

The challenges of reusing and recycling coir substrate

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“The costs of coir have gone up a lot since the start of the COVID-19 pandemic.” This is a comment I have heard from a growing number of berry producers, and reflects the commercial reality facing many growers in the post-COVID-19 world.

Trends driving the rising cost of coir

The increased costs of coir reflect a number of new challenges growers are faced with:

- International sea freight costs are currently at double the price they were a year ago, and there are real challenges in securing freight space to bring high-volume, low-value goods like coir into Australia.
- At the same time, road freight costs have increased greatly, spurred on by driver shortages, rising fuel costs and disruptions at distribution centres.
- Some state governments are also pushing to reduce carbon emissions by introducing levies on the disposal of organic waste.
- Lastly, there is the cost of the coir itself, which is rising in response to increased global demand, particularly in the USA.

With rising local and global prices for coir, berry producers relying on coir as a hydroponic substrate are under increasing pressure to extract more financial return from the coir they have.

At the same time, growers are often reporting growing stockpiles of used coir which may offer producers a way forward by:

- extending the useful life of coir by recovering and sterilising coir for reuse,
- reducing the amount of coir needed by partially substituting with suitable locally available alternatives, and/or
- finding a commercial outcome (and value) for used coir where it reaches the end of its effective life.

Reusing coir; a European perspective

The Netherlands experience may offer some insights into how Australia can extract more value from its coir supplies.

Like most other European countries, the Netherlands have a well-established recycling culture which is driven by EU environmental policies.

These policies have incentivised businesses to development networks and whole-of-supply-chain solutions and technologies that can help deal with removal of crop residues, plastic / foreign matter and sanitation / sterilisation.

Hydroponic growers work with coir suppliers and potting mix producers on solutions, and used coir, free from contaminants is recycled into potting mixes and composted.

A practical example of this is where researchers at Wageningen University are developing reuse options for it, including composting used coir with other organic wastes after plastic contaminants are mechanically removed by a custom-made machine.

One important thing to note is that the transport distances are typically short, making coir recycling and reuse more economical.

Similarly, entities like the European Compost Network are able to facilitate development of an organics recycling sector, for which we don't really have an equivalent here in Australia.



Coir in its raw form after it has been removed from the coconut. Photo credit: Nazrulhad bin Hashim

Industry capacity in Australia

Australian berry producers have already made some investments in understanding and addressing the coir waste.

Previous research project **MT17016; Coir waste management for hydroponics in berries** estimated about 2,400 tonnes of coir could be recycled annually.

Led by Doris Blaesing at RMCG, the main project aim was to help enable hydroponic berry producers to:

- Reduce on-farm coir related waste and associated costs, and
- Reduce the coir waste related risks and costs associated with pest and disease management.

Concluding in 2020, the project identified the many costs associated with waste such as separating coir and plastics, logistics, transport costs and potentially gate fees are major challenges for individual producers.

It was also noted that the actual costs of waste management can vary widely depending on business size, location and the type or mix of waste to be disposed of, and many producers don't properly budget for these costs.

The project also identified a number of end-of-life opportunities for repurposing used coir including:

1. Addition to commercial compost
2. Composting on farm
3. Mulch or soil amendment
4. Activated carbon / biochar
5. Potting mix

Where the product is to be reused or on-sold, some reuse options may require sterilisation or fumigation to kill fungal diseases and nematodes which will need to be costed into any reuse program.

Looking to the future

With an informed understanding of the scale of the problem, the next step will be to develop systems for recycling coir through efficient handling of coir sterilisation, blending, and repurposing techniques. Already, a number of berry growers are being proactive about the issue and conducting their own coir recycling and reuse trials, but further research needs to be conducted to meaningfully address the issue of rising costs and growing stockpiles of waste coir.