

INTRODUCTION

The Indian River area is a legally defined market district on the east coast of Florida (Figure 1) and one in which the spatial pattern of citrus supplies is changing. Nearly two-thirds of its western border is separated from the interior marketing district by swampland containing little or no citrus. In the past 15 years, most new planting in the district has occurred in its southern half. Existing packing plants are located near older groves. As more citrus is grown in the southern area, increased assembly costs will be incurred unless new packing plants are opened near the new production areas.

The purpose of this bulletin is to determine if cost efficiencies are present which could result in changes in the size, number, and location of Indian River packinghouses over time when the volume and location of production is changing. Specific objectives are (a) to develop static and dynamic plant location models for the Indian River district, (b) to determine the potential dynamic adjustments in size, number, and location of Indian River packinghouses from 1979-80 through the 1983-84 season when the volume and location of production is changing, and (c) to determine the sensitivity of the dynamic adjustments to changes in the time horizon, the discount interest rate, and transition costs.

The model in this bulletin analyzes only the cost side of the profit equation. Model results when compared with the existing industry configuration will indicate the potential for packinghouse size, number and location changes. The demonstrated presence of structure-altering economic forces (cost efficiencies) may not result in immediate real world changes. This results from the facts that (a) all packinghouses in the model are assumed to behave so as to minimize industry collection, packing, and distribution costs, whereas in the real world there are independent entrepreneurs making decisions, (b) firms generally maximize profits, rather than minimize costs, and (c) the cost efficiency of management varies among packinghouses.

Structure-altering cost efficiencies become more important (a) during recessions, (b) during periods of increased competition from new firms entering the industry, (c) during periods of low output prices, (d) during periods of inflation when costs are rising faster than output prices, and (e) during periods when substitutes are entering the market. The Indian River packinghouse industry has experienced several of these structure-altering forces in the recent past and will likely encounter them in the future.