



Waste Not, Want Not: Managing Waste in the Vegetable Industry

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National Vegetable Extension Network

VICTORIA - NORTHERN,
WESTERN & SOUTH EASTERN

Key messages

- Improve how you handle waste for financial and environmental benefits
- Ask three questions:
 1. Can the produce be reduced, substituted or eliminated?
 2. Can the waste be recycled or collected?
 3. Is the waste only suitable for landfill?
- Recycling will likely see major shifts due to China's recent import 'ban' on recyclables

Management of waste is not just about getting rid of waste but also about reducing the amount of waste created in the first place and finding ways to reuse, repair, and repurpose 'waste' items (see Figure 1).

Disposal of waste can also come at a large cost.



Figure 1: The hierarchy of waste management

What constitutes farm waste?

- Plastics (e.g. plastic mulch, chemical containers, fertiliser bags)
- Chemicals
- Treated timber
- Metal scraps and old machinery
- Tyres
- Oil
- Asbestos
- Masonry
- Organic waste including food waste

What can I do with my waste?

Plastic is the most significant waste material on vegetable farms. Plastic items that become waste after use include hoses, pipes, mulch, bags, polytunnels, seedling trays, fertiliser bags, chemical drums and more.

Common waste items are outlined in further detail below.

Our waste problem

Seemingly everything humans do creates waste these days, and farming operations are no exception.

Landfill is filling fast, and results in negative environmental impacts such as greenhouse gas creation and pollution of groundwater (e.g. chemicals and nutrients).



Figure 2: Plastic mulch sheeting is used extensively in vegetable cropping

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Plastic mulch – According to a 2015 report by [RMCG](#), one of the highest priority waste plastics on vegetable farms is mulch sheeting (see Figure 2). Plastic mulch is a big issue as it is used extensively in some horticultural industries. Dirt and debris are hard to remove from the plastic sheeting prior to recycling and it is bulky to place in landfill. Several companies in Australia are currently working on ways to reduce plastic waste. Fully biodegradable [bio-plastic](#) may be more expensive, but saves on labour costs as it does not need to be removed and disposed of at the end of the growing season, just ploughed back into the soil. Photo-degradable mulch breaks down into micro-fragments that remain in the environment. [Solar-shrinking plastic mulch film](#) is stronger and therefore can be thinner than regular plastic, requiring up to 35% less plastic overall.

Fertiliser packaging – Consider joining the [Farm Waste Recovery \(FWR\)](#) stewardship management business, which takes on the responsibility of collecting and recycling your fertiliser packaging waste (including logistics, marketing, consumer education, compliance and reporting). After three years of operation nationally, FWR has recycled 2 million kilograms of bulk fertiliser bags made from woven polypropylene.

Chemicals and containers – Where possible, return triple-rinsed containers to the retailer. Alternatively, [drumMUSTER](#) collects empty non-returnable chemical containers for recycling, and [ChemClear](#) provides recycling and disposal options for left-over chemicals. If the container is not eligible for these services, it should be rinsed and punctured in the base and recycled or disposed of at an appropriately licensed landfill. Also consider ways to reduce the amount of pesticide and herbicide used and/or wasted. For example, knowledge and proper training in chemical usage will reduce accidents or wastage of chemicals. Using an integrated pest management plan could also reduce overall use of chemicals.

Treated timber must not be burnt, as it contains toxic chemicals such as arsenic, chromium and copper and the smoke and ash can impact on human health and contaminate soil and waters. Treated timber (CCA pine, creosote hardwoods) should be safely stored and reused for future works on your farm. Where this is not practical, it should be disposed of at a transfer station or landfill.

Metal such as old scrap machinery is easily recycled at scrap metal merchants.

Tyres – Can now be readily recycled through companies like [Tyrecycle](#) and [ELT Australia](#).

Oil and oil filters – Used oil is a valuable resource and can be collected from your farm by waste oil collection contractors (there may be minimum volumes for collection) or you can deliver it to approved premises (e.g. check with council). Used oil filters have a classification that prohibits their disposal to landfill as they can be recycled to recover both the metal and oil.

Masonry – Concrete, bricks and tiles, concrete and clean bricks may be reused for engineering works on your farm, such as construction of farm tracks and pads, provided it is free from contamination from metal, plastics, chemicals and asbestos.

Asbestos – Found in AC sheeting, buildings, cladding, lagging, roofing and pipes, asbestos poses health risks during removal, transport and disposal. It is important, therefore, that asbestos should not be reused or recycled and is handled only by licensed removal contractors.

Organic waste – Green waste, cardboard and unused produce can be composted on site. Edible food waste, such as produce that does not meet supermarket specifications, can be passed on to charity organisations or can sometimes be converted, for example into snack foods, as [CSIRO](#) has recently been exploring.

Table 1: Recommended approaches for waste management in vegetable production

GOAL	HOW?
Avoid	Eliminate, reduce, substitute for less wasteful products.
Reduce	Buy in bulk to minimise packaging waste (except for chemicals, which should be stored in minimum amounts).
Reuse	Distribute out-of-specification produce that is safe to be consumed to charity organisations, such as Fareshare, FoodBank, OzHarvest and SecondBite. Compost waste vegetation and produce. Repair wooden bins.
Recycle	Paper, oil, glass, timber, steel, plastic drums (drumMUSTER).
Improve	Use biodegradable products where possible.
Dispose	As a last resort, send waste to landfill.

What are the costs of waste management?

To the individual farmer, overall costs of waste management need to be weighed up with numerous factors including initial cost, longevity of a product and costs to dispose.

For example, bio-plastic film although more expensive initially may be cheaper in the long run after [calculating](#) removal and labour costs.

Environmentally, the costs of waste generation are many, such as production resources, greenhouse gas emissions from landfill and transport, contamination of groundwater and land, including waste entering waterways and oceans.

What does the future of waste management look like?

One of the biggest recent shifts in waste management has been caused by China's recent restriction on recycling imports. Now that we are dealing with our own waste, prices and systems are likely to change radically.

This 'waste crisis' could be viewed as an [opportunity](#) to reduce our waste overall, for example if governments invest in grants and incentives to support manufacturers and businesses move to reusable products and systems, like refillable and returnable containers.

In addition, primary producers are likely to experience increased pressure from the community for innovative or lower-waste packaging. Certification schemes such as Freshcare may increasingly require improved sustainability regarding packaging.

Further information

For further information on waste management in horticulture, the following resources may be of interest:

- [On-farm waste management](#) – Growcom.
- [Innovative ways to address waste management on vegetable farms](#) – RMCG.
- [Environmental Assurance Guidelines: waste management chapter](#) – Hort Innovation.
- [Legal information on waste management](#) – Agriculture Victoria.
- [Information on farm waste management](#) – EPA.
- [New study confirms the biodegradability of biopolymer mulch films in soil](#) – Australasian Bioplastics.
- [Plastics recycling success in agriculture](#) – Farm Waste Recovery.
- [China's recycling 'ban' throws Australia into a very messy waste crisis](#) – The Conversation.