



BioGro New Zealand Guideline

Compost Guideline

This guideline is for BioGro certified primary producers making aerobic compost, anaerobic compost, or vermicompost for use on their certified properties.

This guideline may also be used by commercial enterprises that produce more than 50 cubic metres of completed compost per year, OR if you are onselling your compost.

This guideline should be read alongside the BioGro Organic standards 04 May 2009 and Module 22 Standard for Evaluation of Inputs.

This guideline does **not** specify how compost should be made.

Notes to this Guideline:

- Written approval from the BioGro office is required for your compost before you use it or sell it. It is highly recommended that ingredients are approved or assessed before your compost is made to ensure compliance with the organic domestic / export markets.
- A common misconception about input products, including compost, is that they are certified organic and therefore must be made from organic feed stock. Inputs are not considered 'organic'; they are 'Certified Inputs for Organic Production'.
- BioGro certification does not guarantee that residues are not present. Rather, it is a guarantee that a product is being produced in compliance with organic standards.
- Using BioGro approved products: BioGro wants to ensure that materials sourced from outside the property will not compromise the farm ecosystem through any type of contamination including material from compost or mulch, activators, or brought-in compost.
- Application of compost can introduce high nitrogen levels; this is deemed a high-risk product.
- All commercial compost operators require current Resource Consents from their appropriate authorities and must meet Local/Regional Authority requirements and or restrictions. Operators must adhere to these standards and meet the requirements of Section 15 (1) of the Resource Management Act the application of the compost to land must be environmentally sustainable.

1. Ingredients

| Type of ingredient | Examples |
|---------------------------------------|---|
| Carbon (C) | <ul style="list-style-type: none"> • Bark • Sawdust • Wood chips, shavings, and products such as cardboard and paper • Straw |
| Mixture of carbon and nitrogen | <ul style="list-style-type: none"> • Green waste such as tree prunings • Hay • Silage • Mushroom compost waste • Livestock shed / pad materials and bedding |
| Nitrogen (N) | <ul style="list-style-type: none"> • Manures – only from free range livestock farms. • Grass and other fresh herbage • By-products of processing of plant products such as food wastes • By-products of processing of meat and other livestock products such as paunch grass, feathers, guts, blood and meat, fish trimmings and guts and other waste • Dead animals and birds such as end of lay hens |
| Minerals | <ul style="list-style-type: none"> • Seaweed • Lime • Rock dusts • Bone |
| Others | <ul style="list-style-type: none"> • Microbial activators - approved by BioGro • Biodynamic preparations • Synthetic substances specifically allowed under organic standards – e.g. trace elements. |
| Prohibited | <ul style="list-style-type: none"> • Sewage wastes • DAF from processing facilities • Urea • Recycled wallboard • Factory farmed manure |

2. Assessing ingredients for risk

Ideally, you should only use ingredients sourced from your own or other BioGro certified organic properties.

However, this is not always practical and it may be possible to use ingredients sourced from non-organic properties and facilities. Supporting documents will be requested for assessment of these ingredients.

For each non-organic ingredient assess source, storage, and transport for potential contamination by materials prohibited under the BioGro Organic Standards for application to land and crops, including:

- pesticides (insecticides, fungicides, and herbicides) by direct or indirect application;
- persistent pesticide residues such as DDT;
- synthetic fertilisers;
- heavy metals such as Arsenic, Chromium, Copper, Mercury, Nickel, Zinc, Lead and Cadmium;
- for manures to be sourced from non-organic farms, such as poultry manure, all livestock feeds used on those farms must be assessed for prohibited inputs including veterinary treatments, GMO feeds such as soy and corn, and GMO / GMO derivatives such as enzymes and vitamins;
- industrial contaminants such as PCBs;
- machinery inputs such as fuel, oil, and grease;
- timber treatments such as chrome and arsenic;
- paints;
- waste and rubbish such as plastics.

Ingredients which contain, or risk containing, significant levels of contaminants should not be used, or should only be used as minor ingredients. Please ask the BioGro office for guidance if using off-farm sources of ingredients.

Where non-organic ingredients are used, further testing of the final compost may be required before approval can be granted.

Note: Composting can be relied on to break down many residues of pesticides and livestock health treatments but cannot be relied on to break down residues of some herbicides such as chlopyralid, or to break down the other contaminants listed above.

Allowed Ingredients

Approved compost feedstocks need to be listed under the following regulations (for primary production/home-made compost please ensure ingredients will comply with each market's standards you are certified to. If you are manufacturing compost to sell it is highly recommended that the compost feedstocks comply with all the following regulations):

- **BioGro** – BioGro Organic standards 04 May 2009 & Module 22 Standard for Evaluation of Inputs & Appendix A & B
- **OOAP** Technical rules – EU & Taiwan – Technical rules V7.1 2011 Annex 1: Approved Inputs Table 1
- **COR** (Canada) – <http://www.tpsgc-pwgsc.gc.ca/ongc-cgsb/programme-program/normes-standards/internet/bio-org/lsp-psl-eng.html#a4>
Table 4.2
- **IFOAM** – IFOAM Norms Version 2014 Section 4.4 and Appendix 2
- **OOAP NOP (USA)** – [205.203.\(c\) - http://www.ecfr.gov/cgi-bin/text-idx?SID=140ccfe5f95e27a2eb2c8a0a0a4bcf54&mc=true&node=se7.3.205_12_03&rgn=div8](http://www.ecfr.gov/cgi-bin/text-idx?SID=140ccfe5f95e27a2eb2c8a0a0a4bcf54&mc=true&node=se7.3.205_12_03&rgn=div8)
- **JAS (Japan)** – Notification No. 1605 Partial revision No 833 of March 28, 2012

3. Composting processes

3.1 Hot Compost

Aerobic Compost

- We recommend that the original mix has a C:N ratio of between 25:1 and 40:1, with adequate moisture (needs to be very wet when mixed); and
- For pile/windrow systems the compost must attain at least 55 - 75 deg C for at least 15 days before use and be turned at least 5 times before use¹.
- For in-vessel or static aerated pile systems – the compost must attain 55-75 deg C for a minimum of 3 days.

