EXECUTIVE SUMMARY

FEASIBILITY OF REUSABLE PLASTIC CONTAINERS (RPCs) FOR SHIPPING AND DISPLAYING PRODUCE

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Prepared for:

ALAMEDA COUNTY SOURCE REDUCTION AND RECYCLING BOARD

Prepared by:

M. J. CARNEY
E. A. ODRON
S. J. EVERETT

BRC
a **B**usiness **R**esearch & **C**onsulting organization
856 Arbor Rd., Menlo Park, CA 94025
650-324-3325 MC_BRC@compuserve.com

About This Study

ARE RPCs AN OPPORTUNITY FOR SOURCE REDUCTION WORTH DEVELOPING?

Background

In August of 1999, the Alameda County Source Reduction and Recycling Board commissioned **BRC**, an independent research organization, to conduct a field test to determine the economic, environmental, and performance feasibility of shipping and displaying produce in RPCs in 4 Alameda County supermarkets. This study is a small but important part of the information needed to understand the use of these containers in the U.S.

RPCs have been used successfully for many years in Europe and other parts of the world for shipping produce and other products. Although adopted by the U.S. fast food poultry industry and other selected markets (e.g. baked goods, dairy, auto assemblers) for more than 10 years, their use in this country languished until 1994/95 when interest and experiments by other industries and companies became more common. Concurrently, 2 worldwide suppliers of returnable containers (CHEP and IFCO) launched a significant market development effort. RPC manufacturers have likewise stepped up their technical and marketing efforts in the past 5 years.

The prospects for increased use of RPCs in the U.S. are at a pivotal stage. The current battleground is retail distribution of fresh produce. The world's largest retailer, Wal-Mart, is a driving force for shipping produce in RPCs in this country. Major grocery chains like Kroger, A&P, and HEB are also using or experimenting with these containers. The 2 major alliances in the produce industry (Produce Marketing Association and the United Fruit and Vegetable Association) have formed task forces and/or issued voluntary guidelines or standards for using RPCs.

Study Sponsorship

Several studies have been done to measure the economic pros and cons of RPCs for produce. The credibility and completeness of some of these analyses are limited. Other studies, some of which are likely to be credible and comprehensive, are proprietary and not in the public domain. This study was conducted by an independent research group and sponsored by a public organization concerned with environmental implications rather than a company selling shipping containers or interested in maintaining the status quo. Therefore, this study is intended to provide impartial input to assist the Agency decide if RPCs are promising enough to promote their use in Alameda County. The study's findings are also available to those thinking of using RPCs, to those

deciding whether to supply this market, and to those otherwise interested in or affected by the future of RPCs.

Barriers

Obstacles to widespread adoption of RPCs for produce are significant. These barriers include inertia or resistance to change, uncertainty as to the most efficient RPC business model (buy, lease, or pool), and variations in how economic and suitable RPCs are for a particular product or shipping situation. While acceptance by grower/packers of produce is certainly necessary, grocers are seen to be the key decision-makers on the question of whether traditional shipping containers (mostly paperboard and wood) will be replaced with RPCs in produce. Grocers have the most to gain or lose with RPCs. Without their active support, increased use of RPCs is unlikely. Grocers' collective decision on RPCs hinges on the subject of this study, namely RPCs' economic, performance, and environmental feasibility in grocery operations.

