Webinar 1: Recycling solutions for on-farm plastics

13 November 2025



Acknowledgement of country

We acknowledge the Traditional Owners of the Country that we work on throughout Australia and recognise their continuing connection to land, waters and culture. We pay our respects to their Elders past and present, and we acknowledge emerging leaders. Moreover, we express gratitude for the knowledge and insight that Traditional Owners and other Aboriginal and Torres Strait Islander people contribute to our shared work in Australia.

We pay respects to all Aboriginal and Torres Strait Islander communities. We recognise that Australia was founded on the genocide and dispossession of First Nations people and acknowledge that sovereignty was not ceded in this country. We embrace the spirit of reconciliation, working towards self-determination, equity of outcomes, and an equal voice for Australia's First People.

Speakers

Anne-Maree Boland RMCG

David Leitch

Agsafe (ChemClear, drumMUSTER, bagMUSTER)

Greg CarrickGarden City Plastics



RMCG

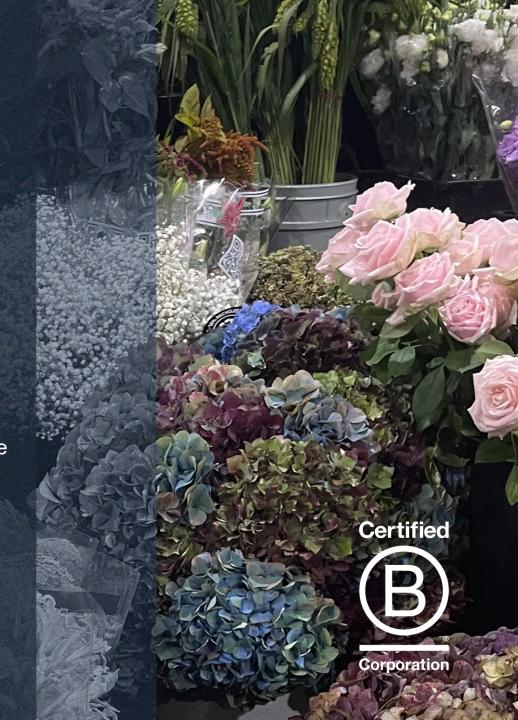
Reduction in single use plastics and chemicals in the NSW cut flower industry

Dr Anne-Maree Boland, Dr Kristen Stirling, Ellie Buchanan & Jesse Clune

This project has been funded by AgriFutures and the NSW Government under the NSW Storm and Flood Industry Recovery Program (SFIRP).







WHAT AND WHY

Collaborative project working with the FGGNSW, WFA, SFN and PCA.

Developed to:

- Support a more sustainable and resilient flower industry
- Protect the environment
- Create a safer product for florists and consumers

Two key focus areas:

Chemicals

Plastics







This Storm and Flood Industry Recovery project is jointly funded by the Australian and NSW governments under Disaster Recovery Funding Arrangements



PLASTICS

Pollution of waterways and soil

Reduce reliance on plastics

End-of-life solutions – reuse & recycling

RESOURCES

- Fact sheets
- Three-part webinar series
 - Recycling solutions for on-farm plastics (Part 1)
 - Chemical containers and pots
 - Recycling solutions for on-farm plastics (Part 2)
 - Seed/fertiliser bags and greenhouse skins
 - Rethinking plastic sleeves: challenges and opportunities (Part 3)

WASTE HIERARCHY

HIERARCHY LEVEL	EXAMPLES
AVOID	 Design alternative production systems that require less plastic Avoid using plastic wrapping Avoid using plastic sleeves
REDUCE	 Use good quality equipment with a long life span Maintain equipment to reduce the need for change over
REUSE	 Reuse crates internally as tables for seedling growing Reuse buckets to transport flowers Utilise platforms such as ASPIRE and Recycle Mate for reuse
RECYCLE	 Use drumMUSTER to recycle chemical containers Recycle plastic pots and propagation trays through the Plastic Smart Program Engage with industry-led recycling schemes, such as Netafim for irrigation piping and Big Bag Recovery for bulk bags and sacks
RECOVER	Convert waste to energy through large-scale facilities
DISPOSE	Dispose of plastic waste to landfill Stockpile plastic waste onsite



IMPACT ASSESSMENT

TOP PRIORITY PLASTICS

- Pots and propagation trays
- Crates
- Irrigation piping
- Plastic flower sleeves
- Chemical containers

