

Plastics: Do We Remove Them Before Composting?



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John Paul, Ph.D. President
Transform Compost Systems Ltd.
Abbotsford, BC Canada
transformcompostsystems.com
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Summary

- Yardwaste programs do not like plastic
- Residential foodwaste programs are more complex
- Your residents are the key to maximizing diversion
- Organic collection systems
- Focus on Plastics
 - Compost feedstock preparation
 - Organics recovery rate
 - Final product quality

Yard Waste Programs Do Not Like Plastic

- Most yard waste composting facilities in BC do not accept material in plastic bags
- City of Toronto concluded that it saves several hundred thousand dollars per year by banning plastic bags from its yardwaste program
- A quick review of the internet suggests that most yardwaste composting facilities do not like plastic because:
 - Increased cost of plastic removal,
 - decreased value of compost product,
 - plastic contamination at composting site.



Yardwaste Collection Options

- Homeowner drops off at site – simple to enforce plastic removal
- Yardwaste collected in plastic bags, but emptied into truck at curbside – not fun for truck driver
- Yardwaste collected in plastic bags, emptied at compost facility,
 - manually – tedious, potentially risky
 - mechanical debagger- not always efficient
- Yardwaste collected in biodegradable bags
- Yardwaste collected in bins – with or without liner
 - City of Toronto – Kraft paper liners in bins



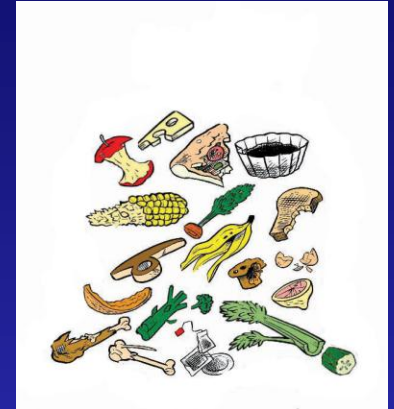
Balancing the Needs of the Composter and the Homeowner

- To ensure compliance, collection system has to be simple and odor free for the residents
 - Bins – with or without liner – liner decreases odor risk by minimizing “crud” on inside of bin
 - Plastic bags – regular or biodegradable
- For the composter to ensure a high value compost product, the composting material must be free of plastic
 - Yardwaste without any container
 - Yardwaste in paper liners (Kraft)
 - Yardwaste in biodegradable bags



Residential Foodwaste Collection Programs are More Complex

- Foodwaste:
 - is wetter and heavier
 - has a greater risk of odor generation
 - residue will stick on the inside of a bin
- With source separated foodwaste composting – its much more difficult to balance the requirements of the residents and the composter
- How do we encourage and increase compliance in separation with efficiency and cost of the composting program?



Residents are the Key to Maximizing Diversion

- Separation process has to be low cost
- Collection process must not result in odors or flies
- Collection containers must be small enough to handle in the kitchen
- Containers must be easy to take to curbside
- Containers must be readily available to purchase or use



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Collection Containers in Use

- Plastic bags – inexpensive, clean, odor free
 - Guelph, Toronto



- Biodegradable plastic bags – clean, odor free, more costly than plastic only



- Bins without liners – who pays for bin? – increased risk of odor
- Bins with liners – increased cost, clean, odor free



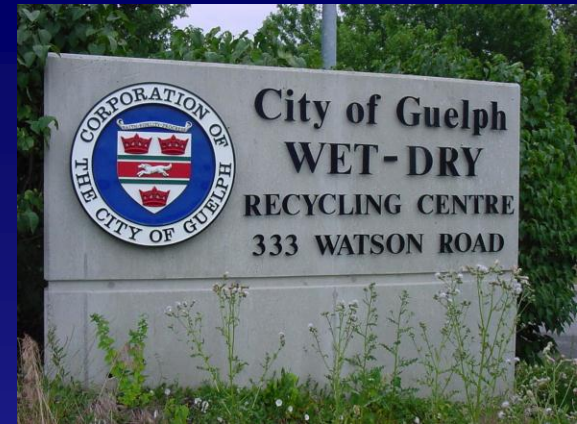
Yardwaste Should be Blended with Foodwaste