RPC USE WAS TESTED WITH GRAPES AND CARROTS IN 4 ALAMEDA COUNTY SUPERMARKETS

Methodology and Scope

Red table grapes and baby carrots were selected for testing RPCs because they are believed to represent above-average prospects for using these containers. First of all, the moisture-resistance of plastic is important for these 2 produce items since they are normally refrigerated. Secondly, these items' traditional shipping containers (foam, wood, waxed corrugated paperboard) normally go to landfill. Finally, these 2 items are grown and packed within 300 miles of Alameda County, thereby minimizing the additional cost of returning empty RPCs for cleaning and reuse. These "best case" produce items were selected with the premise that if RPCs didn't provide sufficient economic and environmental benefits to grocers in these cases, the possibility of grocers using RPCs for other produce would be even less. It also follows that the conclusions of this study do not apply to all produce. In fact, **a major conclusion of the study is that RPC feasibility varies significantly depending on the produce item, the container being replaced, the store's display fixtures, and the grocer's disposal system.**

The scope of this study does not include detailed container characteristics (e.g., its footprint, whether they should be collapsible or nestable, whether to use lids or not) or the economics of various models for supplying RPCs (to own, rent, or pool). The scope does include providing suggestions as to what the Agency could do to help overcome the barriers to greater use of RPCs.

TKV Containers of Fresno, CA, agent for IFCO, generously supplied the RPCs used in this test (at no extra cost to the grocers). Grimmway Farms, Bujulian Bros., and Johnson Grapes contributed their facilities and efforts for packing and shipping the carrots and grapes. The 4 test stores included 2 Andronico's in Berkeley, CA, a Food Maxx store in Fremont, CA, and a Food Maxx store in Hayward, CA. These were selected in order to encompass a range of display, distribution, cost, and disposal systems. Andronico's is a traditional supermarket; Food Maxx a warehouse grocery outlet. All 4 stores are full line grocers.

RPCs were used exclusively by the 4 stores during the test period for receiving and displaying table grapes and baby carrots. The information in this study was gathered during weekly audits/personal interviews with store produce managers, assistant produce managers, stockers, purchasing agents, and corporate management of each chain. Produce managers at 4 control stores (those in the 2 chains but not testing RPCs) were also interviewed, as were distribution and warehouse personnel. Estimates of the effect on cost of labor from using RPCs are based on direct responses from store produce managers and repeated personal observations during the 5 week pretest, 10 week test, and 4 week post-test periods. The total 19-week span began in October, 1999 and ended in February, 2000.

Pictures of the items displayed in RPCs are included in the Appendix of Supporting Data of this study's report. A simplified diagram showing the flow of RPCs and traditional containers from packing to stores and to either reuse or landfill is attached to this summary.

Six Major Findings of the Study

1. COST SAVINGS FROM USING RPCs VARY WIDELY BUT ARE OFTEN SIGNIFICANT

Depending on the traditional container being replaced, on a store's disposal and display systems, and its normal distribution patterns, stores in *this test* saved from $.20 to $1.37 per case by using RPCs (see pages 10 and 11 of the Appendix for details). The average savings from the 7 scenarios in this test is $.78 per case. **Saving labor by not having to unpack the shipping container and to hand stack the retail display and by not having to pay the cost of disposal are the 2 major reasons for these savings.**

Given the range of possibilities, it is potentially misleading to generalize about savings with RPCs. It will be important for grocers to calculate savings for their situation(s) before deciding to adopt RPCs as a preferred shipping container for produce. If the Agency decides to promote RPC use, it may want to strongly urge grocers to conduct an economic analysis similar to that done in this study.

2. THE TEST DOES NOT SUPPORT THE CONCERN OF SOME GROCERS THAT USING RPCs FOR DISPLAY WILL NEGATIVELY AFFECT SALES

Grocery stores' decisions about switching to RPCs will depend not only on costs, but the effect of RPCs on sales when they are used for displaying produce. Depending on the specific item and its traditional shipping container, most produce is unpacked from its container and stacked on the display by hand. This is not necessary when using display-ready RPCs. Putting the already-packed RPC directly on display saves labor.

However, some grocers believe that using RPCs for display detract from the fresh, farm-like appearance they want to portray and that sales will suffer. Results of this test do not support this concern. Sales of table grapes and baby carrots in each of the 2 groups of test stores during the test period were not adversely affected by displaying in RPCs. The test stores' share of each chain's total sales of the 2 items did not consistently decline during the test period compared to the pretest or post-test. Please refer to pages 7,8, and 9 of the Appendix for further information.

