Successful Pilot Project in Richmond Recycles Nearly 4 Tons of Plastic Pots

By Joyce Latimer, John Ignosh, Lisa Sanderson, and Dave Close

Have you heard it? Every spring: “How can you call yourself the “green” industry when you rely on so many plastics? Why can’t you recycle those plastic pots?” Consumers don’t like to have to dispose of all those plastic garden containers. Across the U.S., millions of pounds of agricultural plastics, including flower and vegetable containers, are discarded in the local landfills every year. The nursery and greenhouse industry is one of the few growth sectors in Virginia agriculture. With increasing focus on promoting the nursery and greenhouse industry as the original "Green" industry, we wanted to address container recycling.

Initially, we contacted most of the municipal recycling centers in Virginia and found only a few that accepted plastic garden containers for recycling. Being mindful of Delilah Onofrey's admonition, "Since we don’t have the power to influence the entire garbage collection industry, the best we can do is create programs that make it easier for growers and consumers to recycle plastic pots." (Greenhouse Grower, Sept. 2008, http://www.greenhousegrower.com/viewpoints/delilahonofrey/?storyid=1311# ), we decided to create our own container collection program.

In a joint effort between members of Virginia Cooperative Extension (VCE), the Virginia Green Industry Council (VGIC), the Virginia Flower Growers Association (VFGA), the Virginia Nursery and Landscape Association (VNLA) and the Virginia Master Gardener Association (VMGA), we developed a Container Recycling Pilot Project in the Richmond area in April 2010. By November, we had collected over 50 pallets, more than 7500 pounds, of plastic garden containers and flats. Several additional pallets of collected material were removed for reuse by schools, community colleges, community gardening groups and other businesses in the area. So, how did we do it?

Identify a point person. John Ignosh is a Virginia Cooperative Extension (VCE) specialist focused on issues related to disposal of agricultural wastes, including plastics. Ignosh published information concerning plastic reuse and disposal at the Biological Systems Engineering Agricultural Byproduct Extension website (http://www.bse.vt.edu/green/Plastics/overview.htm). This site provides details on the post-consumer plastic recycling market, energy prices, plastic brokers and recyclers, best practices developed in other states, a local recycling center mapper (Earth 911), along with information related to waste diversion efforts in Virginia. In response to requests for recycling information from commercial greenhouse and nursery operations, Ignosh initiated educational efforts in 2009 with two grower group meetings and a web-based session detailing novel waste plastic utilization technologies.
Identify the players. With the assistance of the Virginia Tech Department of Horticulture, Ignosh identified the players. A simple survey distributed at local and statewide green industry meetings identified greenhouse and nursery operations interested in recycling their own plastic wastes and/or in collecting consumer material. Associations like the VGIC, VFGA, VNLA and VMGA were immediately interested in supporting and promoting the effort. Through these groups and the industry surveys, we identified the garden centers in the Richmond area which had a strong interest in developing a consumer recycling program. We met with these retailers, representatives of these interested associations, and a local plastics broker to develop a Pilot Project for the Richmond area. Only one of the operations, Strange’s Garden Center, committed two of its locations to the initial program in April 2010. Boulevard Flower Gardens, one of Today’s Garden Center’s Revolutionary 100 Garden Centers for 2011, joined the program in June and Cross Creek Nursery & Landscaping joined in September.

Identify the recycling partner and collection requirements. Plastics must be sorted by resin codes and not all recyclers accept all codes or types of plastic. After researching the possibilities, we partnered with East Jordan Plastics (East Jordan, MI) because they accepted all types of garden containers and were willing work with us on the Pilot Project. They were even willing to pick up less than a full truckload if necessary. Containers had to be sorted by resin code, nested and palletized.

