
FOOD TO
FERTILIZER
with the Saskatoon Food Bank

FOOD DISCOVERY CENTRE

Community Greenhouse

Commercial Grade Kitchen

Seasonal Outdoor Gardens

Solar Power

Classroom

Wood Pellet Heating

Up to 500 kg of wasted produce in busy months

CONTRACTED COMPOSTING SERVICES

- Contracted composting is in it's infant stages here in Saskatchewan
- The City of Saskatoon has a pilot project to accept residential food waste for compost
- Cost would be $1210/year

Image: www.bindoctor.com

COMPOSTABLES

‘GREEN’ = Nitrogen	‘BROWN’ = Carbon
Fruit and vegetables	Sawdust
Bread and baked goods	Wood pellets
Pasta and rice	Cardboard (cross-cut)
Eggs and egg shells	Hand paper towels
Coffee and coffee grounds	Dry leaves
Tea leaves an tea bags	Compostable tableware (shredded)
Meat products (raw and cooked)	Compostable and paper bags (shredded)
Cheese products (raw and cooked)	Wood chips
Fish (raw and cooked)	Wood shavings
Table scraps	
Garden waste and clippings	

TURNED WINDROWS

- Simplest outdoor composting method
- Labor intensive
- Possible odour and aesthetic issues

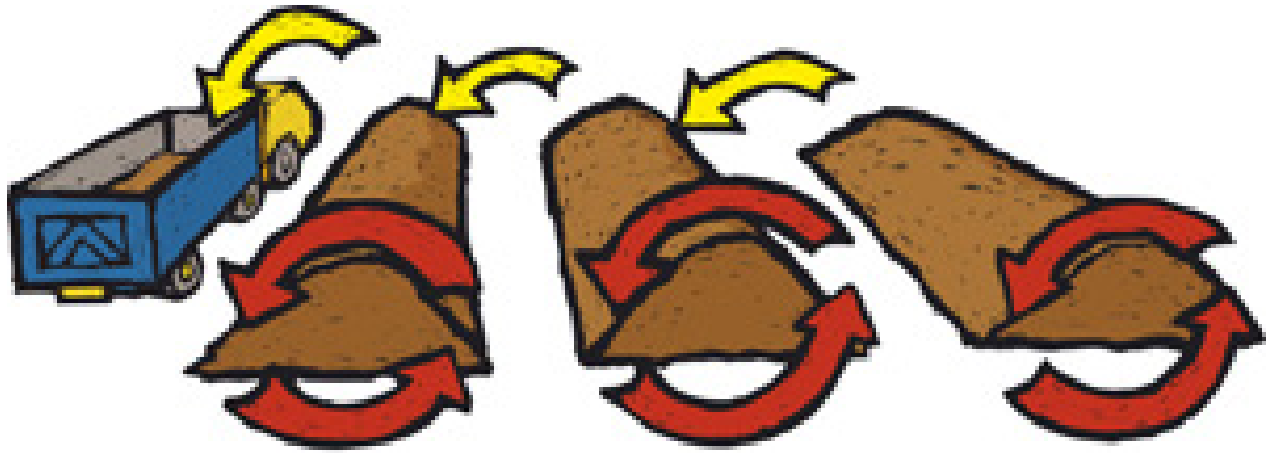
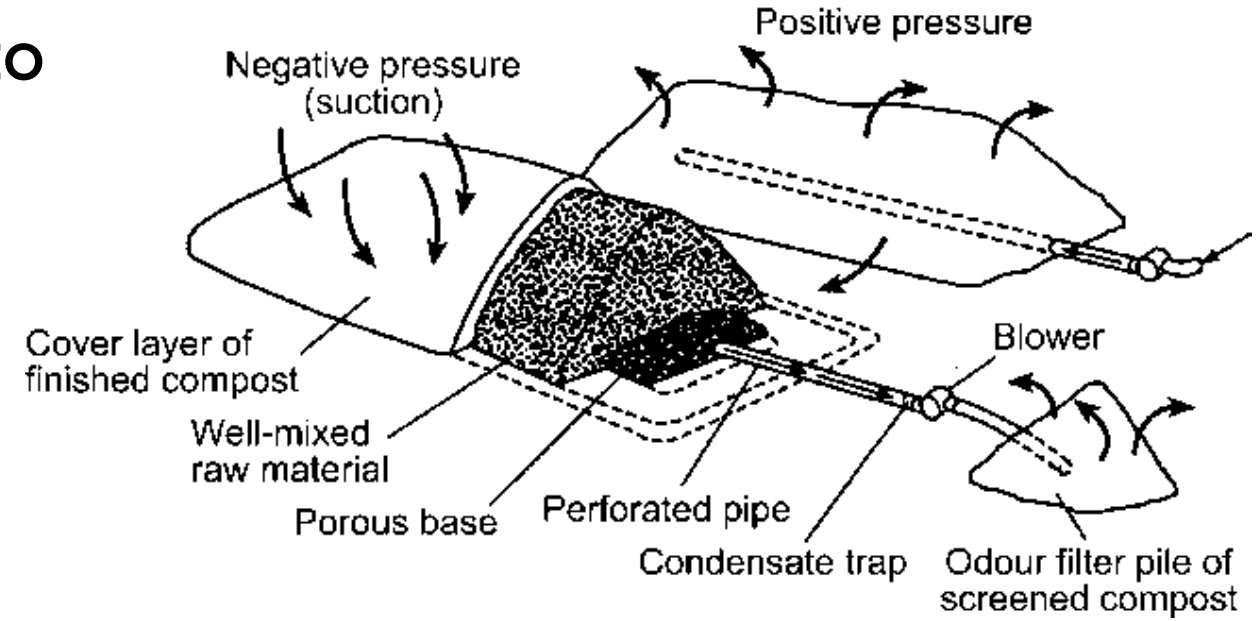


