

# Building resilience in Tonga's watermelon export pathway

## PHAMA Plus Performance Story

Horticulture sits at the heart of Tonga's economy and identity, with more than half of all households engaged in farming. While much production remains domestically focused, horticulture accounted for approximately 87% of Tonga's exports as at June 2025. Within this context, watermelons are a modest but strategically important crop, providing seasonal income for rural households and anchoring one of Tonga's few consistently active fresh export pathways.

Tonga's comparative advantage lies in its alignment with New Zealand's winter supply window, when domestic production is low and prices are stronger. However, this advantage also concentrates risk into a short export season. Biosecurity breaches, weather shocks, logistics disruptions or loss of buyer confidence can quickly erase returns and discourage future investment in an already thin market.

There is strong evidence that PHAMA and PHAMA Plus, working with government and private sector partners, played a catalytic role in restoring and protecting Tonga's watermelon export pathway. By addressing longstanding coordination gaps, strengthening biosecurity and post-harvest systems, and improving on-farm resilience, the program helped to rebuild market confidence and establish a more reliable platform for growth — with benefits extending beyond watermelons to the wider horticulture sector.



## From vulnerability to system resilience

Export data highlights both the opportunity and volatility facing the sector. Fresh watermelon exports peaked at around 460 tonnes in 2021 before declining sharply following biosecurity detections and production constraints, falling to approximately 123 tonnes by 2023. These fluctuations underscored the fragility of the export pathway and the need for coordinated system-wide responses rather than isolated technical fixes.

PHAMA Plus analysis identified a set of interlocking constraints affecting pathway stability: weak public-private coordination; inconsistent biosecurity practices and verification; gaps in food safety and post-harvest discipline; variable on-farm productivity and pest management; climate and water stress; and limited options to absorb lower-grade fruit.

Rather than addressing these in isolation, PHAMA Plus supported a connected package of interventions across the export pathway, working through national institutions and commercial partners.

## What did PHAMA Plus do?

PHAMA Plus worked with the Ministry of Agriculture, Food and Forests (MAFF), exporters, research partners and trading partners to strengthen the export system through:

### Public-private coordination

Supporting the Tonga Watermelon Export Taskforce (TWET) as a standing coordination mechanism, enabling joint planning, pre-season readiness checks and faster issue resolution across regulators and exporters.

### Biosecurity system strengthening

Supporting diagnostics, refresher training and updated standard operating procedures following detections, including improvements in fumigation performance, hygiene, documentation and verification aligned with New Zealand import requirements.

### Food safety and post-harvest capability

Co-investing in packhouse upgrades, supporting Hazard Analysis and Critical Control Points (HACCP) certification, refining SOPs and improving cold-chain readiness to lift consistency, shelf life and buyer confidence.

### On-farm productivity and resilience

Piloting irrigation and fertigation systems, strengthening integrated pest and disease management, and linking extension messages more clearly to exporter and market requirements.

### Pathway transferability

Designing interventions so that systems, tools and capabilities developed for watermelons can be applied to other export-ready horticulture commodities.

Taken together, these investments shifted the pathway from reactive compliance toward routine readiness — improving reliability within the narrow export window.

### Results at a glance

- A more coordinated and predictable export pathway, with clearer roles and responsibilities across government and industry.
- Reduced documentation errors and improved treatment verification following updated SOPs and training.
- Strengthened packhouse capacity and cold-chain management, supporting higher throughputs and reduced spoilage.
- Demonstrated productivity gains from irrigation and improved husbandry under PHAMA Plus-supported pilot trials, with farmers achieving significantly higher yields and margins.
- Emerging roles opportunities for women and youth in processing, quality management and farm enterprise roles.

While export volumes continue to fluctuate with seasonality and climate, the pathway is now better aligned to market expectations and positioned for scaling.





For farmer Nafetalai Makau from Houma, improvements to Tonga’s watermelon export pathway translated into practical changes on the ground. Working with Nishi Trading under a PHAMA Plus-supported fertigation pilot, Nafetalai increased

production on a one-acre plot from 8 tonnes to 21 tonnes — enough to fill a 20-foot shipping container.

The following season, however, wilt disease wiped out his entire crop after watermelons were replanted on the same land. Rather than exiting production, Nafetalai applied lessons from PHAMA Plus-supported training on crop rotation, soil health and disease management. He has since rotated into non-cucurbit crops and plans to re-enter watermelon production with improved practices.

His experience reflects both the risks faced by smallholders in a narrow export window and the importance of strengthened extension, irrigation discipline and biosecurity awareness — not only for productivity, but for maintaining the integrity of Tonga’s export pathway.

## What should happen next?

To consolidate gains and support sustainable growth, the performance story identifies the following priorities:

### **Scale supply while protecting pathway integrity**

Maintain TWET as a standing coordination mechanism with annual readiness cycles, and scale proven on-farm practices such as irrigation, mulching, hygiene and crop rotation.

### **Apply pathway learnings across horticulture**

Extend coordination forums, SOPs, cold-chain discipline and post-harvest practices developed for watermelons to other export-ready commodities, including root crops and kava.

### **Strengthen access to finance and inputs**

Address bottlenecks limiting uptake of irrigation and productivity investments through more appropriate financial products and improved access to equipment.

### **Support the transition to semi-commercial farming**

Use approaches such as Family Farm Teams to help households move from subsistence to more reliable market participation, with strong inclusion outcomes for women and youth.

### **Continue embedding inclusive participation**

Build on emerging roles for women, young people and persons with disabilities across production, processing and value-adding activities.

## A transferable system for growth

Watermelons have provided a practical entry point for strengthening Tonga’s horticulture export systems. The coordination platforms, biosecurity routines, post-harvest disciplines and farmer capabilities built through PHAMA Plus, were deliberately designed for transferability and can be applied to other export-ready horticulture commodities.

PHAMA Plus’s contribution has been catalytic rather than substitutive — restoring confidence, reducing risk and enabling Tonga’s horticulture sector to perform more reliably within real market constraints. As these system changes continue to embed, they are expected to support more resilient livelihoods, improved inclusion and stronger export outcomes over time.