiological safety of the product.

From a safety standpoint, *Salmonella* and *E. Coli* 0157:H7 contamination are of highest concern. Traditionally, foods of animal origin are most commonly implicated in outbreaks involving these microorganisms. More recently, large *Salmonellosis* outbreaks have been associated with contaminated fresh fruits and vegetables (Centers for Disease Control 1991, Hedberg et al. 1994, McFarland 1994). Of great concern to the fresh-squeezed juice industry is the *Salmonellosis* outbreak--in 1995 at a Florida theme park--which involved contaminated unpasteurized orange juice. More than 60 park visitors were affected in this outbreak (Centers for Disease Control 1995). Recently, an association of *E. Coli* 0157:H7 with outbreaks involving non-pasteurized apple cider and juice made headlines.

The Florida Department of Citrus had amended its rules and Grade A standards for packing Fresh-squeezed Florida Orange Juice (Florida Dept. of Citrus 1993). Gift fruit shippers, small scale retail processors, and roadside stand operators who squeezed less than 30,000 boxes

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