



Pacific Horticultural  
& Agricultural Market  
Access Plus Program

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# SOLAR DRYERS FOR KAVA PROCESSING IN SAMOA



This factsheet draws on the PHAMA Plus business case for solar dryers and results from the Savai'i solar dryer pilot. It aims to provide farmers and small processors with a practical understanding of:

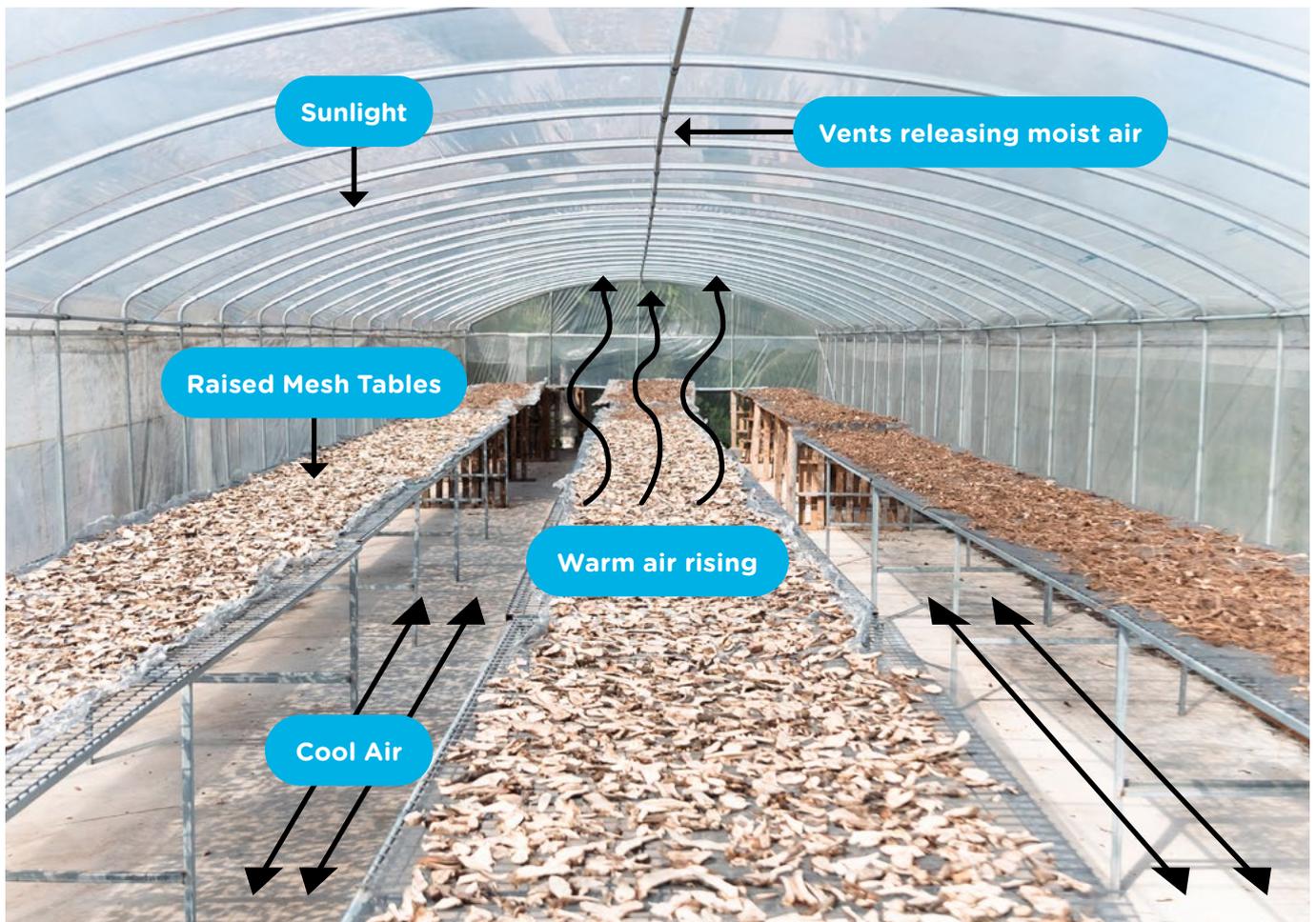
- what solar dryers can do
- how they perform
- what they cost, and
- the key risks to consider when investing.