- Including Yardwaste with foodwaste:
 - Will help absorb moisture of foodwaste at collection
 - Will help reduce odor of foodwaste
 - Is required for proper composting of foodwaste
 - Eliminates double organics collection
- Seattle and Ottawa blend foodwaste and yardwaste
- Toronto does separate collection of foodwaste

Focus on Plastic as Collection System

- Simple plastic bags are least cost, simple to obtain, are clean and odor free – will ensure greatest resident compliance to a source separation program.
- How do we deal with plastics from the composting perspective?
 - City of Guelph – source separated household organics separation and composting since 1996
 - All organics collected and processed in plastic bags

City of Guelph



- Plastic bags opened with debagging auger
- Contents and bag feed through a trommel screen with 4" holes
- Achieve 65% recovery of incoming waste
- Remaining compost still contains plastic
- Plastic removed with screening process, but is still present in "overs"



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Improving Efficiency at Guelph Demonstration with EnviroProcessor

- Bags shredded to 4" and blended with bulking agent in one step
- Organics recovery increased to 95%
- Potential savings of at least \$ 100,000 per year in operating cost
- Plastic to be removed after composting



City of Toronto Composting Contractor Uses EnviroProcessor

- Small plastic bags with organics
- Much contamination
- Composting outsourced to private contractors – one processes up to 175 tonnes per day with the EnviroProcessor



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Post Processing – Screening Out Plastic

- Plastic can be much more efficiently removed from the organic material after composting.
- Trommel screens can remove most of the plastic in the fine material
 - Miller Group uses a trommel with 1/4" and 5/8" openings – the 1/4" material is free of plastic – the 5/8" material has 75% of plastic removed with air suction
 - City of Guelph uses a McCloskey trommel – no plastic in the fines fraction, the plastic is not removed from the course fraction.

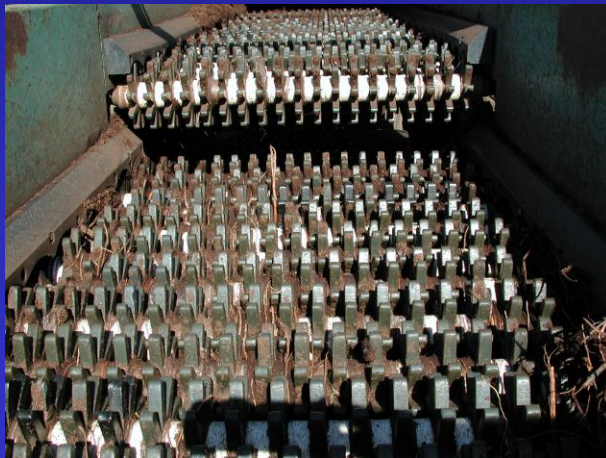
Post Processing – Screening out Plastic

- The star screen has been shown to have the greatest potential to remove plastic from the composted material.
- Komptech is using a star screener equipped with a vacuum to remove plastic – to be installed in Hamilton



Post Processing – Removing Plastic

- A local manufacturer of star screening systems since 1992 – is also building a vacuum system to remove plastic for a client who uses the EnviroProcessor for opening and shredding plastic bags



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Residential Foodwaste Composting Pilot Project

- The Fraser Valley Regional District, the District of Kent and Transform Compost Systems are planning a source separated food waste composting pilot test.
- We will collect in plastic bags
- We will debag, shred and blend with bulking agent in the EnviroProcessor



Residential Foodwaste Composting Pilot Project

- We will compost on an aerated floor using compost overs as a biofilter
- We will screen using a star screener with a vacuum system for plastic removal.



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Summary

- In an ideal world, we can keep all plastics from the compost stream
- Plastic may be a reality we need to deal with as composters to optimize organics removal from the waste stream
- The Enviroprocessor debags, shreds and blends with bulking agent in one step
- The star screener is able to remove plastic with a vacuum system
- We are going to try this with the FVRD!