Plastic materials	Turnover	Volume	Management options	Priority
Pots and propagation trays	YEARS			P1
Crates	MONTHS		00000	P1
Buckets	YEARS			P2
Irrigation piping	MONTHS			P1
Greenhouse skins	YEARS			P2
Plastic wraps	DAYS			P2
Plastic flower sleeves	DAYS			P1
Grow bags	MONTHS			P3
Weed mat	YEARS		00000	P2
Shade cloths	MONTHS			P2
Gardening equipment	MONTHS			P3
Chemical containers	WEEKS			P1
Sprayers	MONTHS			P3
Poles, clippers & twine	MONTHS			P2
Gloves	WEEKS		00000	P3
Plastic tables	YEARS		00000	P3

MATERIALS

POTS, BUCKETS AND CRATES

IRRIGATION PIPING

FILMS

NETS & MESH

EQUIPMENT & OTHER

- Pots and propagation trays
- Crates
- Buckets

- Irrigation piping
- Greenhouse skins
- Plastic wraps
- Plastic flower sleeves

- Grow bags
- Weed mats
- Shade cloths
- Gardening equipment shovels, rakes, shears, etc.
- Chemical containers
- Clippers
- Plastic twine
- Gloves
- Sprayers

POLYMERS











RESOURCES

On our website are a range of resources:

- Fact sheets
- Webinars
- Podcasts
- Videos.



NSW Cut Flower Industry

Recycling Plastic Pots and Trays

Background

Plastic plays a significant role in the cut flower industry. While the volume and type of plastic used can vary across different production systems, materials such as plastic pots, propagation trays, and buckets are commonly used throughout the supply chain.

Plastic pots and propagation trays are designed for durability and are often reused multiple times throughout the production cycle (as shown in Figure 1). However, when these items reach the end of their usable life, less than 8% of polypropylene (PPS) plastic – the main type used for these items – is being recovered and recycled.

Improving recycling rates is essential to advancing a circular economy, supporting sustainable practices and reducing plastic waste sent to landfill. Responsible management of plastic waste also helps protect the environment and minimise risks such as pollution, contamination of waterways, and harm to wildlife – particularly during extreme weather events such as flooding.

The Waste Hierarchy

The waste hierarchy is a simple guide for using resources efficiently. It suggests that we should first try to avoid waste, then reuse or recycle materials and only dispose of materials as a last resort. This approach is in line with the NSW Government's Waste Avoidance and Resource Recovery Act 2001.

The different levels of plastic use and waste management are shown on the following page, with examples relevant to the cut flower industry (Figure 2). Pots and propagation trays are generally long lasting and can be reused extensively. While durable and reuseable, they eventually reach end of life and should be responsibly recycled to minimise environmental impact.

→ Key Messages

- MOST RECYCLABLE PLASTICS AREN'T BEING RECOVERED
 Despite PP5 plastic being 100% recyclable, most is not currently being recovered or recycled
- REUSE BEFORE RECYCLING
 Pots and trays are designed for long-term use and should be reused as many times as possible before recycling
- UTILISE RECYCLING SCHEMES
 The Plastic Smart Program helps growers recycle PP5 pots and PS6 trays through an Australia-wide network of over 700 collection sites
- EASY PARTICIPATION STEPS
 To participate, sort pots and trays into PP5 and PS6 categories, tap out excess media, stack pots neatly, and drop them off at your nearest collection site

Figure 1 (below). Pots and propagation trays on-farm





Australia's leader in product stewardship

Presented by: David Leitch | bagMUSTER Manager, Agsafe

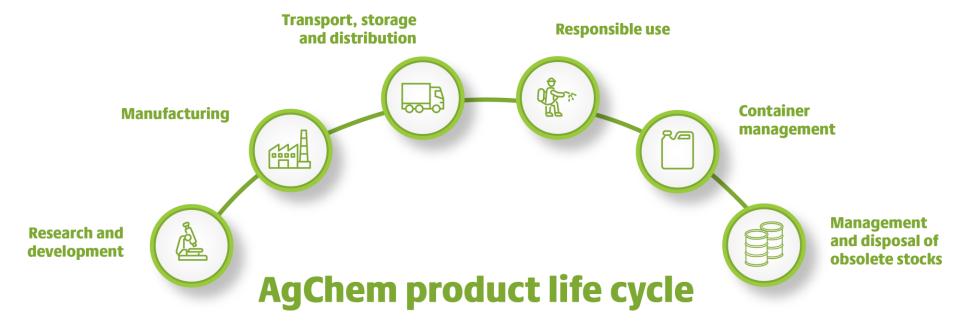




About Agsafe



- Wholly owned subsidiary of CropLife Australia.
- 17 FTEs and an additional 15+ regional consultants.
- Purpose is stewarding AgVet chemicals from manufacture through to end of life, through our programs.



