APPENDIX OF SUPPORTING DATA

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

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Prepared for:

ALAMEDA COUNTY SOURCE REDUCTION AND RECYCLING BOARD

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TABLE OF CONTENTS

PURPOSE AND SCOPE OF PROJECT

The Alameda County Source Reduction and Recycling Board's (the Agency) mission is to provide the most environmentally sound waste management program for the people of Alameda County (the County). This includes initiating innovative programs to maximize source reduction, resource recovery, and economic development opportunities. This research project is an important first step in determining if an innovative program of shipping produce in reusable plastic shipping containers (RPCs) has potential to help the Agency achieve its goals in source reduction.

In its prior studies on this subject, **BRC** found that in certain situations, RPCs offer significant advantages over traditional containers for shipping produce, poultry, and other products. The primary purpose of this project is to measure the economic, environmental, and performance tradeoffs of RPCs vs. traditional containers (e.g. corrugated paperboard) in shipping and displaying 2 large volume produce items among test grocery chains in the County.

The focus of the project is to determine if RPCs offer enough advantages to grocers, since they will be the primary beneficiaries of these advantages and initiators of a switch to RPCs.

Specific benefits to the Agency from the study are to learn:

- If RPCs offer enough incentive to justify priority market development

- What obstacles or uncertainties should be addressed to overcome inertia for grocers to change to RPCs

The test in this project is an impartial and sufficiently comprehensive evaluation of RPCs used for 2 produce items (red grapes and baby carrots). Unlike many other tests of these containers, the sponsor (the Agency) and the research organization (**BRC**) are not producing, selling, or leasing plastic or paperboard containers. Nor is the sponsor or researcher interested in preserving the status quo in grocery stores or for growers. This test is intended to provide a credible and accurate economic and environmental assessment of RPCs for grocers and for the community within the parameters and conditions stated below. This test is not intended to answer all questions or simulate all shipping, displaying, and disposal situations.

METHOD OF APPROACH

The first step in this project was to update **BRC**'s data files on RPCs by reviewing secondary sources and contacting those known as having experience or knowledge about these containers. These include grocers using or testing RPCs now or in the past, manufacturers or lessors of plastic containers, trade associations, governmental agencies, and other organizations (such as schools for packaging engineers) with knowledge of RPCs.

The essence of this project was a 19-week field test of packaging, shipping, displaying, and returning RPCs versus disposing of traditional containers for red table grapes and 1-lb. bagged baby carrots in 4 representative Alameda County grocery stores. Two of the stores were among those in a warehouse-type supermarket chain; the other two stores were among those of a traditional supermarket chain. Both of these venues were selected in order to encompass a range of display, distribution, cost, and disposal systems for grocery stores in the County.

Red grapes and bagged baby carrots are judged to be among the "best case" prospects in produce for RPCs. They both require refrigeration during at least part of their processing, distribution, or selling process and thus take advantage of RPCs' resistance to moisture. Both grapes and carrots' traditional containers (foam or wood for grapes, waxed corrugated paperboard for carrots) are not normally recycled, require disposal, and end up in County landfill. Both are high volume, semi-commodity produce items with relatively straightforward distribution channels so that empty RPCs could be picked up frequently for cleaning and re-use. Both are also grown, harvested, and processed for packaging within 300 miles of the County, thereby minimizing (1) the freight/weight cost penalty for RPCs and (2) the time and cost to backhaul, clean, and re-ship empty RPCs to packers.

These "best case" produce items were selected with the premise that if RPCs were not found feasible for them, they would be even less so for other produce items and further study would not be necessary. As such, the results of this test do not necessarily apply to other produce items. In fact, a major finding of the study is that there are large variations in cost and feasibility of RPCs according to the product, the container being replaced, distance between growers and grocers, and traditional display and disposal practices.

BRC's previous studies have shown that frequent delivery of a uniform product in closed or captive distribution systems over short distances are the most attractive situations for RPCs. Replacing traditional containers that are not easily recycled in a region that also has high disposal costs further enhances the feasibility of RPCs.

The 4 week pretest of the field test included measuring grape and carrot sales, observing and identifying the pros and cons involved with these products' traditional containers, and learning the stores' systems. During the pretest, store personnel were briefed on the test protocol, and interviewed to obtain pre-experience perceptions and reaction to using RPCs.

During the following 10 weeks, each store received and displayed the 2 produce items exclusively in RPCs. The empty RPCs were folded, stored, and returned to the stores' respective distribution center. **BRC** continually audited progress of the test during weekly visits to the stores. These audits included gathering sales information, observing time taken by store personnel to use RPCs, and discussing display or handling techniques. Each of the weekly audits focussed on gathering feedback from personnel on a particular step in the flow or use of these containers from receiving to cold storage to displaying to storing the empties for return.

The 10-week test period also included personal interviews by **BRC** with carrot and grape packers to learn their position on the relative advantage and disadvantages of RPCs in the harvesting, packing, and shipping process.

The 5 week post test consisted of follow up interviews with test store managers to learn if their views of RPCs changed after returning to traditional containers and to track any changes in sales. **BRC** also interviewed managers at 5 other stores within the 2 grocery chains to obtain their reaction to test results. In addition, distribution managers, purchasing managers, and various corporate managers were contacted to gather information for the cost estimates and to review final cost estimates for reasonableness and completeness.

The last step in the project was to prepare the appendix of detailed findings, including a summary of paraphrased comments from all groups contacted in this study. The reader is strongly encouraged to review these comments. They provide insight and qualitative input, which add to the numeric data presented. Copies of **BRC**'s presentation to Alameda County Source Reduction and Recycling Board in June of 2000 are also available.

