

Guide to Land Spreading of Food Industry Waste

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ENVIRONMENT PROTECTION AUTHORITY

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1. Purpose

This Guide has been prepared for Tasmanian food producers and processors, waste transporters, landowners and environmental regulators concerned with land application of food industry wastes of plant or animal origin. These wastes are generally readily biodegradable and can be a valuable soil conditioner when managed and applied appropriately. However, given their concentrated and putrescible nature, these wastes can also give rise to environmental, and human or animal health risks, which need to be addressed before land spreading occurs.

This Guide does not approve the application of food industry wastes to land. Rather, it highlights key and general considerations that should be taken into account when developing proposals or plans for treating, transporting, handling, storing organic wastes arising from food production that are intended to be applied to land. The guide does not substitute for, or override, specific considerations or mandatory requirements for any given proposal.

2. Scope

This Guide covers biodegradable food industry wastes generated during processing or packing of foods such as fruits, vegetables, milk, meat, fish, and brewery products.

The Guide does not apply to non-biodegradable wastes associated with food processing or packing, wastewater from food processing facilities, or sludge from wastewater treatment plants at food processing facilities. The Guide also does not cover food wastes produced by retailers, food service businesses or consumers, for subsequent land application elsewhere. While food industry wastes may be composted prior to land spreading, the Guide does not cover composting in detail.

3. Regulatory Requirements

Environmental risks potentially arising from land spreading of food waste include contamination of soil, surface water and groundwater by nutrients, metals, human or animal pathogens, chemicals, or salts, as well as odour generation. Food waste transport may also result in odour nuisance. Food waste storage may lead to contamination of crops or pastures via run-off or dust from the storage site. Storage sites can emit greenhouse gases.

While application of food wastes to land can be considered a type of beneficial reuse, it is also a form of disposal and therefore requires authorisation by the EPA or Council prior to commencement.

A proposal to apply food waste to land can be assessed and authorised in different ways, depending on the nature of the waste and the scope of any existing legal instruments. The most appropriate authorisation pathway should be discussed with the EPA and Council in the early planning stages of any proposal.

Regardless of the authorisation pathway, it should be demonstrated that the *Environmental Management and Pollution Control (Waste Management) Regulations 2010* are complied with, and that all reasonable and practicable steps have been taken to meet Section 23A; General environmental duty, of the *Environmental Management and Pollution Control Act 1994 (EMPCA)*. The intent should be to maximise beneficial returns for the crop or land, while minimising impacts on the receiving environment.

4. Waste Characteristics

Food industry waste streams are highly variable in terms of water, fat and oil content, nutrient concentrations, pathogens and other potential animal or public health risks, potential environmental impact and odour potential.

Some food wastes may be classified as a controlled waste under the EMPCA, which calls up the definition set out in the *National Environment Protection (Movement of Controlled Waste between States and Territories) Measure 2010* (the NEPM). Substances on List 1 of the NEPM are taken to exhibit a characteristic in List 2 of the NEPM, unless proven otherwise. Table 1 lists main controlled waste categories from the NEPM relevant to food wastes.

Table 1. Food wastes that are controlled wastes

NEPM	Category	Example
List 1	K100	Animal effluent and residues (abattoir effluent, poultry and fish processing waste)
List 2	H6.2 Infectious substances	Substances or wastes containing viable micro-organisms or their toxins which are known or suspected to cause disease in animals and humans
	H12 Ecotoxic	Substances or wastes which if released present or may present immediate or delayed adverse impacts to the environment by means of bioaccumulation and/or toxic effects upon biotic systems
	Other reasons	Potential to have a significantly adverse impact on ambient marine, estuarine or fresh water quality

For further information on identifying controlled wastes refer to <https://epa.tas.gov.au/regulation/waste-management/controlled-waste>

5. Land Application

Planning for land spreading of food wastes should include consideration of the following key elements, typically as part of a comprehensive agronomic assessment

5.1 Site selection

Site selection can influence potential impacts of applying food wastes to land. In particular, risks potentially associated with proximity to residences, recreational areas, incompatible land use activities, and other environmental factors such as depth to groundwater, distance to waterways and natural values, should be considered.

5.2 Exclusion zones

Establishment of buffer zones between waste application sites and the surrounding landscape is recommended. Table 1 below may be used as a guide. Site specific buffer zones may be required by the EPA or Council during assessment of any particular proposal for spreading of food waste on land.

Table 2: Minimum buffer distances (Source: *Tasmanian Biosolids Reuse Guidelines 1999*)

Feature	Buffer zone (m)
Surface water bodies other than farm dams	100
Farm dams	30
Drinking water bores	250
Other bores	50
Farm driveways, access roads and fence lines	10
Native forests and other native vegetation types	10
Animal enclosures	50
Occupied dwelling	100
Residential zone, urban areas	500

5.3 Application rates and timing

Assessment of the site specific capability of the land by an agronomist or other suitably qualified person is important. This includes soil analyses to calculate the maximum rate at which the waste can be applied without exceeding agronomic nutrient or salt requirements, being appropriate for the land and associated climatic and environmental considerations.

For optimal results, wastes should be applied to fallow land as close as possible to the time of sowing pasture or crops. Spreading in winter should generally be avoided as nutrient demand is lower and increased rainfall and soil saturation increases the risk of nutrient leaching and run-off.

