



DualPakECO® Industrial Composting Field Trial

Confoil x Bio Gro
June to September 2023



About DualPakECO®

Developed in partnership with BASF, DualPakECO is a pressed paperboard food tray.

DualPakECO is lined with certified compostable ecovio® by BASF, which is a food contact safe, biopolymer coating that provides excellent barrier properties against liquids, aromas and oils. The paperboard used is a safe food packaging material made from renewable resources.

DualPakECO food trays are ovenable, microwavable and freezable.

DualPakECO trays carry the certified compostable logo as verified by the Australian Bioplastics Association (ABA). The logo ensures that these products are easily identifiable by consumers and placed in the appropriate stream and diverted from landfill.

DualPakECO®



Field Composting Trial

Background:

The development of innovative technological solutions for compostable food packaging has led to debates on their performance in real conditions. AORA's FOGO position paper stresses the need for compostable packaging to be safely trialled to ensure the material is not only theoretically compostable but also compostable within existing operations.

With the biodegradation of DualPakECO validated by laboratory testing and certified to ABA commercial composting standards (AS4736), Confoil was keen to monitor the behaviour and study the results in real conditions through an industrial process.

Collection of AORA Conference Waste Material:

To facilitate the field trial, Confoil provided compostable DualPakECO trays for food served during the June 2023 AORA Conference.

Food waste bins were placed around the event to capture the organic waste, including the DualPakECO trays. Bio Gro agreed to process the organic waste produced and captured across the 3-day event.



About Bio Gro

A family-owned Australian business with over four decades of accumulate knowledge, Bio Gro are regarded as a leading innovator within the Australian horticulture and waste management industry. Diverting over 350,000 tonnes of organic matter from landfill every year through their facilities in Victoria and South Australia, Bio Gro provide sustainable ecological soil health solutions.

Bio Gro carry three main accreditations; Australian Standards (certified products), NIASA (the Australian nursery industry peak body) and NASAA, (organic accreditation), which ensures their products are carefully composted to Australian Standards 4454.



Material collection from the AORA Conference held in Melbourne, June 2023.





Field Composting Trial

Delivery to Bio Gro:

The material from the conference was delivered to Bio Gro at their South Dandenong facility. The weighing, initial check for contamination, shredding and finally mixing in of the FOGO waste from Bio Gro’s council contracts was organised.

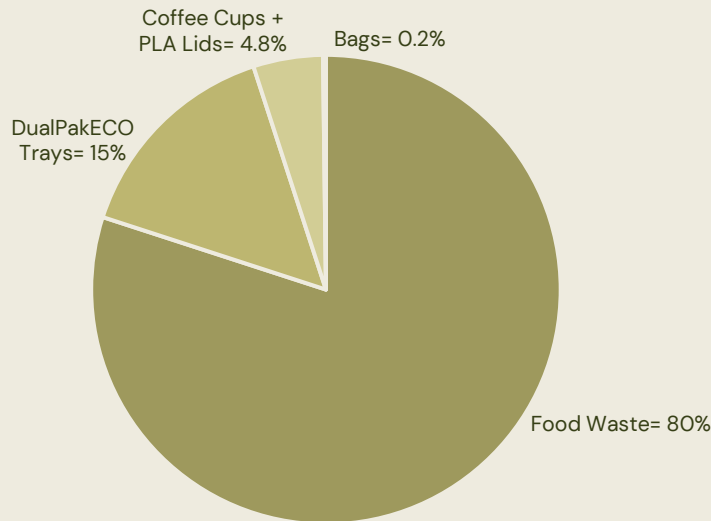
The total weight of AORA material was 47.50kgs. Compostable packaging, made up of DualPakECO trays and compostable coffee cups, was approximately 20% of that weight. 16 tonnes of council FOGO material was added to the conference material to create the trial pile.

Sorting:

The collected material was then put through the Bio Gro sorting technology to check for potential contamination from the council FOGO material and the trial material.

