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Opportunity knocks for Compost Products in Australian Agriculture

COMPOST AUSTRALIA
A Division of the WASTE MANAGEMENT ASSOCIATION OF AUSTRALIA

Commercial composting represents a huge opportunity to convert a perceived waste problem into an organic resource for Australian Agriculture.

Land degradation, greenhouse gas emissions, reliance on irrigation water, and reliance on expensive imported inorganic fertilizers can all be ameliorated by application of recycled organic products to agricultural land.

Recycled organic products have long been known to have beneficial effects on soils and crops. A significant amount of scientific research has backed up this traditional understanding. Many of our productive landscapes are seriously deficient in carbon, biota and micro-nutrients. The application of compost products to soil is an effective way to address these deficiencies.

So why isn't more compost being used in agriculture?

Many of the environmental benefits associated with use of compost products flow to the broader community not to the prospective buyer. This market failure is crucial in finely tuned production based agricultural applications like vegetable production or viticulture.

The market failure is evidenced by falling prices for product and/or significant stockpiles of composted organic material. The two main barriers to greater uptake of product have been identified as price and lack of product knowledge.

Compost products are usually expensive to transport over long distances due to their relatively low density and high moisture content. Agricultural markets are often distant from urban areas where compost products are made.

Compost - Sustainable by Design

Composting diverts organic material from landfill where it is responsible for generating methane, a greenhouse gas 25 times the potency of carbon dioxide. Saving one tonne of organic material from landfill saves the in the order of 0.9 to 2.7 tonnes of carbon dioxide equivalents.[i]

Composting diverts organic material from landfill where its high water content generates liquids which mobilize other pollutants in landfills and then disperses them into the environment via leachate.

Appropriate space for landfill is becoming limited. Composting extends the life of existing landfills.

Increasing and maintaining soil carbon in agricultural soils can sequester atmospheric carbon. One tonne of composted mulch applied to land can sequester approximately 0.025 tonnes of carbon dioxide equivalent (CO_2).[ii]

Fertiliser production is very energy intensive and applying fertiliser results in nitrous oxide (NO_2) losses to the environment; substituting composts for fertiliser thus results in greenhouse gas abatements.

Composts also increase the ability of Australian agriculture to adapt to climate change impacts by measures such as the buffering of soil temperature fluxes and improving the water holding capacity of soils.

Depending on application rates and contexts, composts can save more than 30% of irrigation water. The application of compost can save between 0.13 and 0.95 ML of water per hectare per year, depending on crop and soil types[iii].

Soil in poor physical condition is subject to erosion leading to the loss of valuable topsoil. Savings of between 2.3 and 17 tonnes per hectare of soil loss due to erosion can be achieved with recommended mulch applications[iv].

Benefits from national action

Where national coordination efforts focus on demand creation for compost products the wider community will benefit from increased diversion of organic waste from landfill.

National coordination can facilitate faster development and adoption of compost products (and associated services) designed for specific applications and thus increase demand over time (faster technology transfer).

National coordination can increase production of quality, application specific, compost products that provide increased private (economic) and public environmental benefits.

Agricultural industries will benefit from reduced reliance on imported inorganic fertilizers and lower impacts on their local environment (for example reduced nutrification of waterways, reduced demand for irrigation water etc.)

The Recycled Organics Industry will benefit from a more sustainable business environment driven by demand for compost products.

Potential Commonwealth initiatives could include:

Joint funding with state governments of rebates to growers (or tax incentives) to encourage and establish the use of quality, application specific (independently certified) compost products in more sustainable agricultural production systems.

Coordination and establishment of nationally consistent guidelines for approval and regulation of organic recycling facilities, and the establishment of nationally consistent minimum standards for the application of all organic materials to land.

Matched funding (against industry funds) for priority R&D activities designed to support demand creation activities.

Coordination and establishment of a national ban on organics to 'dry tomb' landfills.

Funding support for industry development activities such as conferences, international speakers, international study tours and international trade missions.

Funding support for promoting awareness of compost and composting in the wider community through organisation of International Composting Awareness Week in Australia (www.compostweek.com.au).

Compost Australia has put together a three year program to promote the development of the Recycled Organics Industry and the beneficial use of recycled organic products. The program is called *Advancing the Recycled Organics Industry.* Details of the program, including Action Plans can be downloaded from our website:

http://www.wmaa.asn.au/director/divisions/compost/Advancing.cfm

Zero Waste Australia, with grant funding from the NSW Department of Environment and Conservation, is actively demonstrating how organic materials can be diverted from households, turned into quality recycled organic products and applied to agricultural land. Further information on the City to Soil program can be found at:

http://www.environment.nsw.gov.au/warr/RecycledOrganicsPublications.htm.

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[i] *Australian Greenhouse Office Factors and Methods Workbook* December 2006

[ii] Recycled Organics Unit for NSW Department of Environment and Conservation *Life Cycle Assessment for Windrow Composting Systems*, December 2003.
http://www.environment.nsw.gov.au/resources/SPD_ORG_0310LCAReportFull_Prt.pdf USEPA conversion factor of 1t carbon = 3.667 tonnes of CO2-e.

[iii] Recycled Organics Unit for NSW Department of Environment and Conservation, December 2003 *Life Cycle Assessment for Windrow Composting Systems*
http://www.environment.nsw.gov.au/resources/SPD_ORG_0310LCAReportFull.

[iv] Recycled Organics Unit for NSW Department of Environment and Conservation, December 2003 *Life Cycle Assessment for Windrow Composting Systems.*
http://www.environment.nsw.gov.au/resources/SPD_ORG_0310LCAReportFull