

A fresh challenge

Australia is building its roadmap to halve food waste by 2030. Fight Food Waste CRC's Mark Barthel and the Australian Food Cold Chain Council's Dr Greg Picker speak to Doris Prodanovic about how the industry can help minimise fresh food waste in the cold chain.

THE ways fresh produce is handled and transported around the country is an important component when looking to minimise the food waste footprint.

CSIRO's 2019 *Mapping of Australia Fruit and Vegetable Losses Pre-Retail* report found that Australia loses between 18 and 22 per cent of its fruit and vegetable biomass in primary, packing and processing stages – this is up to 1456 kilotonnes.

Mark Barthel, special advisor for food waste at the Fight Food Waste Cooperative Research Centre (CRC), told *Food & Drink Business* that Australia has a significant problem when it comes to fresh produce waste.

"We need to acknowledge the distance produce travels in Australia," says Barthel. "It's thousands of kilometres to get from north Queensland to Victoria, for example, and it can take days in the truck to get there.

"Another thing we've found is that there are gaps in the infrastructure in the food cold chain. It is not integrated end-to-end, meaning it's subject to infrastructure failures, technological issues and human factors that can lead to temperature abuse and loss of product quality and shelf-life, often leading to food waste."

Contributing to pre-retail fresh produce waste is: a lack of appropriate cold storage at the start of the cold chain; an inability to reduce the core temperature of the produce to the required temperature prior to shipment; and the maintenance of the correct ambient temperature, humidity and ethylene levels in the end-to-end cold chain.

Another issue is the standard truck size in Australia is narrower than the rest of the world. Barthel says Australian trucks are standardised at 2.4 metres, but 2.6 metres is more common overseas.

"But Australia uses the same sized pallets to ship food in these smaller trucks, so that means there's an issue with airflow. If you don't have airflow in a refrigerated truck, you don't have consistent temperature, and without a consistent temperature the likelihood of food loss increases," he says.

COOLING EMISSIONS

Advancements in refrigeration technology have largely been due to environmental factors.

Australian Food Cold Chain Council (AFCCC) executive director Dr Greg Picker told *F&DB* that cold food chain emissions – including energy, refrigerant and food waste – total around the same as that from all cars in Australia.

Chlorofluorocarbons (CFC) refrigerants were banned in Australia in 1995 due to major ozone layer depletion caused by their use. Picker says the industry now uses R404A as its main gas and while it does not impact the ozone layer, it is still a very potent greenhouse gas.

"R404A is good at holding heat, it doesn't break down and is a great refrigerant, but it's horrible on the environment," says Picker.

"We compare everything to CO₂, which by definition has a Global Warming Potential

(GWP) of 1. R404A has a GWP of nearly 4000. If you release one kilo of that gas in the atmosphere, it's the same as four tonnes of carbon dioxide."

Picker says some existing and new gases will be rolled out that have a lower impact on the environment.

Some that are already widely used reduce the GWP by half, while other new gases can lower the GWP to below 20, without reducing energy efficiencies.

ROOM TO IMPROVE

While there are new technologies and packaging options being developed, both Barthel and Picker believe the human factor is the most crucial of all.

"When we throw out a piece of produce in the supply chain, there are all of the resources that have gone into it – growing, transporting, cooling – so having a good refrigeration system still delivers environmental benefits.

It's better keeping food cold, fresh and not throwing it out than saying, 'It's just a bit of fruit, it doesn't matter'. It matters.

"Quite a lot of waste in Australia is due to bad handling," says Picker.

"It's simple cases like food being left on loading docks or refrigeration systems in trucks

around both food safety and using the right technology, as well as upskilling workers in the supply chain is important.

"It helps them understand and use the most appropriate equipment to measure and monitor temperature in a given situation."

Taking steps to minimise fresh produce waste in the cold

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being turned off. Bad practice and human error is a significant component to why food gets spoiled and then needs to be thrown out.

"Sometimes the solution is as simple as closing the truck door, or knowing when to use the right thermometer."

Barthel says: "Guidance

chain leads to environmental benefits and a more efficient supply chain from farm to final consumer.

Picker says: "The supply chain is really complicated, so it's the moving of food from one set of hands to another that we really need to focus on." ●



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