This project would not have been possible without the support and contribution of TKV/IFCO Containers of Fresno, CA (who generously supplied the RPCs for this test), Grimmway Farms in Bakersfield (who packed and sold the baby carrots to the test stores), and both Bujulian Bros. of Kingsburg, CA and Johnson Grapes of Madera, CA (who packed and sold red grapes to the test stores). Their assistance and input throughout the entire project is greatly appreciated.

Last but by no means least, is our gratitude to the many employees of Andronico's and Food Maxx (division of SaveMart Supermarkets) for their steadfast cooperation and help in making this field test successful. A great deal has been learned by all, none of which would have happened without the willingness of these companies to try something new and change, however temporary, their way of doing business. The potential use of RPCs for shipping produce is among the top 5 issues of greatest concern or impact to the U.S. produce industry. Several large grocers in the U.S. are already using or testing these containers successfully. We hope that this test has been helpful to all participants in understanding and being prepared for a possible change to RPCs.

DIAGRAM OF MAJOR STAGES IN PRODUCING, DISTRIBUTING, AND SELLING BABY CARROTS AND RED GRAPES (Including Return or Disposal of Shipping Containers)

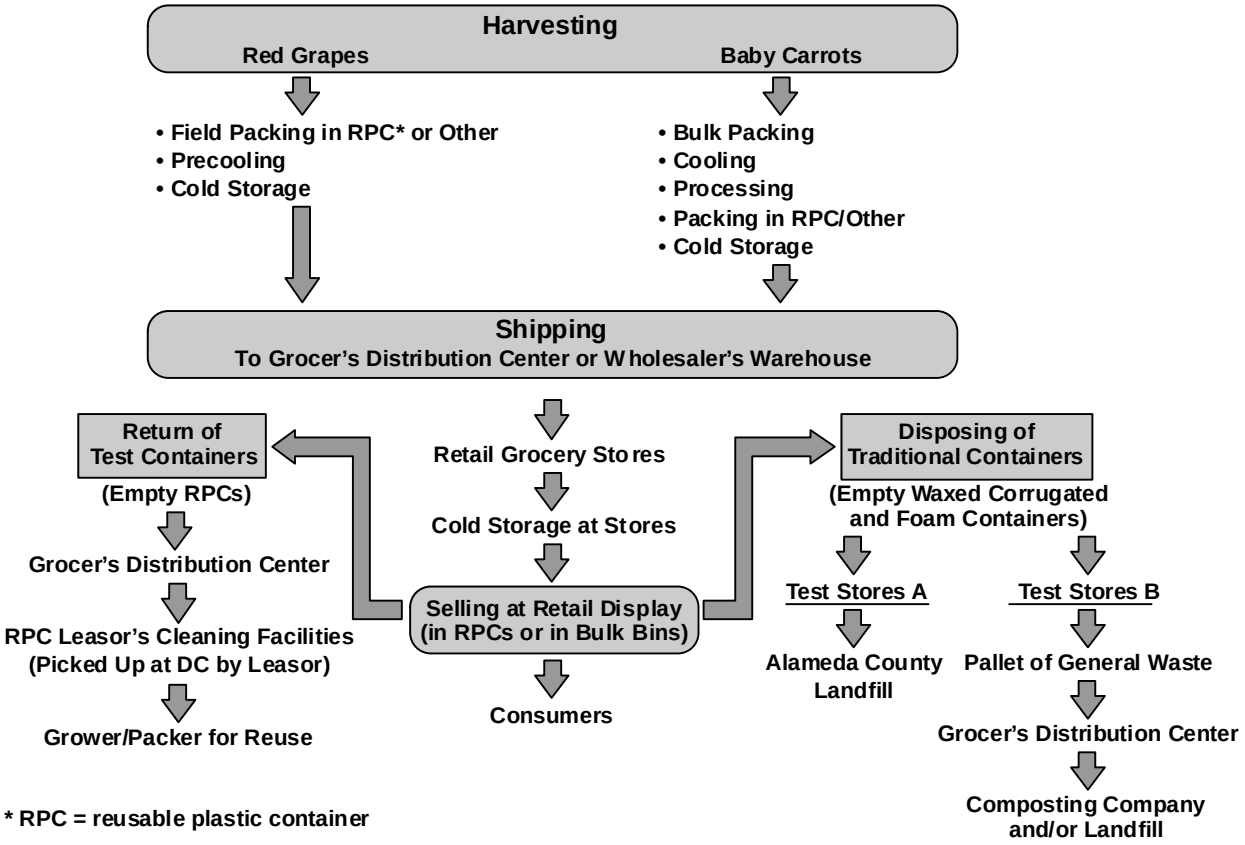
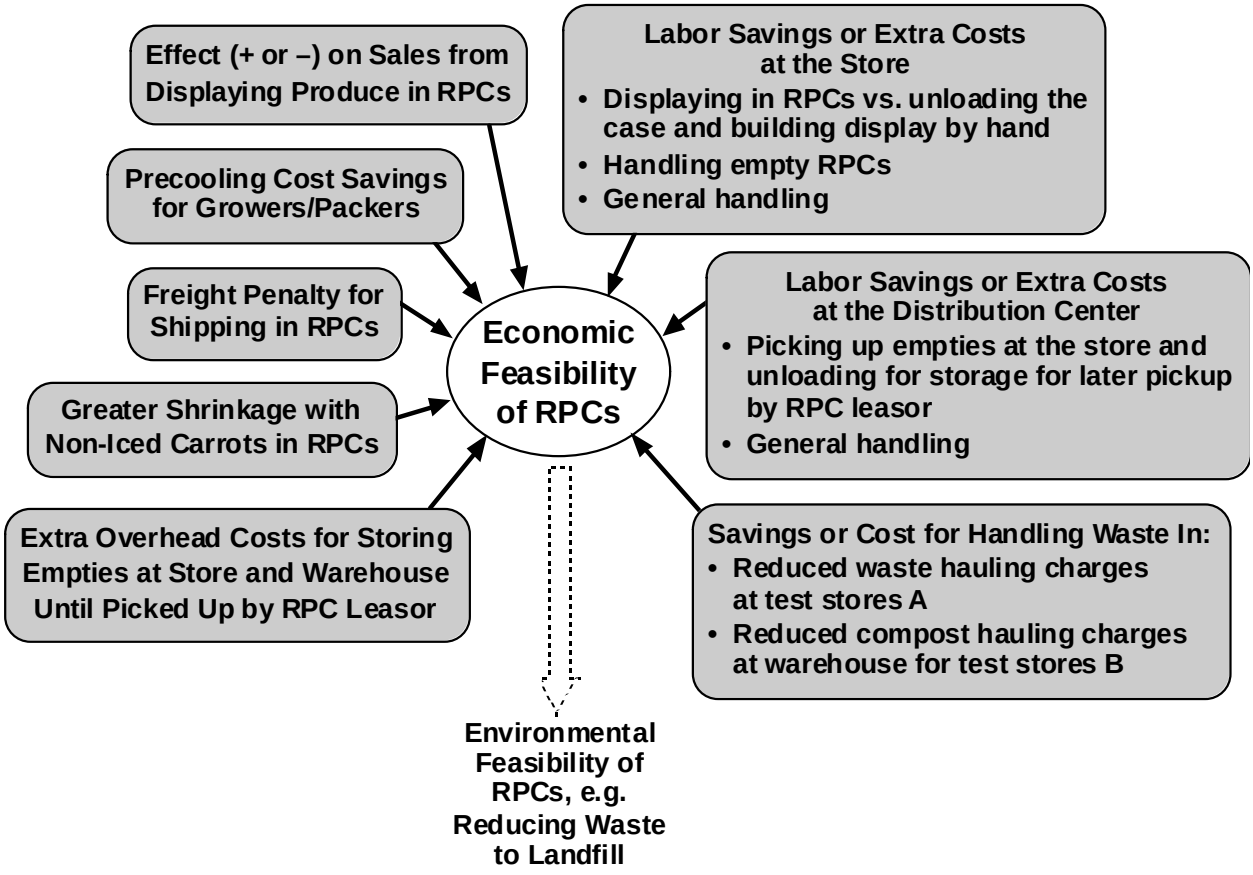