While the pilot showed strong results, it was largely funded by PHAMA Plus, with partners providing contributions such as labour costs. Real-world performance under commercial loans still needs to be tested. **Farmers are therefore encouraged to consider their own situation carefully and seek advice before making decisions.**

## PHAMA Plus Solar Dryer Pilot on Savai'i

On Savai'i, PHAMA Plus installed tunnel-style solar dryers with five kava farmers to tackle long-standing challenges with traditional open-air drying. Farmers had struggled with slow drying, unpredictable rain, labour-intensive monitoring, contamination from dust and insects, and uneven quality. The pilot showed that a tunnel-style solar dryer can significantly improve the speed, cleanliness and reliability of drying.

Drying time dropped from 4–6 days (and up to 10 days during long wet spells) to just 2–3 days. This faster turnaround increased throughput on the same land area, and the enclosed structure kept the kava clean and protected throughout the drying cycle. Greater reliability also helped farmers meet buyer demand more consistently.



## What is a solar dryer – and how does it work?

A solar dryer is a covered, greenhouse-like structure fitted with raised mesh tables. Sunlight heats the inside of the structure, creating a warm, dry environment. Warm air rises and escapes through vents, pulling in cooler air from below, to remove moisture from the kava.

The enclosed design keeps the product safe from rain, dust, animals and insects, while the airflow helps to achieve even drying. The plastic cover typically lasts 3-5 years with simple upkeep, and the steel structure has a lifespan of 10-15 years with basic maintenance such as cleaning, tightening bolts and checking for wear.

## What difference can it make?

Based on the pilot and the business case:



2-3 days compared with 4-10 days



Quality: Consistent, clean kava



Around 60% less work



2-3 times more drying capacity



Income increases up to 300%



Multi-crop use – cocoa, copra, vanilla

## Farmer story: Tony Tuaiiaufai, Neiafu



When kava farmer Tony Tuaiiaufai received his solar dryer from PHAMA Plus in April 2024, he saw it as a way to ease the constant pressure of open-air drying. Before then, space was limited to “around the house and on the roof”, and unpredictable rain meant “someone had to stay behind to look after the kava”. He also recalls two accidents where workers slipped from the roof while collecting kava, which left a lasting concern for safety.

Within weeks of using the dryer, the change was clear. Drying time dropped from five days to around three, and the enclosed structure meant the family no longer needed to haul tarpaulins in and out each day. “The dryer has more than doubled my capacity,” Tony says. “Everyone is relieved. Now we just load the kava, close the dryer, and come back to collect.” Cleanliness also improved, with no mould and no risk of chickens or children stepping on the kava.

The new efficiency has reshaped his business. Tony has doubled the number of shops he supplies, and his overall earnings have increased by more than 150% since installing the dryer. The reliability of the system has allowed him to expand steadily, including improving housing on the property and upgrading transport for his operations. “The solar dryer made expansion possible,” he says. “It keeps the work going even when labour is short.”

“

**The dryer has more than doubled my capacity!**

*Tony Tuaiiaufai*

”

For Tony, the new dryer has become essential, especially during wet spells when demand stays high but traditional drying slows. Looking ahead, he hopes to install a second dryer to continue growing. “It is the efficiency and the income,” he says. “That is why it has made such a difference for us.”