Develop and distribute educational resources to the participating garden centers. Not the strongest part of our effort in 2010, we recommend that these materials be developed and distributed to garden centers and volunteers before the program is promoted. Lisa Sanderson, Extension Educator and VCE Master Gardener Coordinator for Henrico County, developed several signs and brochures for use by the garden centers to assist consumers and volunteers in sorting the plastics. Luurtsema Sales, Inc., another container plastic recycler in Michigan, contributed a customized recycling sign for our program. As we prepare for 2011, we are developing posters and display boards containing the variety of containers that comprise each resin code to post at the collection bins to improve proper sorting, especially by consumers. In addition, we are conducting training sessions for volunteers interested in assisting with the project.
Identify interested volunteers or public service groups. There is no question that collecting consumer plastics requires a commitment of time, resources and space by the participating garden center. However, the assistance of interested volunteer groups was critical to the success of our Pilot Project. In the Richmond area, the Extension Master Gardener (MG) program is very active. With Sanderson's strong leadership, twenty-one Henrico Extension MG volunteers invested 84 hours in educational programming on recycling for consumers at Strange's Garden Center, as well as in sorting and consolidating the collected containers onsite. At Boulevard Flower Gardens, students from the local high school's vocational education program provided assistance in sorting and consolidating pots at a nominal cost.

Identify regional collection sites and methods of handling the collected containers. A major issue for the Pilot Project was how to consolidate the pallets in a single area for pick up by the recycler. Although East Jordan Plastics was willing to pick up at more than one location in Virginia, they couldn't stop at every retailer that collected a few pallets. In the Richmond area, the manager of the Griffin Greenhouse & Nursery Supplies warehouse, Jeff Wetsel, was willing to collect palletized containers from these participating garden centers, return the pallets to the warehouse and store them there until they were picked up by the recycler. This allowed removal of full pallets from the retail locations on a regular basis, reducing their clutter and storage issues. Storing the pallets in the warehouse kept the materials dry and allowed easy access and good working conditions for volunteers who did a final sorting and consolidation of the containers prior to pick up.

Publicize the program to consumers. We used local press releases, the plastics disposal website as well as the garden centers' websites to advertise the collection effort and sites to the public. Consider local promotions tied in with Spring gardening events at the garden centers or larger promotions such as a Fall Garden Cleanup. Our pilot project missed the Spring events but our Fall Garden Cleanup press release and flyer distributed by the garden centers was very effective in bringing in containers -- and customers.

Open the collection program to landscapers. Garden centers were not able to receive and process containers from landscapers. Therefore, we made the program available to them by receiving the palletized material at the Griffin warehouse. We required that they be nested, palletized and shrink-wrapped. The uniformity of their containers made them easy to process.

Open the collection to wholesale growers. In early fall, we opened the collection up to growers in the Richmond area as well. Several pallets of plug trays, flats and containers were collected. Again, Griffin Greenhouse Supply picked up the pallets and stored them at their warehouse.

Consolidate the material and arrange pick up by recycler. The final effort in the process was to consolidate the material. Many of the pallets of collected pots were only loosely nested due to the nature of collecting small quantities from a variety of

Consolidation involved removing, cleaning as necessary, and sorting containers from bins collected at the garden centers (top) into bins with containers as tightly nested and packed as possible (bottom).
sources at any one time. The Richmond area Extension MG volunteers held two work parties in the Griffin warehouse to pull out the pots, sort and clean them as necessary, and stack like pots back into the bins to maximize the amounts of plastic per pallet. We estimate that about 42 hours of volunteer time was required to consolidate one tractor trailer load of plastics in our Pilot Project. Most of our plastics were collected in "pumpkin" bins secured to wooden pallets. The garden centers purchased the bins (~$10 each). These were stackable but handling and loading them into the recycler's trailer required a fork lift and operator which, for our Pilot Project, were supplied by Griffin Greenhouse & Nursery Supplies. The pallets collected by the recycler's truck were delivered and processed within a week after we notified East Jordan Plastics that the material was ready for pick up.

**Conclusions**

With over 50 pallets of plastics collected, we actually had more material than would fit on the recycler's trailer. A total of 7516 pounds of plastic was sent to East Jordan Plastics. Fifty-two percent of that was high density polyethylene (resin code 2), 30% polypropylene (resin code 5) and 17% polystyrene (resin code 6). The total value of the shipment was just over $400 which was donated to the VMGA for their State Master Gardener Coordinator endowment fund. In addition to recycled plastics, several pallets of containers were removed from the collection to be reused by schools, community colleges, community groups and Master Gardeners who do local plant sales, and some were even reused by other commercial growers.