If your method of composting differs from the above, please contact the BioGro office for assessment. We may approve different methods based on analysis results showing compliance.

¹ If the compost does not include raw manure, then 5 times turning is not required. If it does include raw manure and the "5 times turning" rule has not been followed, then the compost may still be used as long as the 90/120 day rule is followed.

3.2 Raw Compost

Note: As these methods of composting do not use a heat process, it is unclear whether potential contaminants (from conventional sources) are broken down. We recommend that if non-organic material is used tests are completed and BioGro approval is granted before use. Possible restrictions may apply.

Anaerobic compost / Bokashi: this method is only available for certified primary producers producing compost on site. It is not suitable for commercial compost manufacturers

Products of anaerobic digestion produced with manure feedstocks are subject to the same restrictions as raw, uncomposted, manure. They may only be:

- (i) applied to land used for a crop not intended for human consumption;
- (ii) incorporated into the soil not less than 120 days prior to the harvest of a product whose edible portion has direct contact with the soil surface or soil particles; or
- (iii) incorporated into the soil not less than 90 days prior to the harvest of a product whose edible portion does not have direct contact with the soil surface or soil particles.

3.3 Vermicompost

Vermicomposting is an acceptable method of composting when:

- It is made from allowed feedstock materials. Feed stocks for vermicompost materials include organic matter of plant or animal origin, preferably thoroughly macerated and mixed before processing. When animal materials are used to produce vermicompost, the certified operation should maintain a log of duration of vermicomposting with a description of the practices used to achieve aerobic conditions and maintain adequate moisture.
- Aerobic conditions are maintained by regular additions of layers of organic matter, turning, or employing forced air pipes such that moisture is maintained at 70-90%; Vermicomposting systems depend upon regular additions of thin layers of organic matter at 1-3 day intervals to maintain aerobic conditions and avoid temperature increases above 35 degrees C (95 degrees F), which will kill the earthworms.
- Methods of vermicomposting include outdoor windrows (usually managed for 6-12 months), angled wedge systems (usually managed for 2-4 months), indoor container systems (usually managed for 2-4 months) and continuous flow reactors (usually managed for 30-60 days). For outdoor windrows, one indicator that the process is complete is when the worms move out of the compost (this would typically take 6 months in warm conditions, or up to 12 months in colder climates). Pathogenic organisms are eliminated in 7-60 days, depending on the technology used.
- The duration of vermicomposting is long enough to produce a finished product that does not contribute to contamination of crops, soil, or water by plant nutrients, pathogenic organisms, heavy metals, or residues of prohibited substances.

4. Approval of compost and testing requirements:

Note: BioGro must have assessed and approved your composting procedures and ingredients for each batch or year. If any changes are made to these procedures/ingredients, then re-approval must be sought.

After a compost is made it must be matured for a minimum 30 days before use.

4.1 For certified producers making compost for their own use:

- If ingredients are all organic and the compost is well made, then testing is not normally required.
- Your compost is likely to take a minimum of two to 6 months to mature. If you use woody materials, these will take longer to break down. If you have only a small amount of woody material and you turned your heap regularly according to the temperature, had ideal moisture content, a 25:1 C:N ratio, and maintained high temperatures, it could be ready in about two months.
- It should smell earthy. If it is smelly, turn and possibly add more carbon material.
- It should be a dark colour
- It should have a 50 to 60% moisture content. To test the moisture content of your finished heap you can squeeze some compost in your hand. You should get a drop of moisture through your fingers.

4.2 For companies certified by BioGro to supply compost to BioGro certified properties:

- An annual testing regime is required based on the risks posed by the non-organic ingredients used and the composting process.

5. Health Information

Working with compost can be hazardous to health. Be careful to avoid breathing fumes from compost, particularly in enclosed areas or from compost enclosed in containers or bagged. Also be careful when handling fresh compost and avoid excessive contact with your skin.

6. References:

- BHU composting Handbook
- NOP guidelines and standards

- Canada Guideline for Compost Quality - http://www.ccme.ca/files/Resources/waste/compost_quality/compostgdlns_1340_e.pdf
- Appendix B
- Templates for GMO declarations
- Compost formulation templates

7. Questions and Answers

- **What happens if a test result returns positive?**
Green waste and green waste compost that is produced from approved feedstocks such as non-organic crop residues or lawn clippings, may contain pesticide residues. Provided that the green waste and green waste compost:
 - (i) is not subject to any direct application or use of prohibited substances (i.e. synthetic pesticides) during the composting process, and
 - (ii) that any residual pesticide levels do not contribute to the contamination of crops, soil or water,
 the compost is acceptable for use in organic production.
- **High Heavy metals result?** Possible restrictions may apply. Contact the BioGro office for advice.
- If approval is given to use compost with detected levels of pesticide residue, you may be required to complete a multiresidue analysis of the soil to which the compost is applied. This is to verify that the use of the compost does not contribute to long term soil contamination.