Fresh Coir, Reuse or Mixes? What the Tasmanian Trials Show

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- Fresh coir in bags still gives the highest yields and gross margins under current Tasmanian conditions
- Used coir mixed with composted pine bark can come close to fresh coir performance and become competitive as coir prices rise or fruit prices fall
- The main limitation in second-year coir is structural breakdown and compaction, leading to poor aeration, rather than sterilisation alone
- Trial results suggest sterilisation of used coir may not be essential in Tasmanian systems, which could significantly reduce the cost of any reuse or recycling pathway

Tasmanian hydroponic strawberry growers are weighing up three substrate choices: fresh coir, second-year reuse, or coir mixes. Commercial trials coordinated by Fruit Growers Tasmania with RMCG have now put evidence around how these options perform on-farm. This article summarises the key findings: why reused coir tends to lose performance, what the economic analysis says under today's assumptions, and how to trial coir mixes safely, including practical steps to manage risk and adjust irrigation and fertigation.

Why reused coir loses performance

Across the commercial trials, the consistent pattern was that second-year coir tended to lose performance mainly due to physical breakdown of the substrate, rather than a simple increase in disease risk. As coir ages through a season, fine particles migrate down through the profile and gradually block pore spaces in the lower root zone. Drainage slows, the base of the bag or trough stays wetter for longer, and parts of the profile shift toward anaerobic conditions. Once that happens, root function declines and plants become harder to manage through the back half of the season.

In practice, this shows up as more variable moisture behaviour and a narrowing management window. Growers can find the top of the profile looking acceptable while the bottom remains saturated, particularly in areas that are difficult to flush. In trough systems, corners and low points are especially prone to staying wet, and flushing fertiliser salts can be less effective. Over time, this contributes to localised EC build-up and additional plant stress, even when the fertigation recipe hasn't changed.

Pathogen testing in the project did detect organisms in some reused treatments, but overall, the evidence points to structure and water management as the primary drivers of the yield penalty seen in straight second-year coir. In practical terms, extending substrate life is less about intensive disinfection and more about maintaining porosity and drainage. That's why the better-performing approaches in the trials were those that improved the physical profile, either by blending with more structurally stable material or by paying close attention to container design and flushing behaviour.

What the economics say

The economic analysis attached to the project supports what many growers already suspected: under current assumptions, the "status quo" system of fresh coir in bags for a single season still tends to deliver the strongest gross margin. That result is driven by yield stability and management familiarity. Even when reused or mixed substrates reduce input costs, a meaningful yield penalty can quickly erode those savings if the system is not managed carefully.

However, the modelling also makes an important point: the advantage of fresh coir is not as secure as it first appears. When the numbers are stress-tested, small shifts in key variables can narrow the gap or even change the ranking. If coir prices rise, the relative attractiveness of lower-cost reuse options improves quickly. Conversely, when fruit prices are strong, the yield stability of fresh coir becomes more valuable, and the status quo tends to pull ahead. In other words, reuse and mixed substrates shouldn't be read as a universal replacement for fresh coir today, but they do represent a meaningful hedge against plausible future scenarios in input pricing, freight disruption, and changing waste costs.

The other key takeaway is that "profitability" isn't a single number that can be lifted from a report and applied to every farm. Labour assumptions, disposal costs, tunnel layout, irrigation infrastructure and market timing can all influence the outcome, and some costs are difficult to quantify consistently across businesses. Alongside the modelling, an Excel tool is available to help growers stress-test the results against their own assumptions (fruit price, coir cost, yields and major inputs). It's designed to support decisions, not replace them.

You can download this tool from www.fruitgrowerstas.org.au/coir-reuse-project-findings-2026 and try for yourself.

If you want to trial coir mixes: how to do it safely

If you want to trial coir mixes on-farm, the strongest message from this project is to treat it as a controlled change, not a straight swap. Start small, run it side-by-side with your current fresh coir system, and set it up so you're learning something useful even if the result is "not yet".

A simple approach is to allocate a few bays (or a defined number of tables) to a single mix and keep everything else as your farm standard. That gives you a meaningful comparison without putting your season at risk.

Plan for early-season fruit management. Mixed substrates and trough systems can increase the chance of early fruit sitting on damp substrate surfaces, which can translate into avoidable losses. Topper mats are a practical, low-cost control that can help separate fruit from the substrate surface during establishment and early pick, and they're worth considering as part of any mix trial so you're not judging the substrate on preventable fruit loss.

Expect that irrigation and fertigation may need adjustment. The whole point of mixing is to change the physical profile, including drainage, water-holding and air-filled porosity, so the "right" irrigation strategy can shift as well. Define in advance what you'll monitor (at minimum: drainage behaviour, EC trends in hard-to-flush zones, and plant response through warm periods) and keep notes on changes you make. The goal isn't perfection in year one; it's building a farm-specific playbook for how that mix behaves under your conditions.

Be clear about what success looks like before you start. Yield matters, but so do fruit quality, labour and waste outcomes. If your end goal includes an off-farm pathway for spent substrate, plan for contamination control from day one. Plastic fragments can be introduced as bags are handled, cut or removed, and downstream reuse or processing options may depend on how clean the material stream is.

Bottom line

There is no single "best" substrate choice for every farm. Under today's assumptions, fresh coir remains the most reliable benchmark, but the trials clarify why second-year coir can lose performance and where mixed substrates can work when structure and drainage are managed well.

For growers interested in mixes, the safest approach is incremental: run small, side-by-side trials and expect to adjust irrigation and fertigation. Done well, mixes become a practical hedge against input costs, freight risk and waste pressures.

Bags vs troughs: what to watch

Troughs can remove the bag from the system, but they're not always "plug-and-play." In the trials, practical issues included a higher risk of waterlogging and difficulty flushing salts in corners, plus shrinkage that can create "by-flow" channels and uneven wetting.

Grower experience also flagged that trough surface moisture can lift under-canopy humidity and disease pressure, and may favour pests such as bronze leaf beetle if issues accumulate across seasons.

If trialling troughs or mixes, plan to manage the microclimate and consider simple fruit-protection measures (e.g., toppers) early.

The bigger circular play: second-life coir beyond strawberries

Several growers felt the most realistic circular opportunity may be second-life uses for strawberry coir outside the strawberry crop itself - particularly Rubus long cane or nursery production - rather than trying to run coir "straight back" into strawberries every time.

This thinking also links to the strongest engagement theme: treat coir and plastics as one integrated waste stream, with plastic separation to a defined standard a prerequisite for any reuse or processing pathway.

It's not solved yet, but it frames where industry effort is most likely to pay off.

Jake Gaudion from project delivery partner RMCG evaluating plants in the coir re-use trial Photo credit: Mark Salter

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