DIAGRAM OF MAJOR FACTORS TO CONSIDER IN EVALUATING FEASIBILITY OF RPCs FOR BABY CARROTS AND RED GRAPES



INDEX* OF WEEKLY SALES OF RED GRAPES BY GROUPS OF STORES

		Grocer A		Grocer B	
		Test Stores	All Stores	Test Stores	All Stores
		Pretest			
Week	1	NA	NA	89	98
	2	122	82	130	144
	3	192	123	90	125
	4	171	129	108	162
	5	128	132	129	157
		Test			
	6	92	103	180	141
	7	104	125	110	121
	8	132	164	88	104
	9	78	89	99	95
	10	74	70	93	81
	11	92	71	103	81
	12	89	97	96	75
	13	77	77	116	85
	14	46	37	89	59
	15	52	76	85	72
		Post test			
	16	41	60	89	89
	17	42	61	57	62
	18	118	172	95	85
	19	89	130	56	65

* Base index value (100) equals average of 19 weeks of sales in lbs. for each of the 4 groups of stores from Oct. ’99 to Feb. ’00.

INDEX* OF WEEKLY SALES OF BABY CARROTS BY GROUPS OF STORES

		Grocer A		Grocer B	
		Test Stores	All Stores	Test Stores	All Stores
		Pretest			
Week	1	NA	NA	75	91
	2	63	80	97	95
	3	128	99	92	89
	4	106	86	108	93
	5	88	88	108	103
		Test			
	6	110	111	103	113
	7	120	103	102	124
	8	121	115	81	90
	9	109	110	98	108
	10	92	150	77	86
	11	85	88	75	90
	12	82	96	86	94
	13	113	98	116	109
	14	107	81	101	96
	15	99	74	101	109
		Post test			
	16	74	84	95	106
	17	78	88	106	107
	18	91	103	82	103
	19	131	149	91	94

* Base index value (100) equals average of 19 weeks of sales in lbs. for each of the 4 groups of stores from Oct. ’99 to Feb. ’00.

