

Ecological Alternatives

Recycling Nursery Plastics

Forest and conservation nurseries have a professional obligation to practice recycling, and set a good example for other industries. I'm sure that you are all recycling waste paper, aluminum, metal, and motor oil but what do you do with all your used plastic? Even for the dedicated recycler, finding somebody who will accept plastics has been a challenge. There are two basic problems. The first is that there are so many different types of plastics, and the second is that markets for used plastics vary across the nation. Most people are familiar with the recyclability of pop bottles and milk jugs, because they have very strong markets nationally. Until lately, there has been little demand for used nursery plastics and so they have been discarded into landfills. Recently, however, several firms have been working to develop markets for used nursery plastics. Before we

get to that however, let's discuss the various types of plastics.

Plastics are made from polymer resins and the seven most common types can be identified by a number surrounded by the triangular "chasing arrows" symbol on the bottoms of plastic containers (Figure C). Plastics must be sorted into these categories before recycling because



Figure C. Recycling symbols indicate types of plastics each resin has its own properties such as specific melting temperatures and processing qualities. The four most common nursery plastics are marked with an asterisk (Table 2):

Table 2. Types of plastics and some examples of domestic and nursery use

<u>Code</u>	<u>Resin Type</u>	<u>Common Examples</u>
1	Polyethylene Terephthalate (PET)	Pop and mineral water bottles, clear or colored
* 2	High Density Polyethylene (HDPE) "Blown" type "Injected" type	Milk/water jugs, grocery bags, detergent, and auto oil bottles. Margarine tubs. Nursery trays, cells, and block containers.
3	Polyvinyl Chloride (V)	Food wrap and vegetable oil bottles.
* 4	Low Density Polyethylene (LDPE)	Grocery produce bags. Greenhouse poly coverings, mulch plastic sheeting, growing media and fertilizer bags, and some containers.
* 5	Polypropylene (PP)	Food tubes and jar lids. Some nursery pots.
* 6	Polystyrene (PS)	Styrofoam cups, yoghurt containers, plates, meat trays, clear plastic cups. Block containers.
7	Others	Other resins or multiple resin.

Note that in the #2 HDPE plastic category there are two forms: blown (bottle style) and injection molded (tub style). Often, these must be separated before recycling because the resins are of different thicknesses and therefore can not be melted down together. This may also be true for other items - like different types of plastic bags (the smooth bags are #4 and the stiffer crinkly bags are #2). The rule of thumb is to always ask your recycler exactly what is accepted and how it should be sorted and prepared.

The Oregon Association of Nurserymen (OAN) has been working with local nurseries to establish a recycling program for used nursery plastics such as polyethylene film and containers. The program is still in its infancy but markets for used poly tarps have developed in Asia. Other firms are also developing markets for used nursery plastics. National Waste Technologies, Inc. is making plastic wood out of 50% used poly film, and for this use, it does not have to be completely clean.

The secret to recycling film plastic (#4) is to separate it by colors, clean it, and keep it clean. Mulch plastic is already in strips and poly coverings can be cut lengthwise along the furring strips to produce plastic sheets approximately 22 x 100 ft. (6.7 x 30.5 m). There are several hand- or tractor-powered rollers that can be used to process the film as it is removed from the ground or from structures (Figures D and E). Most use a PVC pipe as a core and are powered by the tractor PTO. Using a plastic sheet as a ground cover keeps the film strips from getting dirty, and the slick sheets also make the rolling easier by reducing ground friction. Stationary balers and conventional hay balers have also worked, and by using plastic baling twine, the whole bale can be shredded at the recyclers.

In addition to film plastic, the OAN program will also accept used containers of types #2, #5, and #6. In order to finalize the recycling markets, we need to know how much used nursery plastic could be available. So, if you would like



Figure D. Strips of used plastics film are cleaned and ready for baling. (Courtesy of Ron Lapotin)



Figure E. Plastic nursery film can be baled with conventional farm equipment. (Courtesy of Ron Lapotin)

to participate in this program, please contact Ron Lapotin with a list of what types of used plastics that you have, an estimate of how much (weight or volume), and when they would be available:

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I would also be most interested in the details of other recycling programs for used nursery plastics, so please let me know and I'll pass on the information in the July 1995 issue.

Sources:

Bartok, J.W., Jr. 1992. Recycling film plastic.
In: Proceedings, 1992
International Summer Meeting of the
American Society of Agricultural Engineers;
1992 June 21-24; Charlotte, NC. Pap.
92-4031. St. Joseph, MI: American Society of
Agricultural Engineers. 6 p.

Grey, D. 1994. Recycle by numbers. The
Digger, Feb. 1994. Milwaukie, OR:
Oregon Association of Nurserymen: 35.

Hemphill, D.D., Jr. 1993. Agricultural plastics
as solid waste: what are
the options for disposal? HortTechnology
3(1): 70-73.

York, J. 1994. Waste Reduction and
Recycling News 5(10). Sandpoint, ID:
USDA Forest Service, Sandpoint Ranger
District.