Beneficial re-use of biosolids aims to use the value in this resource. Land application of biosolids for beneficial reuse is not waste disposal.

**Biosolids - the material**

Biosolids are a by-product of municipal sewage and wastewater treatment. During sewage treatment, microorganisms digest the sewage, breaking down the organic solids leaving wastewater and biosolids. The water content of the solids is then reduced. Biosolids contain nutrient-rich organic materials that have been stabilised and meet specific processing and quality criteria.

Biosolids contain:
- macronutrients (nitrogen, phosphorus, potassium and sulphur),
- micronutrients (copper, zinc, calcium, magnesium, iron, boron, molybdenum and manganese),
- may also contain lime if this is added during treatment, and
- may also contain traces of metal compounds, including arsenic, cadmium, chromium, lead, mercury, nickel and selenium.

Lime amended biosolids are produced by blending sludge with lime. Water in the sludge reacts with the lime, producing heat, and together with the high pH (12) this kills pathogens and is known as stabilising the sludge.

The nutrients and organic matter in biosolids are of value to farmers and can help reduce fertiliser costs and improve the structure and fertility of soils in Tasmania. Most biosolids have dry solids contents ranging from 20 to 25%.

**Guidelines**

The Tasmanian Biosolids Reuse Guidelines (1999) have been produced to guide the sustainable beneficial re-use activities by those involved in biosolids production, processing and land application. Following these guidelines will allow for the safe and beneficial reuse of biosolids that are produced from the treatment of municipal wastewater and sewage. The Approved Management Method for Biosolids Reuse provides the minimum legal requirements for the classification and reuse of biosolids in Tasmania and are available at:
http://www.environment.tas.gov.au

Stockpiling biosolids on-farm prior to spreading

**Approvals process**

Your local Councils is the first point of contact when developing a proposal involving environmental activities. They will determine the level of operation of the biosolids proposal and whether a proposal needs to be referred to the Department of Environment, Parks, Heritage & the Arts.

Wastewater treatment plant for processing biosolids
Public Acceptance
Application of biosolids products may affect neighbouring properties due to truck movements and potential odours. Informing neighbours prior to delivery helps reduce concerns about the environmental and health consequences and minimise potential conflict. The acceptance of land application of biosolids by the community is integral to the success of reuse activities.

Odours
Biosolids may have a musty or ammonia-type odour normally caused by sulphur and ammonia compounds (both plant nutrients). The extent of odour will be dependent on temperature, wind speed and wind direction. Odour can be present in the immediate vicinity of the application site, however this odour is short lived. Odour usually dissipates within a day of spreading and incorporating biosolids into topsoil also helps to reduce odours.

Pathogens (disease organisms)
Biosolids stabilisation reduces or eliminates pathogens. While all biosolids will contain some level of pathogens, the open air agricultural environment is very effective at reducing pathogen numbers as surface spreading in fine weather allows sunlight to kill the pathogens, or direct injection into the soil provides a physical barrier over the biosolids. Pathogens decline to undetectable levels by 12 months after application.

Transport of Biosolids
Biosolids products must be transported and applied to land in ways that avoid public nuisance, particularly with respect to odour. Transport routes and site access must be chosen to minimise public nuisance, in both rural and urban areas. In Tasmania biosolids must be transported by appropriately approved or registered waste transport businesses. For further information contact the Environment Division on telephone: 6233 6518 or email: environmentenquiries@environment.tas.gov.au

Application Rates
The application rate of biosolids to land must not exceed permitted soil contaminant concentrations, the predicted nitrogen requirements of the crop to be grown on the site, or the lime requirements of the soil. Refer to the Guidelines for details. Prior to applying biosolids, all paddocks must undergo soil analysis for background levels of nutrients, pH and heavy metals. Biosolids used on agricultural land must also be analysed for nutrients and a range of contaminants. The Guidelines impose limits for heavy metals and organic contaminants, in both soil and biosolids, which must be adhered to before land application of biosolids can commence.

Delay and withholding periods
The Guidelines stipulate delay periods for harvesting of different food crops (30 days to 18 months) plus withholding periods for animal grazing (e.g. 30 days).

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