

165 Broadway Avenue  
PALMERSTON NORTH 4414

31 March 2017

Water New Zealand  
PO Box 1316  
WELLINGTON 6140  
Via email: [nick.walmsley@waternz.co.nz](mailto:nick.walmsley@waternz.co.nz)

Attention: Nick Walmsley

Dear Nick

**RE: FONTERRA COMMENTS ON THE DRAFT GOOD PRACTICE GUIDELINES FOR THE BENEFICIAL USE OF ORGANIC WASTE PRODUCTS TO LAND GUIDELINES**

Fonterra Limited (Fonterra) appreciates the opportunity to comment on the Draft Water New Zealand Good Practice Guide for the Beneficial Use of Organic Waste Products on Land (Guidelines), along with the promotion of beneficial reuse of organic wastes to land.

In the attached document, Fonterra has provided both general comments on the Guidelines, as well as answers to the questions asked by Water New Zealand in its consultation material. Overall Fonterra supports the updates to the Guidelines, and perceives that they can provide a consistent framework for managing organic materials across the country.

If you have any questions or would like further information, please do not hesitate to contact John Russell on +64 27 209 5606 or via email: [john.russell@fonterra.com](mailto:john.russell@fonterra.com)

Yours sincerely



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Dr John Russell

**Environmental Technical Group Manager**  
FONTERRA CO-OPERATIVE GROUP LIMITED

# FONTERRA LIMITED

## COMMENTS ON THE DRAFT GOOD PRACTICE GUIDELINES FOR THE BENEFICIAL USE OF ORGANIC WASTE PRODUCTS ON LAND

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**To:** Water New Zealand  
PO Box 1316  
WELLINGTON 6140  
Attn: Nick Walmsley

**SUBMITTER:** FONTERRA LIMITED  
**Contact:** John Russell

**Address for Service:** Fonterra Limited  
165 Broadway Avenue  
Palmerston North 4414

**M** +64 27 209 5606  
**E** john.russell@fonterra.com

I confirm that I am authorised on behalf of Fonterra Co-Operative Group Ltd to make this submission.

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# 1. GENERAL COMMENTS

- 1.1. Fonterra Limited (Fonterra) generally supports the Draft Water New Zealand Good Practice Guide for the Beneficial Use of Organic Waste Products on Land (Guidelines), along with the promotion of beneficial reuse of organic wastes to land.
- 1.2. Fonterra supports the development of a national database for organic wastes and associated grading compliance, and consider this could be a beneficial step towards the identification of risks and mitigations with a wider scope than just environmental impacts. It may be a useful tool for dairy food processors to reference when meeting their legal requirements under the Animal Products Act, in particular the regulatory requirements set out in NZCP1 that relate to protecting the health of production animals and more generally to the food chain.
- 1.3. Fonterra as a food producer and exporter has reservations regarding the use of human waste to land supporting dairy production due to the largely unknown compounds and possible contaminants in that waste stream, but recognises that this is only one of the organic waste streams covered by this proposed document. However Fonterra welcomes the intention of the document to address the differing waste streams and suitable treatments and end use applications.
- 1.4. Fonterra generates a large quantity of organic wastes, and most is beneficially applied to land either on Fonterra-owned farms or to third party farms (wastewater + Waste Activated Sludge disposal), which may or may not include the company's shareholder farms.
- 1.5. For the purposes of these comments, it is important to understand the two perspectives from which Fonterra is providing comments on the Draft Guidelines.
- 1.6. The first relates to its manufacturing operations, which include the discharge of wastewater (varying strengths) to land, and to water. The second perspective is that through which the company's farmer shareholders discharge wastewater (farm dairy effluent, or FDE) to land, and in very few cases to water.
- 1.7. Table 1 below provides a summary of the organic waste streams generated within the company's manufacturing plants, and how the guidelines have been assumed to apply.

