

SOLAR DRYERS FOR KAVA PROCESSING IN SAMOA

This factsheet summarises the financial and operational performance of tunnel-style solar dryers for kava processing in Samoa. It is designed to inform banks, microfinance institutions and development partners considering lending products, guarantee schemes, or investment support for agricultural processing equipment.

The analysis draws on the PHAMA Plus business case and the Savai'i solar dryer pilot. The pilot was 100% grant-funded. All financial performance, cash flow and debt-service figures are modelled projections and require validation through real-world financed deployments. Lenders and development partners should treat these as indicative.

A full business case report is available on the Samoa Business Hub and PHAMA Plus websites.

PHAMA PLUS: <https://shorturl.at/232Gr>

Background: A proven technology under grant conditions

PHAMA Plus introduced tunnel-style solar dryers to five kava farmers on Savai'i to address long-standing bottlenecks in drying and product quality. The dryers reduced drying time from 4–6 days (up to 10 in wet season) to 2–3 days, lowered labour requirements by around 60%, improved product cleanliness, and increased throughput by 2–3 times. It has demonstrated significant socio-economic benefit for participating farmers, and uptake of the technology is encouraged for other farmers.

Financial performance—modelled under commercial lending conditions

Dryer Size	Installed Cost*	Estimated Annual Revenue†	Suitable for	Recommended Financing Approach	Modelled Payback
5 × 6 m	WST14,300	WST52,000 (41% EBITDA margin ¹)	Small farmers	Microfinance/ blended	9 months
10 × 6 m	WST19,700	WST65,000 (43% EBITDA margin)	Small processors	SME credit facility	9 months
15 × 6 m	WST22,045	WST78,000 (46% EBITDA margin)	Medium processors	Commercial bank loan	8.5 months
30 × 6 m	WST34,342	WST130,000 (51% EBITDA margin)	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 supply, labour, management and market access.

¹ EBITDA (earnings before interest, taxes, depreciation and amortisation) margin is a measure of operating profit as a percentage of revenue; it is a useful way of comparing the operational efficiency of different companies or options.

Based on the PHAMA Plus pilot and the business case, a solar dryer can generate reliable income when you 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. Drying of other crops such as cocoa, copra and vanilla can be considered for when supply of kava is lower, reducing reliance on one crop, keeping income steady throughout the year and strengthening return on investment.

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. Key findings:

- Debt service coverage ratios: 1.98x–2.52x
- Payback: 7.5–9 months
- Internal rates of return: 28–36%

Recommendations for lenders and development partners

Solar dryers show strong modelled financial performance, but actual borrower repayment behaviour under debt remains untested. These projections need real-world testing under actual loan conditions. Lenders should interpret findings as evidence of potential, and support sequenced, de-risked commercial trials.

Lenders are encouraged to develop tailored loan products in the WST14,000–35,000 range, with 3–5 year terms, seasonal repayment flexibility, appropriate collateral requirements, and short grace periods for installation and ramp-up.

A phased portfolio approach is recommended: begin with 10–20 loans to experienced operators, diversify across locations and dryer sizes, and monitor performance closely in the first year. Risk can be reduced through guarantee schemes such as Samoa Business Hub and concessional facilities from the Development Bank of Samoa.

Borrower capacity building is essential. Pre-loan training, business planning templates, seasonal cash flow tools, and ongoing technical support help strengthen financial management and reduce the risk of default.