On average, Bio Gro remove around 0.5% of contamination, weight for weight. While it may seem low, it is quite significant as most contamination is light plastic, as opposed to dense green waste captured.

At the end of the sorting process, the material was collected and taken to Bio Gro’s Newbridge windrow facility. The row was turned 11 times across 49 days. The row was also checked for temperature, contamination and the decomposing of the compostable packaging.



Material Collected from the AORA Conference (Rough Composition)

Material in the Trial	kg	%
AORA Conference Materials	47.50	0.30%
Compostable Packaging	9.50	0.06%
FOGO	16,000.00	99.70%
Total	16,047.50	100%

Decomposition Progress

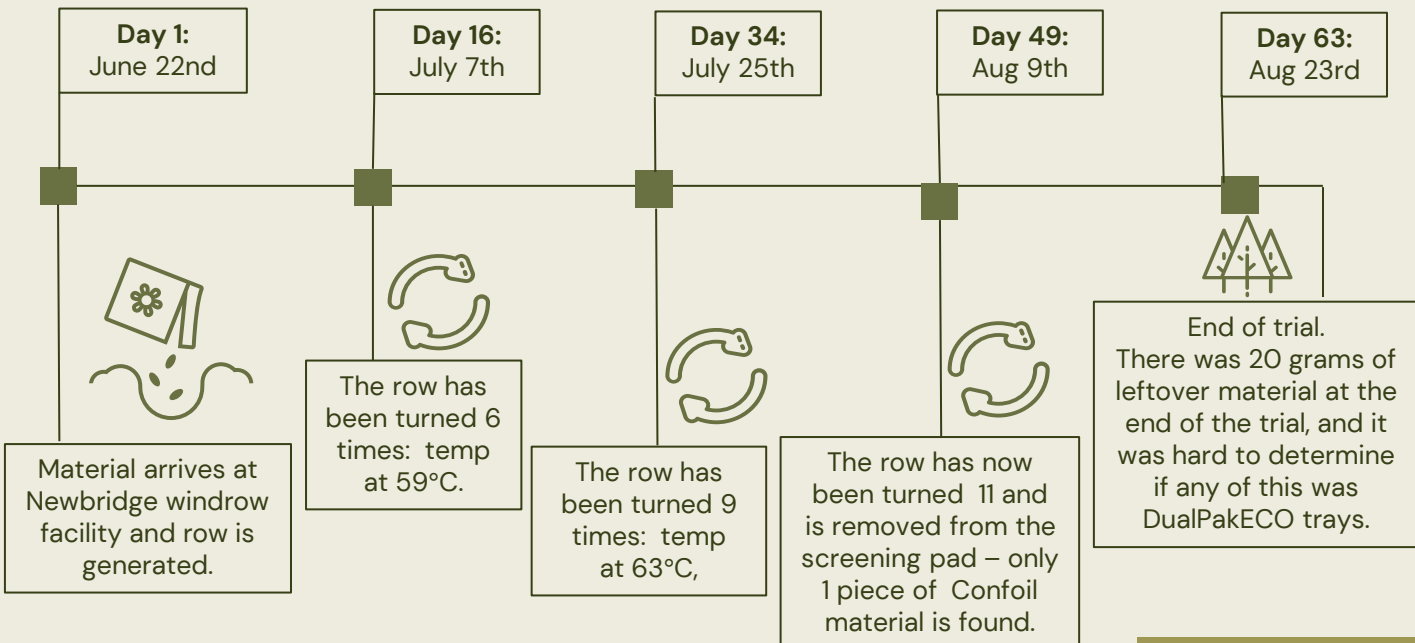


This organics recycling used at Bio Gro involves creating long, narrow piles of organic materials, known as windrows. The decomposition of organic matter is enabled by aeration and maintaining humidity through regular turning and watering of the windrow piles. This process results in an increase in temperature proportional to microbial activity.

In industrial conditions, it is possible to reach and maintain high temperatures of between 55 and 85°C for several weeks. These temperature conditions are sought in the composting process because they are essential for the proper sanitation of the waste. This method of organic recovery makes it possible to obtain a stable fertilising material, rich in humic compounds.