TEST STORES' SHARE OF ALL STORES' SALES OF RED GRAPES AND BABY CARROTS BEFORE, DURING, AND AFTER THE TEST

Red Table Grapes Sales

	Grocer A	Grocer B
During Pretest	25%	21%
During Test	18%	30%
During Post Test	12%	26%

Baby Carrot Sales

	Grocer A	Grocer B
During Pretest	25%	14%
During Test	23%	14%
During Post test	20%	12%

ESTIMATED COST SAVINGS PER CONTAINER USING RPCs FOR SHIPPING AND DISPLAYING *TABLE GRAPES* IN 4 SCENARIOS*

	Scenario A	Scenario B	Scenario C	Scenario D
Major Conditions under Each Scenario				
Alternative Traditional Container:	Foam	Foam	Wood and Paperboard Combination**	Wood and Paperboard Combination
Use of Alternative Container for display:	No	No	No	Yes
Traditional Container's Disposal System:	Municipal Pickup	Compost Pickup	Municipal Pickup	Municipal Pickup
Cost Savings with RPCs per Container in:				
Labor	$0.75	$0.69	$0.75	$0.13
Disposal	$0.65	$0.04	$0.37	$0.37
Other Costs (Overhead, Freight, etc.)	($0.03)	$0.02	($0.03)	....
Total Savings (Net) per Container:	**$1.37**	**$0.75**	**$1.09**	**$0.50**

* Figures show savings for grocers only; do not include savings or extra costs for packers or differences in cost of containers. Distance from packers to grocers is less than 300 miles in all scenarios.

** Sometimes referred to as grape lug or TKV lug

ESTIMATED COST SAVINGS PER CONTAINER USING RPCs FOR SHIPPING AND DISPLAYING *BABY CARROTS* IN 3 SCENARIOS*

	Scenario A	Scenario B	Scenario C
Major Conditions Under Each Scenario			
Alternative Traditional Container	Waxed Corrugated Paperboard	Waxed Corrugated Paperboard	Waxed Corrugated Paperboard
Use of Alternative Container for Display:	No	No	Yes
Traditional Container's Disposal System:	Municipal Pickup	Compost Pickup	Municipal Pickup
Cost Savings with RPCs per Container in:			
Labor	$0.75	$0.69	$0.13
Disposal	$0.11	$0.05	$0.11
Other Costs (Overhead, Freight, etc.)	($0.04)	($0.02)	($0.04)
Total Savings (Net) Per Container	**$0.82**	**$0.72**	**$0.20**

* Figures show savings for grocers only; do not include savings or extra costs for packers or differences in cost of containers. Distance from packers to grocers is less than 300 miles in all scenarios.

ESTIMATES OF WASTE GENERATED BY CONTAINERS FOR VEGETABLES AND FRUITS CONSUMED BY ALAMEDA CO. RESIDENTS - 1998

	Tons
Fresh Vegetables	
Asparagus	46
Beans	103
Broccoli	331
Cabbage	517
Carrots	786
Cauliflower	93
Celery	357
Corn	502
Cucumbers	393
Lettuce (head, red, green etc.)	1,796
Onions	1,061
Bell Peppers	378
Peas	202
Tomatoes	1,009
Potatoes	2,774
Other	4,461
Total	**12,127***
Fresh Fruits	
Table grapes	413
Other	5,461
Total	**5,874**
Grand Total	**18,001***

* Includes both recyclable and non-recyclable container types: wood, plastic, waxed corrugated paperboard, unwaxed corrugated paperboard. Totals may not add to sum of parts because of inclusion of non-fresh types among estimates for individual vegetables.

PARAPHRASED COMMENTS FROM PRODUCE MANAGERS IN TEST STORES REGARDING THE USE AND FEASIBILITY OF RPCs

Comments about General Handling of RPCs

"RPCs are easier to handle and unload than the foam container frequently used for grapes because they are stronger and more rigid."

"A column or stack of RPCs is very secure or rigid. Only problem is that they don't have a top or lid, so you can't put a corrugated box or non-RPC container on top of a RPC. It will damage the contents of the produce in the RPC."

"The RPCs don't slip when being transported on the pallet. Also, a pallet jack can easily puncture the foam containers that are often used for grapes. The stockers in our store feel that RPCs are easy to work with and handle because of the hand holds and their rigidity."

"It took a little while, but we've really connected now with the RPCs. They are very easy to pull off the pallet; there's no slippage and they look good. Using RPCs for 36 lbs. of baby carrots is a bit much, however. They are considerably heavier than the normal 24 lbs. pack of baby carrots in waxed corrugated containers."

"RPCs are easier to handle and don't fall over as frequently when they are stacked when compared to corrugated boxes, grape lugs, or foam containers. And they save time versus lugs because you don't have to take the top off and pound the staples or nails in if you want to use the container for display."

"In our experience, about 20% of the RPCs containing carrots need to have one or more of their 4 sides re-snapped in place as they are used. There's more weight in those cases with carrots than they should probably carry. Re-snapping the sides together takes extra time and offsets some of the savings that their rigidity might offer."

"I'm not too sure that collapsible RPCs are the way to go. We had one shipment where the bottom RPC had a broken side (it unsnapped) and the whole stack or column of RPCs were leaning dangerously. Rigid, non-collapsible RPCs might be better."

Comments about Using RPCs for Display

"The appearance and handling of RPCs for displaying grapes are great. They are more rigid than traditional containers when stacked on a pallet. There is less chance that the grapes at the bottom of the container will get crushed since the depth of the RPC is less (they have a bigger footprint). RPCs are also ventilated so spoilage is probably less than with foam. We don't save labor in using RPCs for display, however, because we display grapes in foam containers as well."

“Unlike the grapes which go on nonrefrigerated bins in the center of the department, using RPCs with carrots are less than ideal. RPCs don’t fit the refrigerated shelf dimensions too well. On the other hand, we do save time by displaying carrots in RPCs when compared to unloading and stacking the bags of carrots by hand. And there seems to be fewer problems with carrots falling on the floor when they are displayed in RPCs.”

“The RPCs look neat and clean on display.”