Image: http://www.lesswaste.org.uk

AERATED STATIC PILES

- More technically difficult to set up
- Less labour intensive than turned windrows
- Uses some electricity if a blower is used
- Straw base may not completely decompose



www.fao.org

VERMICOMPOSTING

Image: wormwigwam.com

Worms + Organic Waste ⇨ Nutrient Rich Fertilizer

VERMICOMPOSTING

PROS

- Cheaper than In-Vessel
- Less complicated technology
- Reduced fertilizer costs
- Educational

CONS

- Initially expensive
- Requires manual labour and time
- Does not compost meat or diary.
- Must be insulated
- Slow start up

VERMICOMPOSTING RECOMMENDATIONS

Capacity	500 kg	1000 kg
Unit Size	5x4 ft	5x8 ft
Floor Space	10x8 ft	10x12 ft
Waste Input	13-19 kg/day	23-35 kg/day
Fertilizer Output	62-80 kg/week	104-159 kg/week
Energy	N/A	110-volt
Unit Price	$2,897	$6,762
Worm Price	$900	$1,800
Total Price	$3,797	$8,562

SMALL-SCALE IN VESSEL COMPOSTING

The Earth Tub™: Green Mountain Technologies

http://www.recyclingproductnews.com/company/3127/green-mountain-technologies

Key Features:

- Easy to operate
- On-site
- Rapid process reduces compost volume quickly
- Temperature controlled system
- Insulated for cold weather operation
- Bio-filter odor control system

SMALL SCALE IN-VESSEL SYSTEM OPERATIONS

One Earth Tub system is capable of processing from 25 lbs (13 kg) to 150 lbs (68 kg) per day.

Each unit holds about 3200 lbs (1500 kg) biomass capacity when full.

Materials include:

- Kitchen prep waste and plate scrapings
- Green garden waste
- Manures
- Meats, cheese, and other fatty foods

  (kept below 25% of total waste input)

http://gmt.kldwd.com/in-vessel-systems/earth-tub/

SMALL SCALE IN-VESSEL COMPOSTER

PROS

- High quality end product
- On-site composting, fully enclosed system
- Easy to operate, short time required
- Rapid process reduces compost volume quickly
- Wide range of compostables
- Positive customer feedback
- Educational value
- Expansion capability

CONS

- High initial capital
- Input should be regulated
- Requirement of supplemental heat in cold temperatures (below -12^{0}C for more than 7 days)
- Recommendation for the system to be in a shaded or covered location
- Lack of customer feedback in Canadian climates

SMALL SCALE IN-VESSEL SYSTEM COSTS

1 Earth Tub™ Package - $14,240.00

- One Earth Tub™ Package provides all equipment required for a site to process up to 100 pounds of organic waste per day.

Optional added costs:

- Earth Tub™ Positive Aeration System - $463.00 per Tub
- Earth Tub™ On-Floor Heating System - $397.00 per Tub
- Additional Temperature Probes - $131.00 each
- One-Year Extended Warranty - $524.00 per year

INDUSTRIAL SIZE IN-VESSEL SYSTEM

CityPod by Vertal (S model & L model)

Image: http://Vertal.ca

IN-VESSEL COMPOSTING PROCESS

1. Compostables (30:1)
2. Shredder
3. Input into vessel (daily)
4. Moves through drum (active composting & curing)
5. End product (20% volume of inputs)

INDUSTRIAL SIZE IN-VESSEL SYSTEM

PROS

- High quality end product
- Self contained
- Low environmental foot print
- High efficiency
- Good learning model
- Possibility to generate revenue
- Range of compostables
- Machines have a long life
- Good reviews
- Established support system

CONS

- High initial capital
- Highly mechanized
- Learning curve for labour

INDUSTRIAL SIZE IN-VESSEL COST

	S model	L model
Shredder	$10,000	$10,000
Odor system	$3,500	$3,500
Transport	$2,000	$2,000
Install	$3,000	$3,000
Training	$2,000	$2,000
Vessel	$41,400	$79,100
Expected Total	$61,900	$99,600

OUR RECOMMENDATIONS

Contracting	Windrow/Aerated	Vermicomposting	Small In-Vessel	Industrial In-Vessel
No fertilizer	Not year round	No meat/dairy	Limited Capacity	Most Expensive
Simple	Cheapest	Educational	High Quality Fertilizer	High Quality Fertilizer


QUESTIONS?