Our programs





- Collects and disposes of unwanted or obsolete chemicals
- Available to anyone after point of sale





- Recycles HDPE plastic containers (1L–220L, excludes IBCs & envirodrums)
- 700+ collection sites across
 Australia





- Woven polypropylene bags
- Ranging from 20kg through to bulka bags



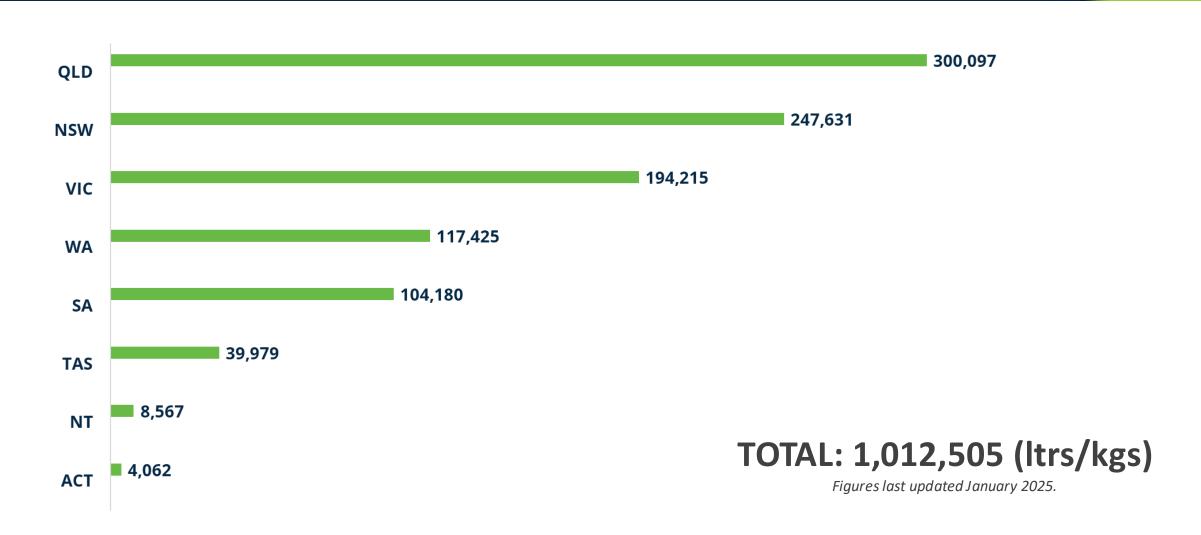
ChemClear - Safely dispose of unwanted chemicals



- National stewardship program ensuring safe collection and disposal of agricultural chemicals.
- Since 2003, ChemClear has safely disposed of over 1,000,000 litres of obsolete chemicals.
- Statewide collections held every two years, based on registrations.
- 98% of chemicals are repurposed as alternative fuel for industries like cement manufacturing.
- 2% require specialised treatment, such as Plasma Arc technology or secure stabilisation for landfilling.
- All disposal processes adhere to Environmental Protection Authority guidelines.

ChemClear statistics





Chemical classification



Group 1 chemicals – Free collection

- Must be in original containers with intact labels.
- Manufactured by *drumMUSTER*-participating companies.
- Registered or de-registered within the last two years.
- Within two years of expiration.
- Not surplus stock from distributors or AgVet stores.

Group 2 chemicals – Fee-based collection

- De-registered for over two years.
- Unknown or unlabelled.
- Expired for over two years.
- Mixed AgVet chemicals.
- Manufactured by companies not in drumMUSTER.

