

Don't waste coir from hydroponics

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Over the past 25 years, the use of coir as a hydroponic substrate has increased internationally. In Australia, coir has been used for vegetable and flower crops for some time.

Since 2010, its use in the berry industry is increasing rapidly. Coir is becoming a preferred substrate because it produces good results and it is considered the most environmentally sustainable option.

Still, the management of spent coir has become a challenge for many producers. RMCG looked into opportunities for the beneficial reuse of spent coir and then we provided recommendations for its reuse.

We used consultation and desk top reviews to collect information on the opportunities and challenges of reusing spent coir. Our aim was to provide information to berry growers on how to reduce:

- on-farm coir related waste and associated costs
- coir waste related risks and costs associated with pest and disease management

What did we find?

Coir use is growing in berry production

We estimated that the berry industry produces at least 2,500 to 3,500 tonnes of coir waste nationally each year. Berry producers expect this to increase.

Coir reuse requires local solutions

Some of the reuse options require enough scale to be economically viable. There are opportunities for growers in each region to come together to develop commercially viable reuse options, for example composting, supply to a composter or an activated carbon or biochar plant.



Strawberries growing in coir substrate

Photo credit: Glenda Riley

In Table 1, we present some of the opportunities for spent coir reuse

Spent Coir Reuse Option	Local End User?	Free of Pathogens?	Free of Foreign Matter?	Shredded?
Composting on farm	x			
Add to commercial compost	x			
Potting mix additive		x	x	
Mulch or soil amendment	x	x		
Substrate for mushroom cultivation		x	x	x
Material for animal husbandry	x		x	x
Convert to activated carbon / biochar	x			
Briquetted or pelleted fuel				
Biogas production	x			

What are the opportunities for the berry industry?

Working with the nursery industry

The nursery industry is complex and encompasses a broad range of businesses. Many crops are produced in substrates. Opportunities may exist to engage with the sector to combine waste streams or provide substrates made from or with spent coir.

Growing media suppliers supply directly to businesses involved in:

- greenlife production
- primary industry
- all levels of government, and government bodies
- landscapers and commercial land developers
- retail sale to the public
- exports
- other businesses who value add and then on-sell to any of the above.

Stewardship Programs

Product stewardship is a regulation and code of practice introduced under the Product Stewardship Act 2011. The Act provides a framework to manage the environmental and community impact of a product over its life cycle. Anyone who is involved with the production, sale, use or disposal of a product has a responsibility to manage and limit the impact the product has on the environment and human health.

Coir recycling would not 'qualify' for a regulated scheme but would be well suited to a voluntary stewardship scheme (like mobileMUSTER, drumMUSTER, Farm Waste Recovery [for plastic waste]).

The berry industry may want to explore a cross industry stewardship program for coir reuse involving:

- the coir supply chain,
- the vegetable and nursery industries,
- key organic recycling organisations and
- potentially biochar and biogas producers.

A major requirement for developing and maintaining a stewardship scheme is the need for an organisation or person driving such a 'closing the loop' approach. This organisation or person would drive communication between suppliers, growers and organic recyclers as well as others interested in using the spent coir 'products'.

Peak industry bodies could play a major role in setting up a stewardship scheme and explore funding opportunities to get a scheme started.

www.mobilemuster.com.au

product stewardship program of the mobile phone industry and is accredited by the federal government

www.drummuster.org.au

provides a recycling pathway for eligible empty agvet chemical containers

What are the challenges for the berry industry?

The following challenges have been identified:

- **Time** required to deal with a solution and associated costs
- The **need to separate coir from plastic** for many reuse options, and the technology and cost of doing this
- The **need to sterilise the spent coir for many reuses** and the technology and cost of doing this
- The **costs of handling and transport** of used coir if the berry producer has to pay for it all
- **No reliable data on the 'make up' of spent coir** from different production systems (i.e. typical chemical and biological properties) and therefore its value
- **Regulations are not uniform in each state**; regulations from different organisations may apply (e.g. in charge of Environment, Biosecurity, Food safety)
- **Lack of applied research** e.g. 'profiling' spent coir, value of coir for different reuses such as recycled organic products (i.e. soil amendments, composts, mulches, potting mix), bioenergy, biochar
- Apparent **lack of communication** between those who want to dispose of the 'waste' and those who can put it to good use
- **Lack of communication and cooperation** with other industries with similar waste challenges.
- Even if relevant research has been conducted and reported, e.g. by the vegetable industry on plastic waste or the nursery industry on general waste, implementation of recommendations does not seem to happen. **A person or organisation(s) needs to drive implementation.**

There are two key recommendations for action that can be actioned straight away. A third recommendation highlighted the potential to utilise resources already produced by the Nursery & Garden Industry Association (now known as Greenlife Industry Australia).

Links to these resources will be available shortly on the new website www.berries.net.au

1. Form links with local businesses that can use recycled organics

Berry producers should link up with organic recyclers in their region to determine the most suitable, cost efficient way of collection and recycling.

Berry producers should explore opportunities in the vicinity of their berry operation e.g. with landscape companies, chicken producers, orchardists. Prior to deciding to reuse on farm or engaging with local businesses, profiling of the used coir would be required.

Composting on farm is an option for those who can use or sell the compost. Co-composting materials with high nitrogen content e.g. manure may be required. Reuse on farms as a soil amendment without composting is suitable. Composting eliminates the need to sterilise used coir.

Linking in with the recycled organics sector has been identified as the currently best option to deal with used coir in the most cost-effective way. Small scale trials should be used to confirm the best method for direct reuse in a production system.

2. Create linkages with other industries

Our review highlighted that the protected fruit, vegetable and flower industries have a similar waste management problem to the berry industry. Solutions should be addressed holistically and cooperatively.

A voluntary stewardship program should be explored, involving the entire supply chain. A useful starting point could involve the following players:

- the three major coir importers
- Berries Australia
- Protected Cropping Australia (PCA)
- Greenlife Industry Australia (Formerly known as NGIA)
- Australian Organic Recycling Association (AORA)

The peak industry bodies could explore how to deal with other common waste issues in their respective industries.

RMCG is an environmental and agricultural consultancy who provide advice to government agencies, water authorities, institutions and private sector clients in the fields of environment, water, agriculture, economics and communities.