It is essential that the landholder is involved in this assessment, and understands and can to adhere to application requirements determined by an agronomist.

6. Content of Land Spreading Proposal or Management Plan

If seeking approval to apply food waste to land, the following information is likely to be required as a minimum in a land spreading proposal or management plan:

1. Name and contact details of waste producer, applicant (if different), and owner of receiving property.
2. Details and map of the receiving property, including proximity of nearby watercourses, residences and roads.
3. Background to the requirement, plans and expected benefits for land spreading of the waste.
4. Approximate volume of waste to be applied per day and annually.
5. Composition of the waste, including waste description, waste category (if controlled waste), waste state (liquid, solid, sludge with proportion of solids), known properties or contaminants, suspected properties or contaminants. Note that chemical and biological analysis (including pH, EC/salinity cations including Na, Ca, K, Cl, BOD, and bacteria) should be undertaken on at least three representative samples of the waste material. Always check with the laboratory on the requirements for sample collection: sample size, sample containers, labelling, storage and transport of samples.
6. Area and type of land available at the receiving property. A comprehensive agronomic assessment should consider the crop(s) or pastures, waste spreading rates, timing, limiting factors, risk management and crop/pasture management on the identified area of land.
7. Any treatment or processing, and storage and handling arrangements at the facility that generates the food waste.
8. Transport to, and handling at the receiving site, including stockpiling or mixing with other material prior to land application.
9. Animal Health or Human Protection measures (including stock withholding periods or withholding periods prior to planting or harvesting crops), as necessary.
10. Composition of the material to be spread. Include description of 'ingredients', their waste category (if controlled waste), their state (liquid, solid, sludge with proportion of solids), state of the final material, its known properties or contaminants, suspected properties or contaminants. Chemical and biological analysis should be undertaken on three representative samples.

Note: If composting is proposed please seek advice from EPA and/or Council as further requirements may apply.

11. Land spreading method and management/control of application rates, including any exclusion/buffer zones.

12. Compliance monitoring and record keeping system for all steps that apply e.g. production of waste, waste composition, stockpiling, treatment, transport, spreading, land, pasture and crop management post spreading.
13. Signed agreement from the landowner(s) if the land is owned by someone other than the applicant.
14. Notification mechanisms to inform the EPA, council, local residents, businesses, schools that may be affected by odour, additional traffic, including contact details and as required.
15. A hazard identification and risk management plan, including actions for preventing adverse effects on the environment, animals and people.

7. Risk Assessment and Management

A risk table or checklist such as the example in Table 3 can be used when preparing a food waste land spreading proposal or plan to ensure prevention of adverse effects on the environment, animals and people.

Table 3: Example checklist for identifying and managing risks associated with food waste management and land spreading (additional risks may be added)

Risk	Risk Management	Have risk management steps been taken and documented?	If no, explain alternative proposed risk management	Notes
Food Waste producer				
Discharge to soil, surface water, ground water from stockpile at producer premises	Pre-processing of waste, such as de-watering, maceration and other physical break down	Yes / No		
	Buffer distances from on-site stockpile, bunding	Yes / No		
	Impermeable base and leachate collection system	Yes / No		
	Sealed bins	Yes / No		
Odour	Sealed bins Buffer zone	Yes / No		
Litter nuisance	Screening to remove rubbish and non-biodegradable material	Yes / No		
Pathogens	Pathogens identified Waste treated to reduce bacteria or other pathogens	Yes / No		
Transport				
Spillage and odour during transport	Sealed transportation	Yes / No		Registration Number:
	Vehicle registered as a Controlled Waste Handler for category K100.	Yes / No		
Management at Receiving Property				
Landowner doesn't understand proposed management regime	Signed agreement in place with receiving landowner	Yes / No		

Risk	Risk Management	Have risk management steps been taken and documented?	If no, explain alternative proposed risk management	Notes
Pathogens and odour	Waste composted or stabilized prior to spreading	Yes / No		
Incorrect application rate	Agronomic assessment undertaken for the receiving land	Yes / No		
Disease transmission	Stock withholding period applied How many days?	Yes / No		
Odour, nutrient loss to waterways	Application buffer zones established	Yes / No		
Contractor, landowner do not follow management regime	Standard Operating Procedures in place and provided to employees, contractors and landowners	Yes / No		
Review of Operations				
Management regime not implemented as planned	Process for monitoring and review of the food waste land spreading system established	Yes / No		

8. References

The following resources may be useful in developing a plan for any waste or site:

Subject	Reference
Solid or sludge wastes	Biosolids Reuse Guidelines August 1999 - EPA Website
Recycled water - Tasmanian Guidelines	Use of Recycled Water December 2002 - EPA Website
Recycled water - Australian Guidelines	www.waterquality.gov.au/guidelines/recycled-water
Metal concentrations	EPA Tasmania Information Bulletin 105
Animal health queries	http://dpiw.tas.gov.au/biosecurity-tasmania/animal-biosecurity/animal-health
Soil capability information	LISTmap - Land Information System Tasmania
Groundwater information or contact Regional Water Management Officer	Groundwater Information Access Portal Water Management Regions



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