



Safe compost for fruit and vegetables

A guide for the supply of recycled organics to fresh produce growers

Compost, and other recycled organics, have many benefits for soil health. They can add organic matter, drive biological processes, improve soil structure and increase productivity.

However, all of these materials are potential sources of microbial, chemical and physical contaminants. Growers may be reluctant to use recycled organics, in spite of the benefits they provide, because of concerns about how the material could affect their Freshcare Certification.

This guide describes how producers of recycled organic products can ensure that the composts they supply meet the requirements of food safety programs such as Freshcare.

The best way to guarantee to Freshcare growers that recycled organic materials have been correctly pasteurised is to be certified in accordance with AS 4454-2012 Composts, soil conditioners and mulches (AS 4454).

What is Freshcare?

Freshcare is the fresh produce industry's primary food safety certification program. It operates as a Code of Practice (COP) for growers to follow. The current COP is Food Safety and Quality Edition 4 (FSQ4). Compliance with FSQ4 is audited annually both for document and record keeping and process control.

Fresh produce includes fruit, vegetables, edible flowers, mushrooms, nuts and herbs. While not all producers are certified to Freshcare, this program is the most widely used within horticulture. Moreover, many other quality assurance systems follow the Freshcare standard.

All major retailers require suppliers of fresh produce to be certified to a food safety standard. These standards require growers to assess the risk of microbial, chemical or physical contamination during production, and manage that risk appropriately.

Recycled organics are a potential source of contamination. As a result, food safety standards such as Freshcare define the types of recycled organics that can be applied and include criteria for treatments and/or exclusion periods in relation to harvest.



Figure 1 - Decision tree for use of fertilisers and soil additives (from Freshcare FSQ4).

Safe compost for fruit and vegetables

What recycled organic products can a Freshcare certified grower use?

There are many organic fertilisers and soil amendments that can be used without affecting Freshcare certification:

- Compost that has been pasteurised in accordance with AS4454 or an equivalent, verified time / temperature treatment, can be used without restrictions.
- If untreated manures are used, a minimum period of 45 or 90 days must pass between application and harvest (Figure 1).
- If a composting treatment cannot be verified, the material must be managed as if it were untreated manure. In this case the 45 or 90 day exclusion periods apply.
- Human effluent and biosolids must not be applied to horticultural production areas.
N.B. Treated biosolids, present as a component in commercial composts, are acceptable.

Growers can apply untreated manures and unpasteurised composts, so long as at least 45 days elapses between application and harvest. The longer period of 90 days is required where risk is higher. Products that have an edible skin, may be eaten uncooked, and are grown in contact with or close to the soil, are considered high risk. Examples include carrots, lettuce and herbs.

Recycled organic materials that have been correctly pasteurised, are considered to be treated, so can be used without restriction. Therefore, all composted materials produced under a quality assured program based on AS4454, or where evidence can be supplied to confirm pasteurisation, have unrestricted use in horticulture.

Composts need to comply with the microbial levels specified in Freshcare FSQ4. These are the same as in AS4454. Tests should be conducted to confirm that materials do not exceed the microbial limits of *E. coli* <100cfu/g, *Salmonella* spp. not detected in 25g.

Heavy metal limits defined in Freshcare FSQ4 are the same as those in AS4454. Product testing should confirm that composts do not contain heavy metal above these levels. As growers are required to keep records of inputs, both the pasteurisation process and the testing results need to be documented and provided to growers as evidence that the materials meet Freshcare requirements.

Table 1: Evidence of compliance

The supplier has an approved, certified treatment process	<ul style="list-style-type: none">• Evidence of certification to AS4454 is kept.
The supplier has a documented process, but this has not been independently certified	<ul style="list-style-type: none">• Evidence of a documented treatment process (includes those complying with AS4454 or other equivalent time/temperature treatments).• Detailed documentation and records are provided with each 'batch'.• Treatment records must include treatment method, start and end dates, temperature readings, batch quantity and identification code and name of supervisor.• Certificate of analysis supplied for the batch of product, verifying the treatment achieves <i>E. coli</i> <100cfu/g and <i>Salmonella</i> not detected in 25g.
The supplier does not have a documented, verified treatment process	<ul style="list-style-type: none">• Product is considered as untreated for the purposes of Freshcare. Exclusion periods apply.

The best way to demonstrate compliance with Freshcare FSQ4

The most efficient way to provide the assurance that inputs into fruit and vegetable production are safe is for those inputs to be produced under quality assurance systems. Table 1 shows the evidence that compost producers need to provide, depending on the level of quality assurance administered by their business.

The Bottom Line

Compost producers that manufacture products certified under AS4454 can supply to the fresh produce industry. No further compliance documentation is required. This provides a distinct advantage.

Compost producers not certified under AS4454 will need to document and provide evidence of the process used to achieve equivalent time / temperature treatments. Test results need to be supplied for each batch verifying that the material has been correctly pasteurised.

Movement and use of recycled organics must comply with local, state and national Government regulations.

For further information on the use of composts and soil amendments in horticulture:

> Freshcare: freshcare.com.au

> Composts for Soils: compostforsoils.com.au

> Improving soil health: soilwealth.com.au

> Recycled organics: mraconsulting.com.au

Applied Horticultural Research Pty Ltd (AHR), Freshcare Limited (Freshcare) and the MRA Consulting Group (MRA) make no representations and expressly disclaims all warranties (to the extent permitted by law) about the accuracy, completeness, or currency of information in this fact sheet. Users of this material should take independent action before relying on its accuracy in any way.

Reliance on any information provided by AHR, Freshcare or MRA is entirely at your own risk. AHR, Freshcare or MRA are not responsible for, and will not be liable for, any loss, damage, claim, expense, cost (including legal costs) or other liability arising in any way (including from AHR, Freshcare or MRA or any other person's negligence or otherwise) from your use or non-use of information contained in this material or that AHR, Freshcare or MRA provides to you by any other means.