**Table 1: Summary of waste streams from Fonterra manufacturing sites**

Waste Stream		Application	TSS or %DS	Applicability
Farms	Dairy shed effluent	Applied to land under Fonterra guidelines and Dairy Shed Effluent Guidelines		No
	Manufacturing wastes	See below. Applied to land under Fonterra guidelines, resource consent conditions and NZCP1.	See below	Uncertain
Manufacturing (Non- Human Wastes)	Raw wastewater	Typically characterised as high, medium or low strength. Medium and low strength treated in biological WWTP. High strength often irrigated to land. COD range from 300 – 20000mg/l  Irrigated or discharged to biological treatment plant (NZCP1)	< 1%DS	Assume no as application via irrigation  Notified air/land consent
	Biologically Treated wastewater	Irrigated to land or discharged to surface water (NZCP1).	<0.005%DS (<50mg/l)	Assume no as application via irrigation

	Waste activated sludge (WAS)	Can be injected into treated wastewater and irrigated to land as slow release fertiliser. ACVM Act	<1%DS	Uncertain
	Thickened WAS	Can be applied to land as a slurry or dewatered. NZCP1.	3-4%DS	Assume Yes
	DAF float	Co-dewatered and sent to third parties for vermicomposting, co-digestion, or applied to land by Fonterra or third parties. ACVM Act.	5 - 15%DS	Assume Yes
	Dewatered WAS	Sent to vermicomposting or third part composting	16 – 25%DS	Assume Yes
<b>Manufacturing (Human Wastes)</b>	Sewage	Separated from manufacturing wastes, onsite treatment or discharge to municipal WWTP		Yes

- 1.8. Application of organic wastes (or contaminants<sup>1</sup>) generated at Fonterra’s manufacturing sites to land fall under the industrial and trade premises (ITP) section 15 requirements of the Resource Management Act 1991 (RMA).
- 1.9. Section 15(1) provides:
- No person may discharge any—
- (a) ...
- (d) contaminant from any industrial or trade premises onto or into land—
- unless the discharge is expressly allowed by a national environmental standard or other regulations, a rule in a regional plan as well as a rule in a proposed regional plan for the same region (if there is one), or a resource consent.
- 1.10. Given the volumes and scale of ITP discharges, and in particular those emanating from Fonterra’s manufacturing sites, there is almost always a presumption that they will require a resource consent (and they generally always do).
- 1.11. Such an application requires resource consent, which includes an assessment of the best practicable option (BPO)<sup>2</sup>, and the completion of an effects based assessment. With regard to the BPO, Fonterra is required to when discharging a contaminant identify:
- ...the best method for preventing or minimising the adverse effects on the environment having regard, among other things, to—
- (a) the nature of the discharge or emission and the sensitivity of the receiving environment to adverse effects; and
- (b) the financial implications, and the effects on the environment, of that option when compared with other options; and
- (c) the current state of technical knowledge and the likelihood that the option can be successfully applied.<sup>3</sup>
- 1.12. Fonterra considers that the requirements of section 15 will override the Guidelines, and therefore the proposed permitted and controlled status associated with meeting the organic waste grading will not apply.<sup>4</sup> However, and while the benefit of achieving a graded organic waste with respect to

<sup>1</sup> Contaminant is defined in section 2 of the RMA.

<sup>2</sup> This requirement is generally expressed via the policies for

<sup>3</sup> The best practicable option is defined in section 2 of the Resource Management Act 1991.

<sup>4</sup> As proposed in section 3 of the Draft Guidelines

consenting is diminished but may still have a place within our operations (i.e. where organic wastes are applied to third-party farms as a fertiliser substitute).

- 1.13. Fonterra understands that the intention of the guidelines is to promote the beneficial use of organic waste to land, and in principle this is supported. However this is dependent on the land use and waste streams applied. Furthermore, Fonterra understands that the proposed grading have been developed with the express purpose of providing regulators with a consistent standard upon which to allow organic waste products to be granted permitted activity or controlled activity status. While consistency in interpretation and application across regional authorities is welcomed, Fonterra considers that the grading will become a proxy for the quality and safety of the organic waste products, and therefore by default any organic waste product that is ungraded will likely be perceived by the public, end users and potentially the regulator as poor quality, unsafe and/or contaminated.