Test grocers also expressed concern about RPCs fitting the configuration of their display fixtures efficiently. This was less of a concern when the item was normally displayed on flat, non-refrigerated bins in the center of the produce department. However, the 16" X 24" X 6" RPC used in this test did not optimally fit the stores' multi-level refrigerated cases. Produce managers in test stores tried a variety of ways to use the RPCs in refrigerated cases that both suited the desired "look" of the department and was practical to stack and maintain. Results were mixed (see photos beginning on page 26 of the Appendix). **Additional sizes/configurations of RPCs and/or other display cases will be required to optimize the space efficiency of RPCs.**

3. GROWER/PACKERS IN THIS TEST WERE NEUTRAL OR SUPPORTIVE OF RPCs

Prior **BRC** studies demonstrated that while cost savings when precooling in RPCs was considered an advantage to produce packers, these savings were not large enough to motivate packers to spearhead the change to RPCs. This was especially true for those occasional situations where packers would have to change their production lines in order to accommodate RPCs.

Grower/packers involved in this study showed considerable willingness to provide their customers (grocers) what they wanted. The packers reported no major problems using RPCs in field or shed packing. Packers for the test felt that they were sturdier and stacked more securely than traditional containers, and better withstood the temperature and moisture of cold storage rooms. A grape packer described RPCs as the "container of the future". All, however, felt that

more experience using RPCs on a large scale was necessary before completely endorsing their use.

4. WHETHER RPCs SHOULD BE OWNED, LEASED, OR POOLED IS UNCLEAR

Determining the best business model for RPCs was not within the scope of this study. However, whether it is "best" for the RPCs to be owned, rented or pooled by grocers, growers, or distributors is an issue that ultimately needs to be resolved if their use is to expand. With the growing interest in RPCs, companies who manufacture RPCs and other material handling organizations (e.g., pallet leasing firms) are important contributors to increasing the acceptance of RPCs. Maintaining a reliable supply of RPCs is a critical part of their future use. Identifying the probable business model(s) will involve understanding the economics of various alternatives, the need for certain sizes or characteristics of containers, the willingness of the parties involved to invest in an inventory and/or cleaning facilities, the best system for accountability, and other competitive factors.

5. RPCs WOULD PARTIALLY REDUCE THE 18,000 TONS OF PRODUCE CONTAINERS NOW BEING USED ANNUALLY IN THE COUNTY

The environmental benefits of RPCs include reducing the waste that goes to landfill as well as less use of wood resources for manufacturing wood and paperboard containers. Increasing the use of RPCs would help the County achieve its environmental goals through source reduction. Part of the 18,000 tons* of wood, paperboard, and foam produce containers now used by the County per year would be displaced by switching to RPCs for produce. This is but one example of how reusable containers could cut the County's consumption of transport packaging.

Use of RPCs as shippers have long been reducing the source of waste through their use as shippers in the dairy, beverage, bakery goods and fast-food poultry industries. Expanded use of RPCs in retail produce displays would be a highly visible example of how plastic reusable containers can be used. **Other end-use markets for RPCs that may be worth exploring are retail poultry, red meat products, and assembly/fabrication plants for durable goods.** (See the table on page 48 of the Appendix for a listing of factors/market conditions that determine RPCs' feasibility in an industry or application.)

6. ACCEPTANCE OF RPCs BY GROCERS INCREASES WITH EXPERIENCE

Over the course of this test, it was found that hands-on experience with RPCs often improved a grocery store employee's opinion about RPCs. Initially, most

*includes containers that can be recycled. See page 12 of the Appendix.

store personnel were skeptical. The containers look different, require changing their display-building practices, need to be collapsed when empty and then stored in the back before pickup, and require some record-keeping to account for the number of RPCs received and returned.