### Changes with solar dryer

● ● ● ● ● ● **Before** ● ● ● ● ● ●

Open-air drying, rain risk,  
safety issues

● ● ● ● ● ● **After** ● ● ● ● ● ●

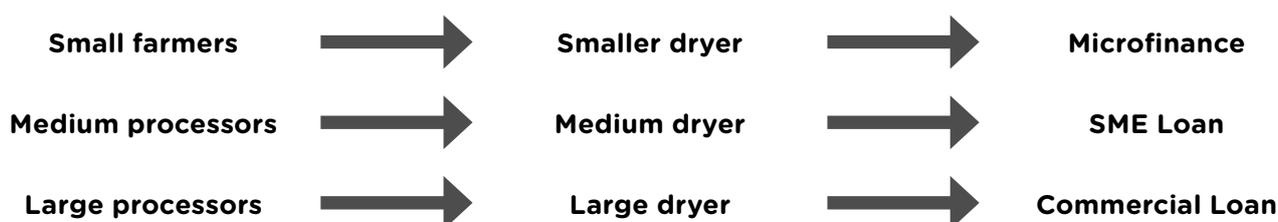
Enclosed dryer, faster drying,  
higher income

## Installed costs and estimated annual revenue (modelled example)

Dryer Size	Installed Cost <sup>*</sup>	Estimated Annual Revenue <sup>†</sup>	Suitable for	Financing Approach	Modelled Payback
5 × 6 m	WST14,300	WST52,000	Small farmers	Microfinance / blended	9 months
10 × 6 m	WST19,700	WST65,000	Small processors	SME credit facility	9 months
15 × 6 m	WST22,045	WST78,000	Medium processors	Commercial bank loan	8.5 months
30 × 6 m	WST34,342	WST130,000	Large processors / export scale	Commercial loan / equity	7.5 months

\* Installed cost prices as at May 2025, including installation, delivery, training, and drying tables.

† Estimated annual revenue figures are modelled projections using real pilot results. Actual earnings will depend on farmers' own supply, labour, management and market access. Farmers should review their own situation and seek independent advice before taking out a loan.



Based on the PHAMA Plus pilot and the business case, a solar dryer can generate reliable income when farmers have steady kava supply and good buyer relationships. The table above shows typical modelled annual revenue at 50% utilisation (half-capacity), which reflects the real conditions observed during the Savai'i pilot.

## Loan repayments

Under commercial loan conditions (14% interest, 3-year term), payback can range from 7 to 9 months depending on dryer size and throughput. These projections are based on grant-funded pilot data.

## Before you invest: key questions to think about:

- Do you have a reliable kava supply throughout the year?
- Can you manage simple maintenance (cleaning, tightening bolts, replacing plastic)?
- Are you comfortable taking a loan and managing cash flow?
- Do you have at least one additional worker?
- Are you prepared for weather risks such as cyclones?

## Risks farmers should know about

### Finance Risk

Not qualifying for a loan or struggling with repayments.

- Start small
- Build production records,
- Strengthen buyer relationships.

### Weather and cyclone risk

Cyclones may damage the structure or the plastic cover.

- Install proper ground anchors,
- Learn storm procedures
- Seek insurance options if available.



### Labour shortages

Many villages experience labour shortages.

- Plan operations around reliable labour
- Use the dryer's efficiency to reduce workload.

### Pests and disease

If kava crops are affected, the dryer may sit idle.

- Follow agricultural advice and diversify crops where possible.

## Recommendations for farmers and processors

### Choose the right solar dryer

All dryer sizes can make good returns, but the right one depends on how much kava you can supply and the markets you sell to.



You don't need everything at once. Following the step-by-step approach below helps manage loans and reduce cash-flow pressure.



## Focus on quality

Good, clean, evenly dried kava earns better prices and keeps buyers returning. Simple habits and practices can make a difference:



## Use the dryer for more than kava

You can dry koko, copra, vanilla and other crops when kava is slow. This helps keep income steady throughout the year and reduces reliance on one crop.

### Multi-Crop Use



Cocoa



Kava



Copra



Vanilla

One dryer, many crops, year-round income.

## Build strong buyer relationships

Consistent buyers make it easier to plan, earn and repay loans.



Stay in touch with buyers



Meet quality standards



Consistent buyers



Predictable sales and income



Easier loan repayment



Join farmer networks  
Learn and connect

For more information about financing options, contact:

Samoa Business Hub  
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