



# RECYCLING SOLID WASTE

## – R4

Eco-efficiency resources for the food processing industry

### *Reprocessing waste*

*Recycling involves collecting materials from solid waste streams for use (either in their original or reprocessed form) as substitute raw materials in the manufacture of new products. Opportunities in the food processing industry include recycling of packaging and office waste as well as the recycling of food waste through composting, vermicomposting, direct landscaping and soil amendments.*

#### **Recycling of packaging, office and maintenance/repair waste**

Effective recycling requires careful separation of wastes to avoid cross contamination, and constant monitoring. Some suggestions to assist in solid waste recycling include:

- clearly label general and recycle bins, for example, use of signage or colour coding to increase distinction
- locate recycle bins near where waste is generated
- involve staff in planning the recycle system and provide training on implementation. Refresher courses can encourage staff commitment and ownership
- provide information on recycling outcomes including environmental and economic benefits to motivate staff
- regularly consult with waste contractor to highlight irregularities
- regularly audit bins and keep records of quantities of recyclables and general waste collected to provide valuable information on the effectiveness of the system. The results of these audits can also be used to promote the success of the recycling program.

**Table 1: Typical recyclable food processing waste**

Type of waste	Examples
Packaging waste	Foil and trays, cardboard boxes, metal drums and cans, plastic bottles and drums, glass, pallets, strapping and pallet wrap
Maintenance and repair waste	Engine oil, transmission, power steering, brake and hydraulic fluids, coolants, acid batteries, oil filters, rags
Office waste	Paper, toner, cartridges, computers, cardboard



## Recycle organic food waste

### Composting

Composting converts organic food waste to a microbiologically stable and less odorous soil additive through a decomposition process using oxygen, water and bacteria. Fruit and vegetable waste are particularly suited to composting. However, wastes high in fats and oils such as meat and dairy are less suited to composting but given their high nutritional value may be more suitable for animal feed. Paunch and offal are a regulated waste and the composter must be licensed by the Department of Environment and Resource Management (DERM) to accept paunch for composting.

If space, cost or odours are an issue for onsite composting, transporting the waste to an off site facility may be an acceptable alternative to landfill.



### WASTE REDUCTION BY WORKING WITH SUPPLIERS

Harvest Freshcuts are fresh salad producers in Brisbane. They work closely with their fresh produce suppliers to reduce the amount of organic waste arriving on site to the benefit of both farmer and processor. The outer leaf is removed on farm, keeping organic material on farm for reuse and reducing waste production at the processing plant. Further, organic waste generated at the processing plant is sent to a dairy farm to be used for feed. An added benefit for the processor is the reduction in cleaning requirement as the removal of the outer leaf also removes the majority of the dirt. Harvest Freshcuts are currently investigating options to remove more waste on farm for continued benefits. (Harvest Freshcuts are an ecoBiz participant.)

### Vermicomposting

Vermicomposting involves turning organic food waste into worm castings which have a higher nutritional value than compost. Suitable feed for worms include seafood, biscuit, bread, vegetable and fruit waste and even paunch from slaughtered animal waste.

This may be a viable alternative to landfill for businesses located near commercial vermicomposting operations.

### WORMS PROVIDE THE SOLUTION TO WASTE

A Coles supermarket has reduced its landfill costs from \$37.50/m<sup>3</sup> to \$6.95/m<sup>3</sup> by eliminating its organic waste from its fruit and vegetable, bakery, deli and meat units. A total of 600 tonnes of food waste is now separated into 240L wheelie bins and delivered to a nearby worm farm where it is converted to fertiliser, potting mix and soil conditioner and sold back to customers at the supermarket.

## Recycle waste from wastewater treatment systems

### Recycling of biosolids

Biosolids are the sludge component of treated wastewater. They can be high in organic content, rich in nitrogen and phosphorous and can range in water content from 10 to 80 per cent. Biosolids can be used for composting, animal feed as well as soil injection and landspreading. Biosolids can sometimes contain traces of heavy metals and are usually tested before being recycled.



### Landspreading

Biosolids must be dewatered or dried before they can be used directly for landspreading.<sup>1</sup> Biosolids can be further processed into granulated product for application as a fertiliser.

### Soil injection

Liquefied biosolids can be injected into the soil. However, it is currently not allowed in Queensland as it may pose a health risk and leach into surface and ground water supplies.

## SOIL INJECTION IN TIMES OF DROUGHT

Sludge from the Dissolved Air Flotation (DAF) wastewater treatment system of Victorian Dairy Farmers in Lidcombe, is collected for direct soil injection on farms. Dairy farmers saw this service as invaluable in periods of drought.

This series of fact sheets provides examples and suggestions to the modern food processor on how to achieve both economic and environmental benefits from eco-efficiency. Visit the project website [www.ecoefficiency.com.au](http://www.ecoefficiency.com.au) for more ideas and case studies.

<sup>1</sup> Department of Environment and Resource Management, 2002, Green and Organic waste processing and Marketing in Queensland  
[www.epa.qld.gov.au/publications/p00428aa.pdf/Green\\_organic\\_waste\\_processing\\_and\\_marketing\\_in\\_Queensland.pdf](http://www.epa.qld.gov.au/publications/p00428aa.pdf/Green_organic_waste_processing_and_marketing_in_Queensland.pdf)