The Integrated Temotu Traditional Agriculture (ITTA) Model:

Redesigning a 30-Year-Old Agroforestry System for Climate Resilience & Livelihood Security in the Solomon Islands



EU-Funded Farmers' Organisations Leading Research & Innovation on Agroecology (FORI) Pacific Breadfruit Project (2022–2026)

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1 Historical Context & Redesign Rationale

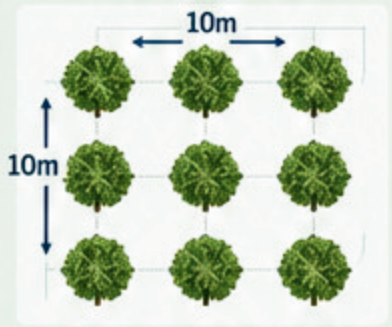
The **Integrated** Temotu Traditional Agriculture (ITTA) system is a traditional multi-layered agroforestry system formalized in the 1990s by Fr. Jasper Bonie.

A 30-year review revealed that the original **tight 10m × 10m** spacing caused severe mature canopy shading, suppressing understory root crops.

2 The Redesigned 20m × 20m Spacing Protocol

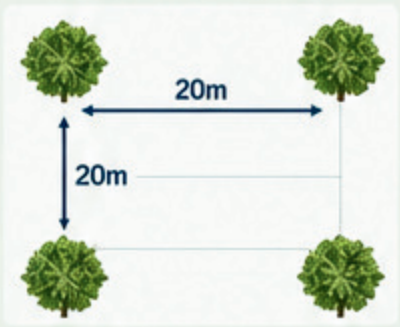
The **core innovation** expands tree spacing to a **20m × 20m** boundary and alley-planting design. This increases light penetration to over **65%**, allowing vigorous intercropped annual staples (yam, pana, taro) to grow.

Original spacing
10m × 10m (1990s)



Severe canopy shading suppresses understory crops

Redesigned spacing
20m × 20m (ITTA)



> 65% light penetration for stronger understory growth

3 Decentralized On-Farm Experiments

Three critical pilot sites:

Luesalo RTC



- Central bulking and 5-hectare updated ITTA plot.

Voruku Growers Farm (Rendova Island)



- Dryland system with ngali nut and cocoa.

Manava Orchard (Kohinggo Island)



- High pruning on old trees.

4 Traditional Varieties & Agrobiodiversity

- Temotu is a global center of **breadfruit diversity.**
- Collection of **433** root cuttings representing **75 distinct varieties** (such as Bia Boi Kaler and Bia Merei).
- Reef Island's spectacular archive of **33 native varieties.**



Breadfruit on farm in Temotu Province, Solomon Islands
Photo: Kastom Gaden Association (KGA)

5 Cumulative Metrics & System Outcomes

Agroecological Indicator	Baseline (2022)	Cumulative (2026)
Collected Root Cuttings	0 cuttings	433 cuttings planted
Native Varieties Documented	Uncatalogued	75 varieties at Luesalo
Model Plot Canopy Spacing	10m × 10m grid	20m × 20m boundary
Understory Light Penetration	Severe shade (<20%)	Optimized sunlight (>65%)
Nursery Seedling Survival	Unmanaged (<35%)	88% (Simbo) & 95% (Kenelo)
Empowered Lead Researchers	0 active	6 Farmers (incl. 2 Women)
Empowered Youth in Decision-Making	0 active	11 Youth (Luesalo RTC)

6 Indigenous Knowledge Preservation

Value-adding pathways for isolated island groups — focusing on:



Nambo dry-roasting
(traditional stone oven wood-firing)



Masi pit-fermentation
(cyclone disaster buffer food)



Co-creation of the Breadfruit Recipe Book with 6 women's groups.

Farmer Organisations Leading Research & Innovation on Agroecology for Sustainable Food Systems (FO-RI)

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