“The RPCs are okay to use on the bottom shelf of the refrigerated case because that shelf is low enough so that customers can see the produce. They don’t work very well on the middle or top shelf, however, because the front of the RPC hides the produce within it from view. Also, those shelves aren’t very deep.”

“I have used a few of the RPCs for permanent display of some small organic produce on the bottom shelf of a large refrigerated case. The corrugated containers I was using before cut off circulation of cold air and there was a problem with near freezing of the organic produce when displayed in the corrugated. RPCs are ventilated so they don’t have these problems. And they look better than do a variety of corrugated boxes.”

“One of my stockers liked the RPC look so well that he put the Thompson (green) grapes in 3 of the empty RPCs that the red test grapes came in and put them alongside the red grapes in RPCs. He said he thought they were neater looking than the grape lug or when displayed loose. Some stockers like to be creative.”

“We’ve been trying various ways to set up the RPCs for displaying carrots. My boss felt that there was too much plastic showing with the original set up so now we have cut back on the size of the display and folded parts of the RPC out of sight. The RPCs don’t really fit the mass kind of look or display that we strive for.”

“Using RPCs for displaying grapes is okay except they look kind of ratty shortly before the time you can justify bringing a new RPC out and topping that off with whatever produce is left in the old RPC.”

“RPCs are all right when used for display, but they don’t convey the fresh, farm-like image that our company is trying to portray in its produce department.”

“We had a problem building our on sale display of grapes with RPCs. We wanted the display to be slanted upward toward the back so customers would see more of the grapes. So the stocker unpacked 2 RPCs and turned them upside down to add height to the back of the display. And as the cases sold down on grapes, he ended up unpacking RPCs by hand and adding stock to the 4 cases originally put on display. Just didn’t really work very well and obviously it didn’t save any time, at least in this case, to use RPCs for display. The standard grape display is flat and more suitable for RPCs.”

"I like the greater ventilation with RPCs, however, we're not selling green containers. And they don't fit the configuration or dimensions of our refrigerated rack."

Comments About Storage and Handling of Empty Cases

"RPCs stack neatly. Foam containers can wobble on the pallet and the clamshell parts don't nest after the container is emptied. There's not much difference in time to break down and make either the RPC or foam container ready for shipment back to the distribution center (DC). Collapsed RPCs have to be stacked on the pallet and wrapped. And foam containers are one of major items in the waste pallet that we put together each day for shipping back to the DC; it's also wrapped with plastic."

"RPCs stack easily and are very secure on top of each other. Quite easy to handle. On the other hand, empty/collapsed RPCs do take up valuable space in the backroom before they are picked up."

"Foam containers are a disposal problem and knocking down corrugated containers for the compactor or baler can be time consuming. RPCs are pretty simple to make ready for shipment back to the warehouse."

Comments about the Effect on the Environment or Disposal

"I'm sure that RPCs cut our garbage bill. And the less that goes to the dump, the better."

"RPCs for grapes are a big improvement over the traditional veneer and paperboard grape lug and foam grape container. The independent collector who picks up the grape lugs is not reliable and sometimes the dumpster has a lot of grape lugs. The biggest problem, however, are foam/polystyrene, which is the common container for grapes from November through February/March. Foam doesn't break down (or very little). They take up a lot of space in the dumpster and in the backroom. A real headache. In fact, a fiasco. I'm surprised that no one has picked up on the mess foam containers must be making out of our landfill. At this time of year, foam containers for grapes typically consume 30-40% of the space in our store's dumpster. We need to talk the garbage men into taking a little extra. RPCs, on the other hand, fold down easily and go back to our warehouse with the next delivery. And the warehouseman likes them. He says they are easy to handle and better for the environment."

"Foam containers and grape lugs can be a big pain. In most cases, lugs and foam are held aside until the dumpster is nearly full and then they are put on the top of the load. Foam and lugs don't break down compactly and take up too much space if they are at the bottom or middle of the dumpster."

"Foam containers can take up to 30-40% of the space in our dumpster each week. And another 40-50% of the produce department's dumpster comes from waxed corrugated

boxes. There are about 30 produce items, mostly varieties of lettuce, which make up most of the waxed corrugated box waste."

"While RPCs for carrots don't go to landfill, they aren't any easier for those of us in the store to handle or dispose of compared to the waxed corrugated containers normally used for carrots. The waxed corrugated folds down easily and doesn't take up much room in the dumpster. I suppose our waste bill would be less, however, with RPCs instead of waxed corrugated."

Other Opinions/Conclusions about Using RPCs on a Long Term Basis

"I would be in favor of displaying with RPCs if we had different refrigerated racks. I think they are neater looking. They are easier to handle and don't fall over when stacked. Also, they are more efficient users of storage space because of the uniformity of their dimensions or footprint."

"I think RPCs for grapes are a winner. They are easy to handle, look fine, and cut way down on the waste bill. And they probably reduce shrinkage for grapes because they aren't packed quite as tightly as foam or lugs. I'm not as positive about using them for carrots. The container is heavy and while waxed corrugated isn't recycled, they don't take up a lot of space in the dumpster – nothing like foam for grapes."

"Some people seem to think that RPCs are the 'wave of the future in produce'. I like them for grapes because they save on waste – especially compared to foam—and they are easier/faster to handle than grape lugs or foam containers. Also, they work out fine for display – we use the foam containers on display anyway. Carrots is another matter. There's no environmental or disposal advantage with RPCs in carrots because both the RPC and waxed corrugated container have to be broken down and stored for awhile before being picked up."