<u>drumMUSTER</u>

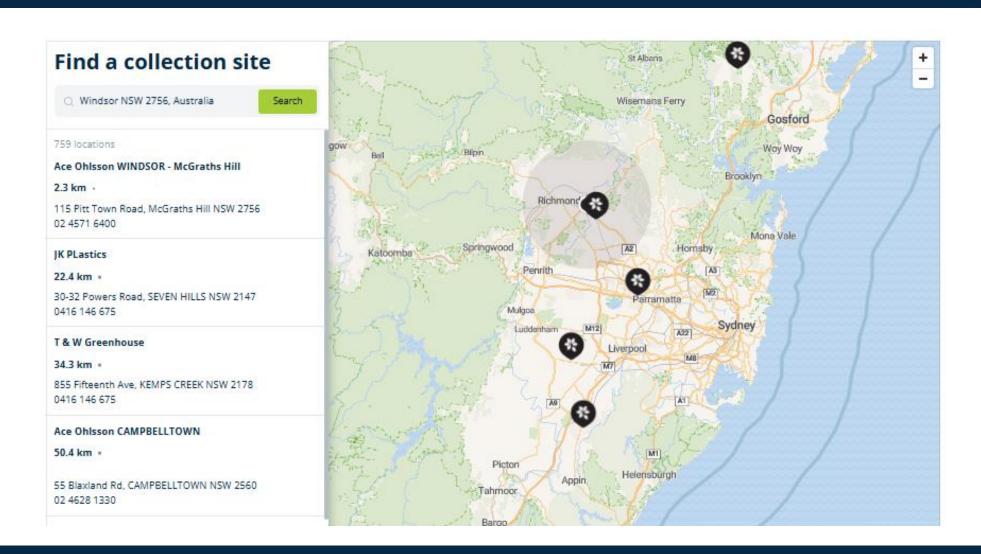


- National product stewardship program that collects and recycles eligible, empty and clean AgVet chemical drums.
- Funded by a single source of revenue (manufacturers) who declare sales quarterly in arrears.
- 700+ collection sites across Australia.
- A flat fee per litre sold funds the program.
- This fee used to be a regulatory function but was made voluntary in 2023 at industry request, with regulator approval.
- Participation by brands has increased ~10% since transition.



Collection sites near you





How does drumMUSTER work? End user perspective



- 1. Prepare your drums: Triple rinse your containers to remove residue. Remove lids and let them dry.
- **2. Find a collection point:** Find your nearest collection site using the *drumMUSTER* website.
- 3. Drop off your containers: Take your clean, eligible containers to a drumMUSTER collection site.
- 4. Containers are recycled: Containers are inspected and processed for recycling.
- 5. Repeat and spread the word: Sustainable farming is an ongoing effort, so continue to triple rinse and recycle your containers.

Collection performance



- In excess of 45m containers collected since inception
- Collection rate for FY25 rose to 64.8%.
- External target for FY26 is 65%, with an internal stretch goal of 70%.
- From 2030, brands will be required to have pathways to collect and recycle 80% of their packaging.
- A renewed focus on messaging about triple rinsing containers.
- Included in mandatory training for AgChem licenses and purchase permissions.



Drums-to-drums initiative



- The diminishing market for off-take in Australia, following restrictions on export, meant Agsafe had to take control.
- This led to the development of the drums-to-drums pursuit.
- Worked with Australia's largest recycler, PACT Group, to establish the process.
- PACT are vertically integrated, undertaking the blow moulding for the majority of drums in the ag market in Australia, effectively making them their own client.



Drums-to-drums initiative



- Achieved up to 30% recyclate going back into drums.
- Done by layering: virgin polymer on the inside and outside, with recycled material in the middle.
- A technically complex process, requiring a level of manual separation of some containers as a risk minimisation measure in the early years.
- PACT works closely with the largest toll manufacturer to monitor for potential contamination from each batch.
- Some manufacturers in Australia are also looking at reuse for specific product lines.



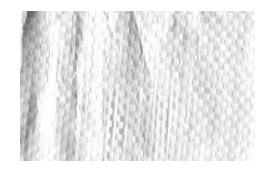
bagMUSTER



- From 2030 brands in Australia will be responsible for the collection and treatment of 80% of their packaging waste.
- CropLife Australia in partnership with the Australian Seed Federation launched bagMUSTER.
- Currently focuses only on woven PP bags (anything from 25kg up to a bulka bag).







bagMUSTER



- The model differs from drumMUSTER the retail is implementing the point of charge.
- Very limited recycling infrastructure for industrial woven PP (commissioning timeframe very long).
- Recent tariffs introduced into the USA causing a glut of recyclate PP from consumer sources flooding the market in Australia.
- Stabilising an off-take partner has been a key focus.



