



Tourist Island - Composting

The Rottnest Island Experience

Background

Rottnest Island is a good example of a remote community that has environmental problems using land fill for waste, it is expensive to freight waste and recycled material to the mainland and it has a relatively small amount of waste in total. It is also unique in the sense that no other materials can be brought from another area to facilitate the process.

Until 1997 Rottnest Island was primarily using its own land fill site to dispose of a range of wastes including; mixed municipal waste, food waste from businesses, biosolids, cardboard, paper and construction waste. The island also had a relatively low-key recycling program for glass and aluminium cans.

Waste Disposal Options

A review of the various waste disposal options was conducted in September 1996.

This listed the following waste disposal options:

Land fill at Rottnest

Land fill on mainland - compacted and otherwise

Windrow composting at Rottnest

In-vessel composting at Rottnest

Pyrolytic stabilization

Incineration

All these options included a comprehensive managed recycling program.

The Compost Program

The objectives of this waste composting program was to reduce waste going to land fill, kill pathogens, kill weed seeds and produce a finished compost material that was useful in the woodland restoration program on the island.

The island management authority chose to trial aerobic windrow composting as a low cost option, to convert the organic waste to a neutral material for use in land rehabilitation work. This approach suited the authority because it allowed a trial to be completed without expending a large amount of their resources on equipment.

Organic Farming Systems was employed, because of our experience in producing high quality composts, to conduct a composting feasibility study and implement the trial.

The various organic waste components available at Rottnest were:

1. Biosolids - Low C/N ratio, high moisture content, high Cu and Zn levels. To achieve Contaminant Grade A levels we blended biosolids at a rate of 1 part biosolids to 2 or more parts of other waste.
2. Food Waste - Included fruit and vegetable waste from the General and Geordie Stores and kitchen waste from the islands restaurants and cafes. Plastic was removed from the waste at the source and a feedback mechanism to business owners was in place to reinforce the effort required to keep plastic out of waste.
3. Cardboard and paper - High C/N material was separated from other waste, as much as possible.

The trial was kept as simple as possible by mixing the available organic waste with a front end loader and determining whether we could generate heat in the pile and commence break-down of the raw materials. The materials used included biosolids, cardboard and food waste. The trial was successful, achieving the objectives listed above which resulted in the expansion of the program through the summer of 1997/98.

As the front-end loader used in the trial-composting program was not the preferred option for turning compost, the island authority purchased a tractor-drawn windrow turner. This turner was delivered and commissioned in March 1998.

Windrow turners have proven themselves to be superior to turning with a front in loader in all facets of the operation including blending of materials, aerating the windrow, addition of water and physical break up of particle size. It is not possible to compost to a high standard with a front-end loader.

The objectives of the waste composting program was to reduce waste going to land fill, kill pathogens, kill weed seeds and use the finished compost material for restoration of the woodlands on the island.

The main issues for setting up any windrow composting facility are:

- Site preparation including access to water
- Equipment - turner, tractor, loader, covers etc.
- Staff training
- Recipe analysis
- Problem Solving
- Testing - daily, weekly, Australian Standards, pathogens
- Contamination
- Odours - Bad odours are generally a result of anaerobic conditions. In this aerobic process odours are only a problem if something goes wrong, ie if mistakes are made.

Conclusion

The composting program at Rottnest is currently dealing with the organic waste generated by the businesses and the biosolids from the wastewater plant. This waste is diverted from landfill without adversely affecting the amenity of the island. The finished compost material is currently used for rehabilitation of the landfill site.

This process can be adapted for a large variety of waste sources with benefits for city and regional communities. The opportunities for regional areas to set up their own facility are only limited by their own willingness to do something and allocating the funds required.



Organic Farming Systems
PO Box 419 Cottesloe WA 6911
Tel 08 9384 3789: Fax 08 9384 3379
www.organicfarming.com.au
admin@organicfarming.com.au