"We like the RPCs because they are easier to handle, stack better than corrugated paperboard containers, store easily, and look neater/better. There have been no comments pro or con from customers seeing the RPCs on display. And sales don't seem to be influenced by whether the if the produce is displayed in RPCs or not."

"I'd seriously consider using RPCs for some of the commodity items like oranges, apples, and onions that are displayed in center bins or the lower shelves of refrigerated cases. I'm not too interested in using them on middle or upper shelves of refrigerated cases, however. Those are frequently small volume items and I'm not sure it's worth the hassle of specifying RPCs. Also, the RPCs don't fit those shelves very well. And the sides of the RPC block a customer's view of the produce when they are used on the middle or top shelf."

"For grapes, RPCs have some significant advantages in looks, waste, and handling time. They don't work as well with carrots, however, because those displays are intended to be massive, colorful and tall. You spend a lot of time during the day taking

off RPCs and putting up new ones. It's easier to just hand stack the bags once or twice a day. We tend to build our displays in the morning and try to minimize the time our stockers need to spend maintaining displays during the day."

"I don't think our store will use RPCs for display. They just don't fit the dimensions of our refrigerated cases. In spite of that, I'm in favor of using them because they are more rigid than other containers, cut down our waste hauling costs, and don't end up in landfill like some other containers."

"The lack of a top on RPCs could be a big problem for complying with upcoming HACCP* regulations guarding against diseases. Maybe a mesh plastic cover would meet the regulations?."

"I am thinking of buying RPCs to use as a permanent container for other produce items in the center islands. They would give that section a more uniform appearance."

"Although I'm not particularly fond of the look, putting produce on display in RPCs doesn't affect sales, plus or minus. Customers don't seem to care."

"When it's all said and done, I don't think RPCs have much affect on shrinkage for grapes and carrots. Shrinkage on carrots is very little to begin with unless they aren't kept refrigerated. The affect on shrinkage from using RPCs for grapes is less certain. If grapes are not bagged (which is unusual), shrink on grapes can be significant. And in that case, using RPCs for display and not having to stack or handle bunches by hand would reduce shrinkage significantly."

*Hazard Analysis Critical Control Points is a process control system that identifies the critical points in the food production process that should be controlled to prevent food safety hazards from occurring.

PARAPHRASED COMMENTS FROM VARIOUS MANAGERS AT GROCERY STORES, GROWERS, AND OTHERS

Comments about General Handling of RPCs

"RPCs look like they stack very neatly and securely so there would be fewer problems with them falling over on the pallet if they are knocked or transported improperly. If they had a lid we could put other container sizes or types on top."
(produce manager of a non-test store)

"It's more difficult to build a pallet for store delivery using RPCs. Without a lid, we can't put another type or size of container on top of a RPC. And RPCs have a bigger footprint than a lot of boxes. If everything was shipped in RPCs, there wouldn't really be a problem, but until they are ----????. They are easier to handle because the sides and edges are much more rigid. There is less need to straighten cases on a load."
(warehouse manager of a grocery chain)

"RPCs are more rigid than traditional containers and stack very securely. When building a pallet for shipment to a store, however, you can't put another type of container on top of a RPC because the RPCs don't have a lid; you'll crush what is the RPC. Better stacking reduces time and costs because stacks don't fall over or need to be straightened as often as is normally true with traditional containers. Also, you don't have the problem of puncturing foam containers that are used for grapes with the tines on a pallet jack or forklift." (warehouse manager of a grocery chain)

"We tested RPCs a year or 2 ago. From a warehouse viewpoint, their major problem was incompatibility with other containers when building a pallet for store delivery. Without a lid, you can't stack a corrugated container on top of the RPC and the RPC is bigger than a lot of corrugated containers, which aggravates the stacking problem. They are easy to move around, though." (warehouse manager of a grocery chain)

"There haven't been too many studies or documented cases measuring the labor savings from RPCs being easier to handle." (senior produce manager of a grocery chain)

"RPCs tend to protect produce better because the sides are stronger and more rigid. Also, improved ventilation from the holes keeps grapes fresher. Also, I suspect that there is less chance of a problem with containers falling off a pallet during transportation." (produce manager of a non-test store)

"If a RPC had a lid and if the footprint of the container was standardized, a worker wouldn't have to worry as much about varying container sizes that affect the stability of a pallet load. It would be much more efficient to build a pallet. RPCs look much sturdier than corrugated, which even if waxed, tend to fall apart in moist conditions." (produce manager of a non-test store).

“Carrots in RPCs were a problem when we tried them out a year ago. The sides kept popping open because the weight was a bit too much for the container.” (warehouse manager of a grocery chain)

Comments about Using RPCs for Display

“In my opinion, using RPCs to stock and display produce is more suited to a warehouse grocery outlet than a traditional, more upscale outlet. Warehouse customers are less concerned about appearance than are traditional store customers and costs are more important in the warehouse situation. The Euro-table – flat, slanted case vs. a multiple shelf case- would accommodate RPCs better as well.” (a corporate manager for a grocery chain)

“I don’t see us changing our entire merchandising and display format to all RPCs. There isn’t a problem using them for carrots but there is with grapes, which often use massive displays in nonrefrigerated bins. When a massive display with holding power is called for, the last thing we want to see is a display of green trays. I think they are more appropriate for conventional applications where a smaller display of produce is sufficient.” (procurement and general manager)

“We tried RPCs for displaying grapes and saved at least 50% of labor by not having to unpack and build the display by hand. And the 16X24” size for RPCs is actually a pretty handy size.” (produce manager of a non-test store)