**Was it worth it to the garden centers?** Tom Rush, garden center manager at Strange's Garden Center, Broad Street location, said, "It was good public relations and increased repeat visitors returning their pots. We've learned a lot this past year and with additional promotion at our Spring events think that we can increase consumer participation and manage the collection more efficiently this year."

Mark Landa, president of Boulevard Flower Gardens, said, "The Fall Cleanup promotion significantly increased traffic in our store. Customers saw the pot collection as an added value to their visit. The promotion of the container recycling program which lists the participating garden centers was a great source of free publicity for us."

We consider the Pilot Project to be a huge success for our first effort. Now that we have an estimate of consumer interest and of the amounts of recyclable materials we can expect to collect, we can look at ways to increase the efficiencies of the processes. This will be critical to making this a statewide "green" initiative in 2011. Reducing shipping distances and increasing product density through tighter nesting or perhaps by grinding the material prior to shipping would significantly enhance the efficiency.
After meeting with the principals involved in the Pilot Project, we have identified the primary challenges to expanding this project statewide:

1) Provide additional education of Extension MG volunteers and, through them, of consumers.
2) Coordinate volunteer support of local garden center plastics collection efforts.
3) Improve the collection process to reduce later sorting, cleaning, and consolidation.
4) Identify regional participants (like Griffin Greenhouse & Nursery Supplies) that can assist with consolidation and storage of collected pallets.
5) Increase efficiency of handling material; perhaps by using a grinder to reduce volume at the pallet consolidation locations, or a mobile unit to use at major garden centers.
6) Identify recycling facilities for these materials that are in closer proximity to our major collection sites.

We’ll be addressing these issues and more as we proceed with implementing a statewide container collection program in 2011.

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**Container Recycling Program in 2011**

Although we don’t have all the bugs worked out, we will have a statewide container recycling program for 2011. We are currently addressing the areas identified above. The two critical pieces that we identified with the pilot project were volunteers for education and plastics consolidation – the Extension Master Gardeners – and partners willing to physically collect and store the pallets – Griffin Greenhouse & Nursery Supplies.

The Extension Master Gardener program is a statewide program and we have identified interest in container recycling across the state. With their assistance, we can promote container recycling to consumers, educate those consumers on how to prepare and sort their containers for recycling, and in some cases assist garden centers with collection and sorting.

Griffin Greenhouse & Nursery Supplies has agreed to collect pallets from operations in their delivery area (within ~150 miles of Richmond). Wetsel (Harrisonburg) has agreed to participate in collecting and storing pallets from the rest of the state.

**How can you participate?**

**You must register with the program** by contacting Joyce Latimer (540-231-7906; jlatime@vt.edu). We will provide educational and promotional information for your use in promoting the program. You will be listed on our website as a participant in the program. If you have gardening events where you would like to have Extension Master Gardener participation to promote container recycling, contact Dave Close (dclose@vt.edu) and we will try to accommodate your request. Obviously the more notice we have, the more likely we are to be able to help.

Your garden center or growing operation is responsible for collecting and sorting the plastics by resin code onsite. The educational material will provide this information. You must provide stackable bins/boxes in which to collect the containers. Full pallets of larger, uniform containers can be shrink-wrapped to a maximum height of about 60 inches. Yes, this is a time and financial commitment that you must make to participate in the program. However, the participants in 2010 considered it worth the investment (see comments from Tom Rush and Mark Landa above). When you have full pallets of sorted plastics, **contact Joyce to arrange for pickup of the pallets.** Do NOT foist these pallets onto the Griffin or Wetsel truckdrivers.

Be aware that any funds paid for the recycled plastics will be donated to the VMGA’s State Master Gardener Coordinator endowment fund. Our program is primarily aimed at retail operations to address the consumers but we will also accept containers from commercial greenhouses and nurseries and landscapers as long as the material is clean (loose dirt knocked out), sorted and palletized. If you have large amounts of containers that you want to recycle from your own operation and you don’t want the funds donated to VMGA, contact us and we can help you find a recycler that may work with you directly depending on your volume.

*To participate in 2011, contact Joyce Latimer 540-231-7906 or jlatime@vt.edu.*