

Survey says!

All-bottles collection is on the rise



A research project unveils the progression of residential collection programs accepting more forms of plastic.

by Judith Dunbar

At the end of 2006 through the early portion of this year, *Resource Recycling* undertook research on the residential collection of all plastic bottles, non-bottle rigid containers and plastic shopping bags by U.S. recycling programs. Funded by the American Chemistry Council (Arlington, Virginia) and unveiled at the 2007 Plastics Recycling Conference in Dallas, the study answered several questions related to the collection, processing and education elements of all-plastic-bottle recycling programs. The study also was designed to provide new data on the collection of other types of residential plastics. Similar research of all-bottles collection was previously conducted in 2000 and 2003.

Table 1 Growth in PET and HDPE recovery levels

	Time period	Last year of #1 and #2 collection tonnage	Most recent annual collection tonnage	Percent increase
Community A	Over five years	195	482	147
Community B	Over two years	619	673	9
Community C	Over two years	90	100	10

Source: American Chemistry Council, 2007.

The 2006-2007 survey revealed the successes and the issues hindering each of these collection programs. The survey also provided program coordinator recommendations that just may help improve the overall collection of plastic-based products via residential collection ventures.

All-bottles collection

Residential all-bottle collection programs are becoming more prominent across the nation. In 2003, approximately 1,617 U.S. communities reported having an established residential program that included the collection of all forms of plastic bottles. Of those programs, 73 percent were reported to have commenced during the year 2000 or earlier.

Utilizing online research and data provided by local, county, regional and state recycling coordinators, the number of communi-



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ties collecting all plastic bottles through early 2007 has since increased to 2,006, a 24-percent jump over the 2003 mark. As displayed in Table 1, the increase in these programs has contributed to the growing recovery volumes of polyethylene terephthalate (PET) and high-density polyethylene (HDPE) plastic as well.

According to respondents, the increase in communities collecting all bottles may be attributable to the growth of single-stream programs popping up across the nation, although the relationship between the two factors still remains unclear.

Of the responding communities with an established single-stream collection program, 46 percent reported moving to all plastic bottles recovery upon implementation of single-stream service. In contrast, the other 54 percent reported already handling all bottles before switching to a single-stream approach. Nonetheless, respondents agreed that the relationship between single-stream collection programs and all-bottle collections will eventually become clearer. Other recovery methods used to collect all plastic bottles, as displayed in Figure 2, included curbside-only service (40 percent), a combined curbside and drop-off service (45 percent) and a drop-off-only service (15 percent). The drop-off-only service mainly pertained to rural communities.

Possible program issues

Though adopting an all-plastic-bottle collection program will increase overall recovery levels of the targeted plastics involved, with increased tonnages also comes certain program issues.

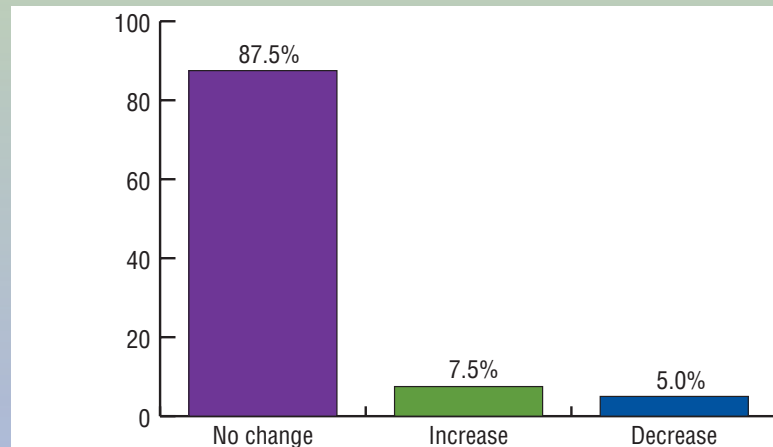
According to the survey, 26 percent of the respondents reported experiencing an increase in the level of contamination in conjunction with the plastics recovered by an all-plastic-bottles collection program. However, those that did report an increase in contamination also stated that the issue was not significant enough to impact overall collection or processing costs.