## **2. SPECIFIC CONSULTATION QUESTIONS RAISED BY WATER NEW ZEALAND**

- 2.1. **Should the word 'waste' be included in the title and descriptive text? Should it just refer to 'Organic Products' or 'Organic Materials'?**

Fonterra supports the use of the term "waste" in the naming of the guideline as this provides a clear indication of its purpose and scope (i.e. the application of organic waste material to land).

Whilst Fonterra recognises that some parties may perceive this term to be a barrier to beneficial use, as an end-user of some organic waste streams Fonterra has a legal requirement to understand where the materials have originated from to allow the end user to determine if the product(s) is fit for the intended use. Fonterra therefore, considers that the use of the term 'waste' in the guideline provides clarity about their application. The specific waste type must be stated as NZCP1 specifically mentions that human, meat processing, tannery, and paper and pulp wastes are prohibited useless hazards are identified and reduced to acceptable levels.

- 2.2. **Should the proposed 'Type' 1A, 1B etc. be used or revert back to the previous Aa, Ab etc. nomenclature used in the 2003 Biosolids Guidelines.**

Firstly, the 2003 Guidelines specifically related to the use of biosolids generated from human wastewater. However, this has been extended in the Draft Guidelines to now apply also to a wider range of source materials including those wastes that do not contain human waste.

Fonterra supports the use of a distinctly different grading nomenclature to 2003 as a means of clearly differentiating between products applied historically to land, and those products that will be applied in the future. Fonterra has no objection to the proposed numeric and alphabetic grading.

Fonterra also supports the distinction between pathogen/stabilisation grading and contaminant grading.

- 2.3. **Should measurement of emerging organic contaminant limits be mandatory for all biosolids applied to land so that a New Zealand database can be established more quickly.**

Technically the term "biosolids", as defined in the guideline glossary<sup>5</sup>, refers only to bio-waste products that contain waste material of human origin.

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<sup>5</sup> Biosolid – A sewage or sewage sludge derived from a sewage treatment plant that has been treated and/or stabilised to the extent that it is able to be safely and beneficially applied to land. Biosolid is a Biowaste Product that contains waste material of human origin.

Organic wastes produced as a result of Fonterra's manufacturing activities do not include human origin bio-waste, as sewage is kept separate from manufacturing wastes at all Fonterra sites. Sewage is typically treated with an on-site system or discharge to a municipal WWTP. However Fonterra's interpretation of the Draft Guidelines is that in order to achieve contaminant Grade "1", all organic waste products require testing and ongoing routine monitoring for emerging organic contaminant (EOC) limits regardless of whether they include human bio-waste or not.

Fonterra was unable to establish from the Draft Guidelines how the emerging contaminants listed in Table 5-5 were selected, and how relevant they are to non-human organic wastes such as primary sector production and manufacturing. As such, Fonterra recommends an adaptive EOC validation and monitoring clause which allows for non-human origin wastes to be initially validated, and then a reduced routine monitoring regime applied if the EOCs listed in Table 5-5 in the Draft Guidelines are not detected or detected at levels well below the stated critical levels. Consideration should also be given to the selection of the contaminants listed in Table 5.5. to determine if these are good indicator compounds with specific reference to potential contaminant transfer into the food chain.

With respect to mandatory sampling, Fonterra supports this requirement for all waste products containing human bio-waste products, and for any non-human waste products that through the validation testing have been shown to contain the listed EOCs.

Testing of emerging contaminants is expensive and some are currently only undertaken by research laboratories. Standard test methods are not yet agreed and different tests are being used for the same compounds, producing different results. Agreeing a standard set of tests is essential.

Whilst Fonterra support the development of an EOCs database and considers that it both aligns with the requirements of NZCP1<sup>6</sup> and focus should be outcome based, i.e. that is protects the integrity of "brand" New Zealand, specifically primary industry exports.

We also question who will establish and monitor the database. Additionally, what analysis has been undertaken to determine the cost of validation and the ongoing compliance cost particularly with respect to emerging organic and inorganic contaminants?

