

# **Project: Programme to avoid digestate disposal to landfill**

## **Securing beneficial use of digestate via biofertiliser certification**

### **Introduction**

Bioenergy Association is leading a cross organisation programme to avoid digestate<sup>1</sup> disposal to landfill by certification of biofertiliser.

Stage 1 which was funded (2019/20) by the Waste Minimisation Fund (WMF) investigated how the production of high-quality, safe and healthy digestate from anaerobic digestion of source segregated organic wastes can be used as a fertiliser substitute within the framework of the *Guidelines for Beneficial use of Organic Materials on Land* (Biosolid Guidelines, Water NZ, 2020)<sup>2</sup>. The investigation produced a best practice Technical Guide 8: *The Production And Use As Biofertiliser Of Digestate Derived From Source Segregated Organic Waste*<sup>3</sup>. As such, *Technical Guide 8* creates a parallel and alternative pathway for recycling organics to the composting practices currently regulated by the Composting Standard NZS4454.

Stage 2 of the programme (This project) is also part funded by the Waste Minimisation Fund and fits within the Ministry for the Environment Strategic Outcomes area: Achieve beneficial outcomes for organic waste. This stage is to develop a certification scheme for digestate from source segregated waste, and agricultural crop residues.

Stage 3 of the programme (not part of this project) will expand the work of Stage 2 to include for all sources of digestate including biosolids from wastewater treatment facilities, undertake a programme of field trials, preparation of material for marketing of fertiliser from digestate, and formal establishment and roll out of the certification scheme.

### **Project objective**

That by 2035 that no digestate from anaerobic digestion of organic wastes be disposed of to landfill

### **Project scope:**

The project aims to adopt internationally recognised standards, protocols and procedures to establish a methodology for classification and certification of all digestate from anaerobic digestion of residual organic wastes so that it is being valued as quality fertiliser for beneficial land use. The certified biofertiliser would comply to the New Zealand Biosolids Guidelines and be beneficial to regenerative agriculture, carbon sequestering, and off-setting of existing greenhouse gas emissions generated from current use of inorganic fertiliser.

The certification will provide incentives and enable enforcement that no digestate from anaerobic digestion of organic wastes be disposed of at landfills. A digestate certification scheme will remove

---

<sup>1</sup> Digestate is the material remaining after the anaerobic digestion (decomposition under low oxygen conditions) of a biodegradable feedstock. The feedstock may be from sewage sludges, food processing wastes, livestock manure, agriculture crop residues, municipal food wastes, or purpose grown plant crops.

<sup>2</sup> [https://www.waternz.org.nz/Attachment?Action=Download&Attachment\\_id=3291](https://www.waternz.org.nz/Attachment?Action=Download&Attachment_id=3291)

<sup>3</sup> <https://www.biogas.org.nz/resource/tg08-production-and-use-digestate-biofertiliser>

one of the main barriers to the broader uptake of anaerobic digestion and enable New Zealand to progress towards a circular economy.

The certification scheme will also provide a methodology for producers of biofertiliser to claim exemption from the requirements for registration under the Agricultural Compounds and Veterinary Medicines (ACVM) Act 1997<sup>45</sup>.

## Background

With the growing interest in the processing of residual organic wastes by anaerobic digestion there is a concern that the current disposal of organic waste to landfill is just replaced by disposal of digestate to landfill.

Not only would disposal of digestate to landfill be contrary to the policy objective of **Zero recyclable organic waste to landfill by 2035** but it ignores the beneficial value of digestate as a fertiliser.

*Technical Guide 8* builds on the UK *PAS110 Specification for whole digestate, separated liquor and separated fibre derived from the anaerobic digestion of source-segregated biodegradable materials*<sup>6</sup> which sets out the foundations for classification and certification of digestate as fertiliser.

With *Technical Guide 8* providing the foundations essential for regulating digestate from source segregated feedstock via establishing a robust quality assurance based framework the task now is to broaden the platform to cover all digestate from anaerobic digestion of organic matter and establish the criteria for certification. Once the classification of digestates is established research needs to be undertaken on the various grades of digestate to adequately recognise their attributes as fertiliser.

A key aspect of interest to fertiliser users is that the product has known characteristics and is consistent in composition. The certification scheme will focus on the consistency of the anaerobic digestion process and the quality control on feedstocks, as both these affect the reliability and consistency of produced product.

With digestate classified and its fertiliser characteristics identified the digestate is then ready for market distribution underpinned by the credibility of the certification scheme.

## Project activities

Bioenergy Association has a project team which will investigate the following:

- **Learning from others** - Review international literature and prepare a concise report on international certification schemes and their methodologies.
- **Applying the learnings to NZ** - Identify and recommend criteria for certification of digestate.
- Recommend a methodology for classifying digestate as compliant fertiliser
- Design the elements of a certification scheme classifying digestate as compliant fertiliser
- **Developing a scheme** - Ownership and governance of the scheme
- **Characterisation**- Provisionally investigate and prepare a report on the characteristics of each grade of biofertiliser from food waste.
  - Soil fertilising aspects
  - Health aspects

<sup>4</sup> <https://www.legislation.govt.nz/act/public/1997/0087/latest/DLM414577.html>

<sup>5</sup> <https://www.legislation.govt.nz/regulation/public/2011/0327/latest/DLM3982848.html>

<sup>6</sup> <https://www.biogas.org.nz/resource/PAS110-digestate-standard>

- Cultural/social considerations
- Application constraints
  
- Prepare material introducing and supporting the certification scheme
- Guidance for end users and distributors/preparation of fact sheet
- Pilot socialisation of certification scheme to farmers and regulators.

Stage 3 of the project will be developed based on the outcomes of stage 2. Provisional tasks that are expected to be included are:

1. Extend the Biofertiliser Certification Scheme to include biosolids from wastewater treatment facilities
2. Undertake field trials of different grades of certified biofertilizer
3. Establishment of on-going ownership and management of the certification scheme.
4. Establishment of certifying agency.
5. Work with fertiliser companies for sale of the biofertiliser
6. Review of the fate of nitrogen from digestate in different types of soils
7. Quantification of digestate potential to enhance carbon sequestration in soil
8. Implementation of digestate and compost in Overseer FM
9. Developing standards for microplastics in digestate
10. Develop information suitable for potential fertiliser customers promoting digestate as fertiliser.
11. Undertaking an education programme promoting the Certification of biofertilisers and promoting their use.