(Source: Project Mineral: Test and validate the modes organic recovery of food packaging – Scientific Study – 19th April 2023).

Decomposition Timeline of the Compostable Packaging



Key Results From The Trial

Key Points

- 47kgs of organic and compostable material collected at the AORA conference in June 2023 – DualPakECO making up approximately 15% of that weight.
- A batch of 16 tonnes of FOGO material from Bio Gro local council collections was added with the material from the AORA conference at the Bio Gro South Dandenong facility.
- All test materials met the decay rate requirements of the commercial compostability standards.
- 6.38 tonnes of Bio Compost produced from the field trial batch which included DualPakECO food trays.
- Approximately 5.6 tonnes of Bio Mulch produced from the field trial batch.
- Identifiable contamination at the end of the trial 20grams or 0.002% (nothing identifiably as being from a DualPakECO food tray).
- Approximately 4 tonnes of oversized material produced from the field trial batch (waste product).

The findings from the Confoil & Bio Gro compostable packaging trial are in line with recent worldwide research that has been conducted over the last few years. Field trials are finding that certified compostable packaging can be a healthy component of the final composting product and importantly help divert organic waste from landfill.

The most detailed and decisive recent trial was completed in early 2023 with the authors noting: "These findings are one of many reports, such as the 2020 study by Wageningen University, that proves that compostable packaging is an essential tool for increasing the collection of food waste and enabling its efficient conversion into compost,"

Source: Project Mineral: Test and validate the modes organic recovery of food packaging – Chaire CoPack in partnership with AgroParisTech Foundation, French Association of Biosourced Compostable (AFCB), Centre Herault Union (SCH), Scientific Study, 19th April 2023

Trial Results	kgs	%
Contamination material removed at the start of the trial (based on site average)	80	0.5%
Contamination material removed at the end of the trial (actual figure)	0.02	0.0001%
Bio Compost produced from trial (actual figure – site average 35%)	6,380	39.8%
Bio Mulch produced from trial (based on site average)	5,617	35%
Oversized material produced from trial (based on site average)	4,051	25%
Total	16,127.52	100%

The Benefits of Compost & Compostable Packaging



Compostable packaging is one of multiple solutions needed to prevent waste, circulate materials and regenerate nature. According to the Ellen MacArthur Foundation, compostable packaging has the potential to reduce the environmental impact of traditional packaging materials in the following ways:

- Reduce the environmental impact and the carbon footprint of the packaging compared to fossil-fuel-based products by using renewable resources, such as from plant-based sources;
- Help divert organic waste from landfill or from contaminating recycling streams and be used to create nutrient-rich soil amendments;
- Reduce the amount of plastic waste and hazardous chemicals in the environment. Plastic packaging can take hundreds of years to break down, and often ends up polluting the oceans and harming wildlife;

Compost can be produced on a domestic or industrial scale. It is produced by the degradation of organic waste through the presence of oxygen, heat, moisture and microbial activity. Composts and mulches directly address the significant issues of poor and declining soil quality in Australia, as well as buffering the effects of climate change in agriculture.

How was the compost used?

Bio Mulch:

The Bio Mulch produced from the trial was provided to various garden supply yards where it is sold to the public.

Bio Compost:

The Bio Compost produced in the trial was provided to various garden supply yards. It was also supplied to the agricultural and viticultural sectors, where it acts as a great soil conditioner.

Confoil also received an allocation of Bio Compost from the trial. Collaborating with our community partner, Foothills Community Care (FCC), we were able to donate the compost to the creation of a community garden.

FCC provide meals and hospitality to those need across the Dandenong area and Confoil supports them through the regular provision of our trays and containers. The garden is a co-designed project with FCC, Mountain District Learning Centre and The Uniting Church. Successfully receiving funding from the Knox City Council, through the Empowering Communities program, the grant has allowed for two Community Outreach Workers to participate in the development of the garden. The initial garden is part of a bigger garden planned for next year and will be used specially for use by the local community.

