

## Information Sheet No. 7-1-4

### Composted soil conditioner

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#### Definition

A relatively mature composted organic product that is suitable for incorporating into soil. Soil conditioners are also referred to as soil amendments, soil additives, soil improvers or similar terms. Organic in this context excludes polymers that do not degrade such as plastics, rubber and coatings.

Composted products have been pasteurised and have undergone aerobic composting for a period of not less than 6 weeks (to achieve a specified level of maturity).

Composted soil conditioner has not more than 20% by mass of particles with a maximum size above 16 mm (Standards Australia AS 4454, 2002). See Information Sheet No. 3-8, “*Introduction to Australian Standard AS 4454-1999 for composts soil conditioners and mulches*” in the “*Producing Quality Compost*” package of Information Sheets for more details (Recycled Organics Unit, 2002a).

#### Uses

Composted soil conditioners can be mixed into soils to improve soil condition and plant growth. Composted soil conditioners can be beneficially incorporated into soils in a variety of applications, including: home gardens; community open space; urban landscaping; agriculture; forestry, and for soil and site rehabilitation.

#### Benefits

Composted soil conditioners have a number of benefits when incorporated into soils. These include: reduced soil erosion, particularly in areas with exposed soils; increased water retention in the upper soil profile, thereby reducing the frequency of watering to maintain plant growth; release of nutrients for plant growth, thus reducing the need for chemical fertilisers; suppression of soil borne plant diseases, thereby reducing fungicide and/or bactericide requirements.

**Plate 1.** Growth of cabbages on agricultural soil treated with composted soil conditioner (left) compared with cabbages on untreated soil (right)



Composted soil conditioners are considered a superior product to pasteurised soil conditioners because they have been processed (composted) to a more mature state. Thus composted products are more stable and do not break down as rapidly in the soil, giving longer lasting benefits. Some composted soil conditioners also release nutrients for plant growth.

## Risks

Minimal.

Effective *pasteurisation* via an aerobic and thermophilic (>55°C) composting or equivalent process, destroys weeds, seeds and plant/animal pathogens that may have been present in the original plant and other organic materials.

In most instances pasteurised products should be considered superior to shredded plant material products (e.g. leaf mulches), because non-pasteurised products increase the risk of spreading weeds, seeds or plant/animal pathogens.

Composted soil conditioners are a more mature product, and are considered superior in quality to an equivalent product that has been pasteurised, but is immature. The risks associated with immature soil conditioners do not generally apply to mature composted soil

conditioners.

## Additives

Slow releasing fertilisers containing plant macronutrients (nitrogen, phosphorus and potassium) and/or trace elements are sometimes added to soil conditioners to stimulate plant growth. In some cases, wetting agents are added to improve the ability of the product to absorb moisture following drying.

## Application rates

The rate of application of a composted soil conditioner can be up to 150 L/m<sup>2</sup> (150 mm in depth). At greater rates, oxygen availability to plants will reduce and may impair plant growth. Planting can proceed directly after incorporation of the composted soil conditioner.

For composted soil conditioners that are high in soluble salts (measured as electrical conductivity, dS/m), application rates should be limited as soluble salts that leach out can cause water stress in plants. If the composted soil conditioner has an electrical conductivity in excess of 1 dS/m, application rates need to be restricted, depending on the sensitivity of the plant(s) to salt. See Information Sheet 6-6, "*Use of recycled organics products – Importance of electrical conductivity*" from the "*Buyers*

## Definition\*

### Pasteurisation

The process whereby organic materials are treated to kill plant and animal pathogens and weed propagules.

\* Recycled Organics Unit (2002b).

*Guide for Recycled Organics Products* for more information.

## Application methods

Pasteurised soil conditioners are usually incorporated into bare soil containing no plants. Seeds, seedlings, or established plants are usually planted after the soil conditioner has been applied.

In small areas, such as domestic gardens, the product can be dug into soil with a garden fork or spade.

For larger areas, such as agricultural or forestry applications, soil conditioners can be spread with a manure spreader and tilled into the soil.

## Important references

- Recycled Organics Unit (2002a). Producing Quality Compost: Operation and maintenance guide to support the consistent production of quality compost and products containing recycled organics. Third Edition. Recycled Organics Unit, internet publication: <http://www.recycledorganics.com>
- Recycled Organics Unit (2002b). Recycled Organics Industry Dictionary & Thesaurus: standard terminology for the recycled organics industry. Recycled Organics Unit, internet publication: <http://www.rolibrary.com>
- Standards Australia (2002). AS 4454—Composts, soil conditioners and mulches. Standards Australia, Homebush, NSW.

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