Sticking with the costs factor, 87.5 percent said that moving to an all-bottles collection program had no impact on costs associated with materials collection. Seventy-two percent also claimed that such programs had little to no effect on the costs associated with the sorting and processing collected recyclables.

Though increasing costs were a non-concern for most coordinators, one factor did have many respondents' attention: The lack of coordinated data collection and monitoring between program coordinators, haulers, processors and buyers. Of those surveyed, many were unable to provide information regarding tonnages of plastics collected.

The lack of data represents a challenge to the future development and evaluation of recy-

Figure 1 Collection cost impact of an all-plastic-bottles program



Source: American Chemistry Council, 2007.

cling programs. Improving data collection, monitoring and reporting efforts will only allow for a more definitive analysis of these programs.

Most often, one of the biggest factors that contributes to the success or the failure of a program concerns the ability to communicate with those participating in the program. According to the responding communities, 33 percent acknowledged that residents were made aware that a small amount of plastics collected by the program are not recycled. Of those respondents, only three communities cited this awareness as a problem.

Seventy percent of those surveyed reported having education initiatives more than once per year. These education initiatives include:

- ◆ Public service announcements
- ◆ Newspaper advertisements
- ◆ Reminders on billing notices
- ◆ Billboards
- ◆ Press conferences.

Program managers noted that an "all bottles" or "all containers" message works best, and that educational messaging around the resin-code numbers is a detriment to public understanding and participation.

The greater challenge noted by program managers was ongoing public desire to recycle non-bottle rigid containers and other plastics. The simplicity of an all-bottles collection program increases the public's desire to recycle. While this is not a problem per se, this trend has repeatedly put program managers in the position of explaining why certain plastics are not collected.

Perhaps the most important finding from the all-bottles portion of this survey was that an overwhelming majority (83 percent) of the recycling program managers surveyed reported that, given the chance to go to an all-bottles program again, they would. In addition, 93 percent also claimed they would recom-

mend such a program to a community considering such a move.

However, recycling coordinators need to understand the importance of designing a contract with provisions for monitoring, improving and expanding programs. Primary contract features that would aid in program development should include regular volume and contamination data from the hauler or sorting facility. The importance of ongoing public education about the program should be stressed as well.

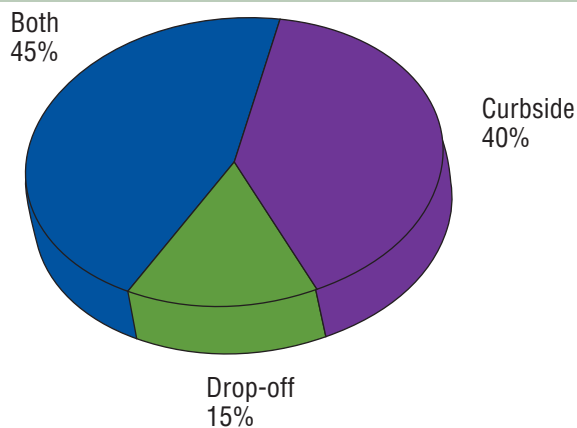
Non-bottle rigid container collection

Focusing on the collection of non-bottle rigid containers, the survey revealed that 54 communities include non-bottle rigid containers as an accepted recyclable in conjunction with its current recycling program. Of those municipalities, 13 were contacted to discuss issues related to non-bottle rigid collection and processing. These communities represented a mix of program types, from offering curbside collection service to providing only drop-off centers for area residents.

No established and universally used terminology adequately describes non-bottle rigid containers. For the purposes of this survey, non-bottle rigid containers were characterized as olefin containers with wide necks and no screw tops, such as margarine tubs and yogurt cups, and take-out and deli containers mostly made of PET, including chicken and fruit containers.

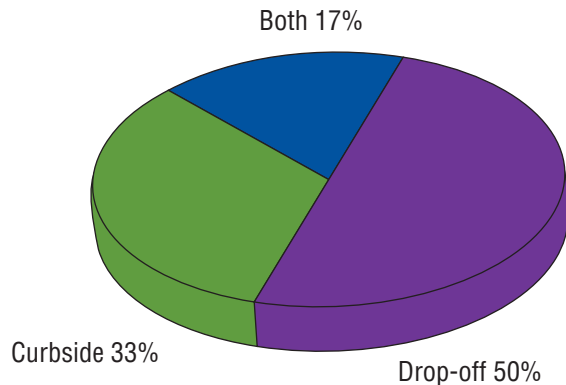
A generalized description of non-bottle rigid container collection programs also is challenging at best. Reasons for these challenges include a program's inability to establish terminology describing the materials being sought, or the lack of awareness among recycling coordinators as to what their processor is doing with the collected materials. Generally speaking, non-bottle rigid container

Figure 2 All-plastic-bottles collection methods



Source: American Chemistry Council, 2007.