An initially skeptical attitude is understandable since store personnel are comfortable working with traditional containers, which were seen as "doing the job". However, as they gained experience with RPCs, most changed their views and ended up supporting their use. They reported that RPCs were easier to handle (more rigid, have hand-holds) and were stronger than many traditional containers, especially under the moist conditions of store coolers. Also, several appreciated RPCs' environmental advantages of less waste to landfill and conservation of resources through reuse.

Opinions as to RPCs' appearance when used as a display vehicle varied. Some store personnel thought the display looked neater and more organized with RPCs. Others, as mentioned earlier, felt that RPCs detracted from a farm-like, fresh, appearance and preferred to see more produce and less plastic.

Reaction to RPCs among those in the warehouse or distribution centers also varied and tended to improve as experience with these containers increased. Most warehouse managers realized that RPCs added to their workload since they now had to handle the returning RPCs compared to one-way shipping containers disposed of at the store. The extra paperwork associated with reuse rather than disposing or recycling was also mentioned by warehouse managers. In some cases, managers were willing to assume this responsibility because of RPCs' environmental advantages; in other cases, the managers were not supportive of changing the system.

It's difficult to know how much of a manager's opinion about RPCs is valid considering the trouble or hassle that RPCs present in a test situation. It was noted more than once that distribution managers were annoyed that they had to spend time "putting up" with a small number of containers that lie outside their normal routine. A large-scale, widespread test and total commitment from a grocer's upper management to RPCs could dramatically affect acceptance of these containers by managers in the stores and warehouse.

Losses of RPCs from theft or damage were also mentioned as a "cost" or disadvantage. Maintaining security and control over RPC inventory is certainly necessary. However, this issue was not considered a "deal-breaker". Prior **BRC** studies indicate that loss rates are often unknown or no greater than 5-8%.

It was also common for a manager to say that RPCs were better for the "other guy." For example, a mass merchandiser would remark that RPCs would be best for a traditional grocer who tends to the display frequently during the day. And a traditional grocer was inclined to say that RPCs are best for a mass

merchandiser who is less concerned than they about the look of plastic containers in the display. For more insight on the qualitative issues surrounding RPCs' acceptance, please refer to paraphrased comments from respondents that begin on page 13 of the Appendix. **All in all, 3 out of the 4 produce managers in the test stores recommended buying carrots and/or grapes in RPCs. The 4th manager was neutral to somewhat supportive.**

Next Steps

The primary purpose of this study was to determine if RPCs offered enough potential economic, performance, and environmental advantages to suggest that grocers will increase their use of these containers for produce. *Under the conditions of this test*, the answer is yes.

The Agency has a source reduction opportunity here that we believe deserves taking to the next stage. Using its position and resources, the Agency could accelerate adoption of RPCs. We propose that the following are important steps that the Agency needs to initiate in order to take advantage of this opportunity. **In essence, we suggest a 2-prong program of publicizing the results of this project and finding other transport packaging markets that are well suited to RPCs.**

- It was found that hands-on experience and exposure to credible examples for using RPCs could change a grocer's initial resistance to something different. Distributing the study's results in Agency publications, in its Website, in meetings with management of grocery stores in the County, and with other environmental groups in the Bay Area is recommended. Providing copies of this report and offering to speak to State environmental and agricultural groups and national associations of grocers and produce growers are also advised.

- Another important step is to establish ways to collect and share information about RPCs. One such way would be to convene a countywide forum for developing guidelines for using RPCs in produce and to offer solutions to problems when switching to RPCs for shipping and displaying products.

- A third step is to help ensure a reliable supply of clean, serviceable RPCs. It seems worthwhile for the Agency to explore the feasibility of providing temporary financial support for a countywide collection and cleaning facility for RPCs.

- A critical mass of RPCs users is needed to establish a viable network for widespread use. A program of screening for other produce items or products that appear well suited for RPCs would build interest within the county and leverage the steps listed above.