Planting breadfruit orchards as a climate change adaptation strategy for Fiji and the Pacific islands

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Climate change and food security in Pacific islands

Food Import Capability Indicator (FICI)

- ratio of food imports to total exports; measure of a country's aggregate food security

FICI's for select PICs (2013)

- **Fiji – 0.7 (moderate vulnerability)**
- PNG – 0.08 (extremely low)
- Solomon Islands – 0.2 (low)
- Vanuatu – 1.4 (high)
- Samoa – 3.0 (very high)
- Tonga – 2.0 (very high)
- Kiribati – 7.5 (extreme)

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Climate change and food security in Pacific islands

- Imported grains (particularly **rice**) comprise half of PIC food imports.
- Indications are that Asian rice production is highly vulnerable to climate change

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Climate change is expected to decrease rice yields and overall production

- IRRI projections - 1^{o}C increase in night temperatures leads to 10% drop in rice yield
- Grain crops require high amounts of purchased inputs
- Major constraint to maintaining global grain production is the cost of fertiliser and fuel for mechanisation

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Substantial increase in the real price of imported rice is expected

- <10% of rice produced traded internationally - increasing pressure on available supply of internationally trade rice
- International Food Policy Research Institute forecasts - by 2050, rice prices will increase by ~ 35% in real terms
- **Serious food security implications for the Pacific islands**

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Comparative advantage >> shifting toward traditional staples

- Climate Change expected to have less of an impact on traditional Pacific island food crops

Ref: SPC published book –

Vulnerability of Pacific Island agriculture to Climate Change

..**why?**

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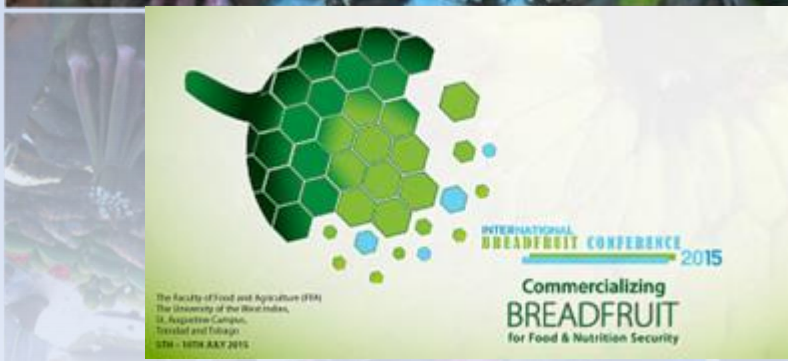

Comparative advantage >> shifting toward traditional staples

- Pacific staples (e.g. sweet potato, taro, cassava, yams) are efficient converters of solar energy - broad leaves producing photosynthates stored in underground organs

- Gives traditional Pacific island staples an increasing comparative advantage >> population pressure, increasing scarcity of arable land, fertiliser & energy $$

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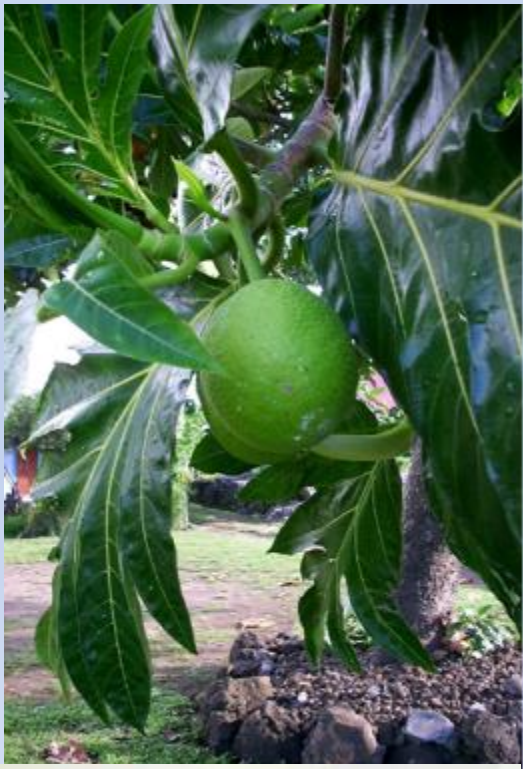
Breadfruit (*Artocarpus altilis*) - crop of the future!

- Ability of breadfruit to secure food energy from the atmosphere, thanks to large leaves and canopy >> also relatively undemanding of soil
- High tolerance to climate extremes
- Well suited to inter-cropping
- Potential sequestration role
- High yielding in biomas that can be converted to high quality gluten free flour & paste products



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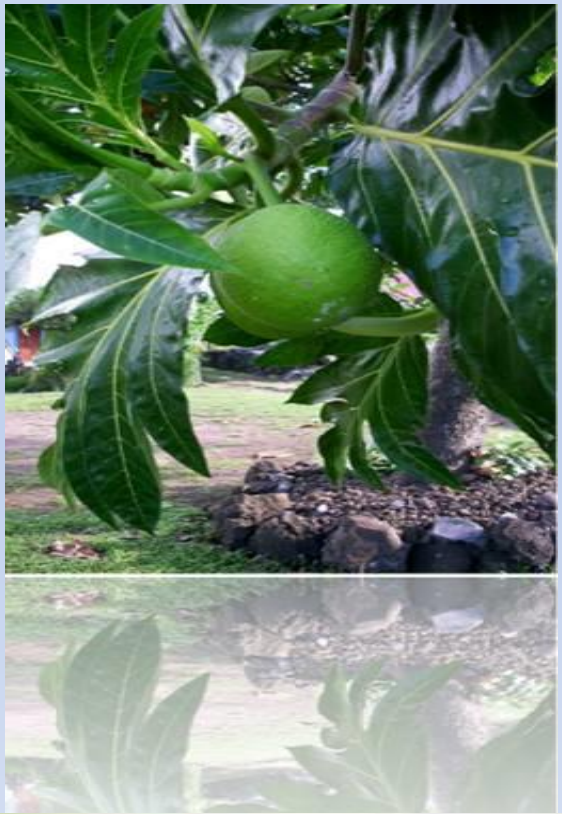
Breadfruit needs to be planted in orchards to have a major impact

- Currently grown “wild” in forest, household backyard gardens or around villages.
- Such cropping systems cannot make a major contribution to **national food security** **-** as do not offer sufficient supply of produce of consistently good and known quality.
- Orchards are an essential requirement to support commercial processing and fresh exports



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Requirements for breadfruit orchard development to realise its full potential

- Further refinement of pruning techniques
- Continued development of inter-cropping
- On-going evaluation of planting material derived from different sources
- The development of commercial enterprises to collect, propagate and distribute planting material.
- Getting a workable BQA system in place

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Vinaka vakalevu!

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5TH – 10TH JULY 2015