Figure 3 Plastic bag collection methods



Source: American Chemistry Council, 2007.

recycling by communities is still the exception, not the rule, and the communities that have these programs typically lack the descriptive information about what happens to the collected material.

On the path to where?

The majority of the non-bottle rigid container collection programs reported being unsure of how their processor is sorting their containers and bottles. In fact, over half of the respondents were uncertain about the end-markets for the recyclables collected by their respective programs. Most believed that collected HDPE tubs are being baled with colored HDPE bottles, while some reported that all plastic bottles and containers are baled mixed, and may be sorted later at another facility.

Furthermore, the limited number of respondents from non-bottle rigid container collection programs indicates that a high level of the material being collected via these programs also is being exported. Widespread domestic markets do exist for miscellaneous HDPE and polypropylene products, such as crates and buckets, but this grade does not include tubs and cups. Tub and cups baled and marketed in the mixed rigids grade, or the commingled bottles and containers grade, may or may not be recycled.

A standard terminology is needed to further the communication and educational aspects of such programs. In addition, training focusing on the marketing of these grades of plastics would be useful.

Film bag collection

Plastics bags and film (shrink and stretch wrap) have become a prominent litter concern for many states. And, with several state assemblies this year introducing legislation to establish plastic bag recycling systems or create plastic bag and film task forces to study

the issue, it was no surprise to see that residential curbside and drop-off plastic bag and film collection is steadily on the rise.

In preparation for the 2007 Plastics Recycling Conference, *Resource Recycling* conducted a series of interviews with program managers who presently administer residential programs that include the curbside or drop-off recycling of plastic bags and film. The results provided a better understanding of the collection, processing and contamination issues program managers face when including plastic bags and film into a residential program.

Of the communities surveyed, 33 were identified as accepting plastic film for collection. Of those, only 10 promoted the acceptance of both plastic film and bags as a recyclable material within its residential program. Additional research also revealed that of the communities operating under an all-plastic-bottles collection approach, 37 percent of those communities collected plastic film via a curbside or drop-off method as well.

Collection and processing

In the world of plastic film collection programs, most successful ventures will often go unadvertised and require little to no utilization of public education. When using case study information taken from communities that offered this particular collection service, it was revealed that the average collection program was in service for over nine years, utilizing nearly no public education.

Of the three surveyed programs that offered curbside collection, one of them allows residents the ability to recycle loose bags in the single-stream mix; another requires that bags be bagged with other mixed recyclable containers; while the third accepts shopping bags only when filled with non-newspaper fiber, such as magazines and junk

mail. One processor that currently manages a community drop-off center even mentioned that the center accepts bags-in-a-bag through curbside collection, although it is not an advertised component of the program.

The survey also found that processing practices vary. Of the communities contacted, two drop-off programs bale film on-site, two other programs operate sorting facilities and another two programs send the film to independently owned sorting plants.

Because of the many steps plastic film takes from collection to recycling, communication is an essential tool. Communities that send film to a contractor are encouraged to be in regular contact with their processor to discuss contaminants and end-markets. Also, investing in equipment upgrades is a key to encouraging a cost-effective program. When looking at the research findings, the rise in the number of U.S. communities implementing or expanding curbside or drop-off ventures to include all-bottles, non-bottle rigid containers, and plastic bags is evident. In turn, the success of these recycling programs will be based, in part, on the coordination of the terminology used and the reporting methods being employed to describe material flows.

An ongoing challenge is the ability to obtain recycling figures and data from municipal program managers who did not have that information. When municipalities enter into agreements for the collection and processing of recyclables, specific contract language should be used to ensure the information is reported in a reliable and timely manner. Such information is crucial for individual program evaluation and the industry as a whole. **RR**

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