Operations and progress



- Collection sites open where drumMUSTER operates.
- Work with processors who can move both materials to a recycler.
- Leverage relationships with retailers to expediate roll-out of the service.
- Operating in 35 collection sites right now.
- Achieved 23% collection rate in our first 6 months of reporting.



Work with recyclers and end markets



- Advanced pyrolysis coming through one partner from February next year.
- Cornerstone feedstock partner for advanced chemical recycling will turn waste stream back to virgin equivalent.
- Focus has been on stabilising the end market.

Bags-to-bags



- Initiated bags-to-bags with a group of 4 companies.
- Working through technicalities and economic considerations of recycling bags back into bags.
- Other options being tested include sound baffling barriers next to highways and railway sleepers.
- Bags from a circularity perspective is the ultimate goal.





Garden City Plastics

STICLES SCHOOLS

Garden City Plastics

- Began manufacturing in 1975
- Moved from smaller Heatherton site to Monbulk 1992
- Moved to larger current site in Dandenong in 2016.
- Began current recycling program since 2021



PP5 Partnership

Garden City Plastics

Norwood Industries Polymer Processors



What is PP5?

Plastics Flower Pots

Nursery Carry Trays

Flower Buckets

PP5 CAGES OUT

Retail & Wholesale Nurseries

Landscape Industry

Flower Farms





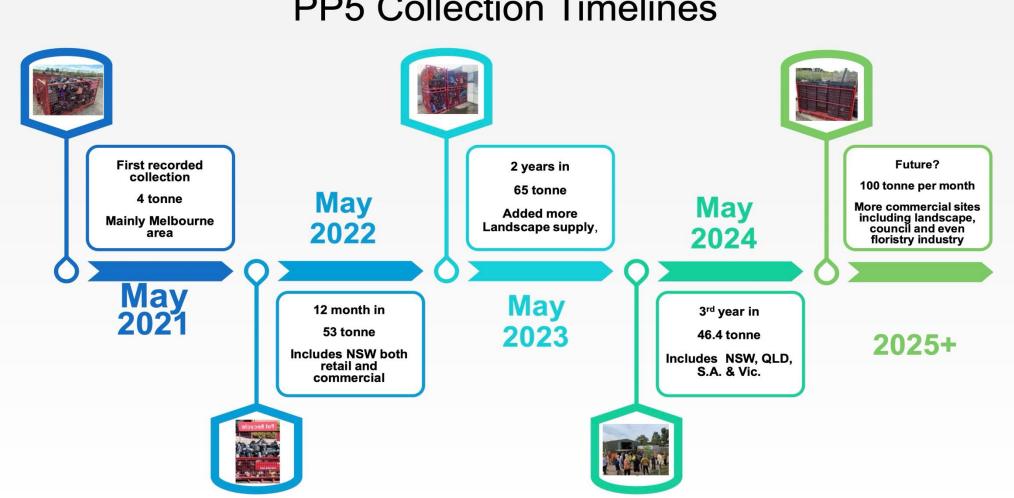
PP5 Collections

Protected Cropping

Vegetable Farmers

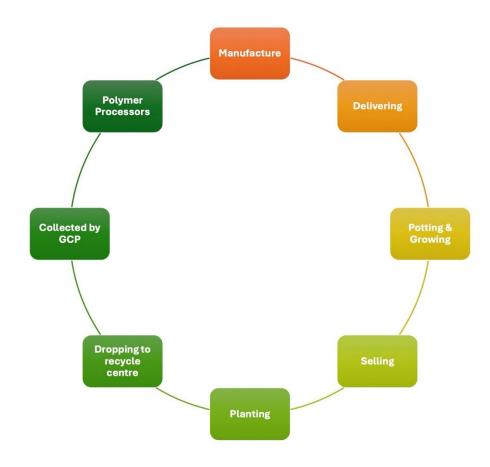
Flower Markets

PP5 Collection Timelines





THE RECYCLE CYCLE



One In, All In.

- Everyone at every level needs to manage the material they use.
- The more Clarity of material at base level, the more efficiently it can be recycled and used again for another product
- Packing correctly increases **Density** which also aids recycling efficiencies.
- Therefore, truly creating a Circular economy



Panel Q&A Session