**2.4. Volume 1 The Guide is intended to give practical guidance. Is the information clear enough, in the correct format, split adequate between background/supporting information (technical Manual) and the Guide? How could it be improved?**

Fonterra generates a significant quantity of organic wastes most of which are beneficially applied to land. Fonterra's organic wastes do not contain human bio-wastes.

It was difficult to determine from the Draft Guidelines which of Fonterra's wastes (if any) that are currently applied to land would fall under the guidelines. Some specific areas for refinement are listed below:

- More clarity on the inclusions and exclusions (i.e. what is the threshold for determining a waste as a solid as many of Fonterra's organic wastes are irrigated to land or applied as a slurry).
- From the consultation meeting Fonterra understands that the Draft Guidelines are not intended to cover the irrigation of wastewater containing organic wastes to land. If this is the case, this needs to be clearly stated in Section 1.1.2 Exclusions.
- In order to achieve a Stabilisation Grade (A), the wastes are required to have undergone a stabilisation process and to have been tested for a range of parameters. As per the comment above regarding validation of EOCs, for some primary sector wastes the proposed pathogen parameters may not be applicable and will incur an unnecessary ongoing compliance cost.

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<sup>6</sup> Dairy - NZCP1: Design and operation of farm dairies - Code of practice

We recommend an adaptive monitoring requirement for primary sector/Industrial wastes of non-human origin.

- A flow chart (or similar) should be included at the start of the guidelines to help the reader determine if their waste product falls within the scope of the guidelines or not.
- A separate section (or simply greater clarity) is required around the application of the guidelines to non-human organic wastes from industrial sources.
- We recommend that reference be made in the document highlighting that other regulations can apply to waste disposal to, land, consultation with stakeholders is suggested prior to use of waste products on land supporting food production.
- Waste is not defined in the glossary, and without a definition there could be confusion as to what is captured by the Draft Guidelines, and what is not.
- There is contradiction in the Draft Guidelines as to whether it applies to animal manures (refer to pages 1 and 19).
- Do the definitions used in the glossary align with definitions used in the RMA?

#### **2.5. Are there any concerns over the proposed changes? What are they?**

Fonterra's resource consent applications for discharge to land are driven by effects, and use an outputs rather than inputs approach to assessing these. The grading may be adopted by regulators as the default standard for such applications, and therefore result in "input limits (such as the 200kg/ha/year of total nitrogen proposed) being applied as a rule regardless of site specific nutrient management methods.

Furthermore, there is no obligation for the regulator to monitor a permitted activity. Is it intended that the validation and sampling requirements for compliance with the grading will be monitored by the regulator, or by a central body.

The guideline states that it is a "living document". A method for revision and updating should be outlined as changes to the final Guidelines could result in changes to the compliance status of an activity.

#### **2.6. What positive or negative impacts will the proposed changes have on your business?**

Potentially increased operational costs associated with our vermicomposted organic wastes if applied to farms outside the areas currently consented.

On a positive note, the guideline could be referenced as providing base requirements for management plan requirements for some organic waste streams that may be permitted to be applied to land providing feed and grazing for dairy animals. This would be at the discretion of the individual dairy processors as the risk management programme operators as provided for by the APA.

#### **2.7. Are the changes to the guidelines able to be aligned with current regional and district plans?**

Having a consistent nationwide standard is considered beneficial to the industry. Currently there is significant difference in the rules and requirements around the application of solids and nutrients to land. Without the regulators adopting the guidelines and incorporating the grading into the plan rules (at best) it will be a good tool for assessing good practice.

Currently third party farms receiving Fonterra sourced organic waste (i.e. via a DairyFert Operation) will require land use and air discharge consent (e.g. Bay of Plenty region) unless such activities are expressly permitted (e.g. Waikato). Is it expected that compliance with the stabilisation grading will

negate the requirement for a discharge to air (odour) consent for the activity if compliance with the Guidelines is listed as a performance standard.

**2.8. Is using the NES for Assessing and Managing Contaminants in Soil to Protect Human Health, April 2012 an acceptable means of protecting human health in the urban environment? If not what do you suggest as an alternative?**

Consideration should also be given to the actual or potential impact on the rural environment including people related residences and to farm workers as well as animal health.

**COMMENTS END**