“I don’t particularly like the ‘look’ of the RPCs on the shelf. Even if using them for display doesn’t affect sales, I don’t think I’d want them. They might be okay for stores where mass movement isn’t the game plan. There would be so much of the RPCs showing in mass displays because so many of them would be out.” (produce manager of a non-test store)

“RPCs don’t look like they would fit the fresh and farm-like image we prefer. I’m not particularly impressed with the potential labor savings of displaying in RPCs; we are here anyway. 90 minutes or so a week is no big deal.” (produce manager of a non-test store)

“RPCs don’t fit the dimensions of our refrigerated case (shelf is too small), and using all RPCs would reduce our ability to vary the widths of display for different produce. We like having the option to do that. It adds interest to the look of our display. Also, I want the produce to show on the front, not plastic.” (produce manager of a non-test store)

“We tested RPCs for grapes but didn’t go with them on a permanent basis. The store manager didn’t think they look classy enough. Didn’t fit the upscale image he wants.” (produce manager of a non-test store)

Comments about Storing and Handling of Empty Cases

"Bringing RPCs back to the warehouse on delivery trucks isn't a big deal for us because we are bringing waxed corrugated back anyway." (warehouse manager of a grocery chain)

"I don't think there would be a problem handling the empty RPCs. We have room in back and the warehouse truck makes almost daily deliveries and pickups." (produce manager of a non-test store)

"RPCs mean more labor for us because our drivers have to load and then unload the empty/collapsed RPCs back at the warehouse. They could also be in the way if empty RPCs are picked up on the first store delivery; the driver would have to move things around or offload and then reload. We also have to keep the RPCs here in the warehouse before they are picked up." (warehouse manager of a grocery chain)

"It would take time away from doing other things if we have to mess with the empties." (produce manager of a non-test store)

"It was a pain keeping track of the RPCs during an earlier test and losses were significant. I don't know the numbers but it seemed as though we ended up giving one RPC to each household in Alameda Co. when it was all said and done." (warehouse manager of a grocery chain)

Comments about the Effect on the Environment or Disposal

"Using foam containers for grapes are a 'disaster'. They are apparently a good container for storage because they are used for imported grapes. But from Thanksgiving to Christmas, the store is awash in foam. Totally fills up our dumpster. On the other hand, while RPCs would cut the garbage bill, that really wouldn't help my bottom line. Waste bills aren't part of calculating my department's profitability; that apparently shows up elsewhere in the budget." (produce manager of a non-test store)

"Using RPCs would mean less waste to landfill, which is great. Also, I like the fact that the container is used more than once. Not having to mess with foam containers used for grapes is a particular plus. Those totally jam up our backroom and dumpster area when it's a big time of year for grapes." (produce manager of a non-test store)

"I'm not sure whether our management would be willing change systems significantly in order to reduce waste bills. They have already been cut way back. Nearly all of our corrugated is recycled and most of the rest of waste is composted. The only thing that goes to landfill is rewraps from the meat department, general and public waste around the store, and floor sweepings. Our waste hauling costs have been cut 50% over the past few years. Foam containers are a remaining problem. Those empties take up a lot of room in the back of the store and don't break down." (corporate manager)

"There's much less waste from our store that goes to landfill than there used to be. And while foam containers are still a problem, it seems like there are fewer of those these days as well." (produce manager of a non-test store)

"I like the fact that RPCs mean less corrugated going to landfill and saves on trees. This is personally important to me. Although RPCs might not fit the produce department's image, there should be some labor savings at the store too." (warehouse manager of a grocery chain)

"Most of the non-recyclable waste from a produce department can be composted. Plastic foam is an exception to that. It's not biodegradable and is normally filtered out." (manager of a waste disposal and composting operation)

Other Issues

"Shrinkage with RPCs, especially with grapes, might be less because you wouldn't have to handle the grapes when building the display." (produce manager of a non-test store)

"The open design of RPCs would provide greater air circulation and keep some products like grapes fresher. On the other hand, it could reduce shelf life or increase shrinkage for other items like lettuce, which dry out faster. I particularly like the fact that using these would cut the amount of waste. I'm a little leery of using them for display, but would probably try it." (produce manager of a non-test store)

"I don't buy either notion that RPCs are better for grapes because greater ventilation cuts down on mold or that greater ventilation dries them out faster. I doubt that there's a real difference. While RPCs reduce precooling to remove field heat, the cost savings are not significant enough for us to champion a switch to RPCs. We'll do what our customers (retailers) want. Our system and facilities can accommodate foam, lug, and corrugated paperboard." (grower/packer)

"We've been packing grapes in RPCs for awhile now on a test basis. There's no problems or unusual requirements. Takes a little time to set up the container, however, they take much less space when collapsed than do foam. They probably cut down on precooling time, but I don't have enough experience on a large scale to say how much that might be. All in all, I think they have a place in the industry; could be the container of the future." (grower/packer)

"Overall, our past test of RPCs was a hassle, partially because they were a small part of our volume but took a disproportionate amount of attention. Just not worth the trouble." (warehouse manager of a grocery chain)

"From what I've seen -- depending heavily on the product-- one can expect up to a 25% improvement in shrinkage and a 50% reduction in labor costs per case by using RPCs." (senior management of a grocery chain)

Conclusions about the Long Term Future of RPCs

"I'd be interested in trying RPCs. They should save time if used for displaying produce, are environmentally beneficial, and probably less labor intensive to make ready for pickup when compared to preparing our waste pallet. That is full of lots of different materials and sizes and is awkward to handle. And the pickup driver won't take the waste pallet if it isn't done just so. I think a lid on the RPC would be good. That would reduce potential damage to the produce and give us the option to stack other containers on top of the RPC." (produce manager of a non-test store)

"I might be interested in trying RPCs for summer fruit like peaches, nectarines, plums, and grapes. And they would seem feasible for all waxed carton produce like lettuce and carrots and artichokes. I might be interested in trying them for items on sale that go on a nonrefrigerated bin near the entrance to the department." (produce manager of a non-test store)

"There are reports that Wal-Mart will be using RPCs for shipping and displaying produce in 250 of their stores by the end of 2000." (manager of a RPC manufacturer)

"We will do what the grocer wants because in the long run, he'll be the one paying for any increases in costs. But we're not in favor of RPCs. Their main disadvantages are: (1) no lid, which increases theft and contamination, (2) we can't ice carrots with the ventilated RPC, which reduces shelf life by 6%, (3) we have to keep track of the number of containers returned; there's more accounting, (4) the test we recently participated in used a larger than normal container, which meant fewer cases per pallet. Overall, however, we're not sure how much RPCs add or subtract to our direct or indirect costs." (grower/packer)

"The operations management of our chain was originally very interested in RPCs because of the potential labor savings. Problem is that the procurement group, normally headed by a VP, is the decision-maker because they're responsible for the financial performance of produce. They focus on selling prices and purchasing costs; labor costs are secondary. These 2 parts of the organizations aren't really integrated. Only way it will work for us is to have a standardized container for lots of produce and to use RPCs on the display. Until that happens, these are not worth the trouble." (warehouse manager for a grocery chain)

"I tend to think RPCs are the 'wave of the future', however, they work better for grocers who are less mass merchandise oriented than we are. We strive to build displays that don't need a lot of servicing during the day." (store operations manager)

"Our work indicates that growers don't want to switch to RPCs and retailers, who would have to be the ones to make this happen, are uncertain about their feasibility. We'll be giving RPCs a real run for the money." (paperboard container maker)

"We don't think RPCs will impact the market for most paperboard containers in packaging and shipping produce. It will be an economic and logistic nightmare for most

produce, especially those that are shipped long distance or repacked." (manager of a paperboard trade association)

"Shipper/growers would like to see RPCs quietly disappear because they don't want to make any changes or investment to switch to RPCs. Retailers probably would resist paying for the change. Also, the operations staff, who probably has the most to gain, doesn't have the clout or work well with the procurement group. And the procurement group isn't particularly under any pressure to switch, especially since they are so cost-of-produce-driven." (manager within a grower association)

"The only data and the only claims I've seen re. advantages of RPCs are from the plastics' folks. I've seen no retailer study and I've seen no cost-benefit analysis that shows the impact on growers/shippers." (manager within a grower association)

LISTING OF COMPANIES WHO PARTICIPATED OR WERE CONTACTED DURING THE STUDY

Grocery Stores

Andronico's, Albany, CA. A participating test grocer. Various managers in retail store and warehouse operations, procurement, and administration.

Food Maxx, Turlock, CA. A participating test grocer. Division of Save Mart Supermarkets, Modesto, CA. Various managers in retail store and warehouse operations, procurement, and administration.

Albertsons, San Leandro, CA. A non-participating grocer. Various past and present managers in operations and warehousing.

Raleys, Inc. Sacramento, CA. A non-participating grocer. Manager in warehouse and disposal operations.

Food 4Less, Tracy, CA. A non-participating grocer. Managers in procurement and operations.

Wal-Mart Stores, Dallas, TX. A non-participating grocer. General management

Produce Suppliers/Packers

Grimmway Carrots, Bakersfield, CA. A participating supplier. Various managers in sales, procurement, and production.

Bujulian Bros., Kingsburg, CA. A participating supplier. Manager in sales

Johnson Grapes, Madera, CA. A participating supplier. Various managers in administration, packing, and harvesting.

Grower Cooperative, Southern CA. A non-participating supplier. Special project manager and assistant to general manager.

Others

Weyerhaeuser Company, Tacoma, WA. A non-participating supplier. Manager of various administrative operations.

Fibre Box Assn., Rolling Meadows, IL. A non-participating supplier. Manager of various administrative operations.

TKV Container (agent for IFCO Containers), Fresno, CA. Various managers in sales and general administration.

IFCO Containers Inc., Tampa, FL. Various representatives in sales, field support, or administration.

CHEP Equipment Pooling Systems, Orlando, FL. Various representatives in sales, field support or administration.

Michigan State University, School of Packaging, Lansing, MI. Various program managers/professors

Bottom Line Consulting, Lake Barrington, IL. General Manager

USDA, Economic Research Services, Washington, DC. Various industry economists and analysts

USDA, California State Agriculture Extension, Davis, CA. Various analysts

Community Recycling and Resource Recovery, Lamont, CA. General Site Manager

SELECTED PHOTOGRAPHS
OF FIELD TEST

Displays of Grapes in RPCs During Test

Displays of Baby Carrots in RPCs During Test

Traditional Displays of Grapes

Traditional Displays of Baby Carrots

RPC-Packed Carrots and Grapes at the Stores

Receiving Area:

Back Cold Storage Room:

Folded and Empty RPCs Ready for Pickup and Reuse:

Non-Recyclable Traditional Containers for Grapes and Carrots
to be Disposed of at the Store:

Field packing and cooling of grapes in RPCs