



Food and Agriculture  
Organization of the  
United Nations

# 5<sup>th</sup> Pacific Soil Partnership Meeting

12-13 April 2022

## National updates on soil: *Tonga*

Presenter: Vuni Minoneti

Institution: Ministry of Agriculture, Food and  
Forestry



# Main activities implemented under Pillar 1



## 1. Improving nutrient management

- Trainings of farmers and MAFF's Research and Extension staff on:
  - Good nutrient Management – 4R Stewardship
  - Diagnosis of Crop Nutrient deficiency symptoms – 2 Diagnostic Charts developed (1 for mobile nutrients & 1 for immobile nutrients) to be distributed to Extension offices to assist in their advisory service
  - Soil testing using Quick soil test kit and calculation of fertilizer recommendations based on test results.

## 2. Production of Mucuna bean seeds and distributed to farmers via Extension Division.



# Main activities implemented under Pillar 2



- A National Workshop on **Sustainable Soil Health and Fertilizer Use Management**. Participants included Politicians (MP), FAO National Rep., Tonga National Youth Congress Rep, Climate Change Office Reps., Ministry of Education's Rep., Farmers and MAFF's staff
- Also discussed the need to developed a Policy brief for Sustainable Soil Nutrient Management



# Main activities implemented under Pillar 3



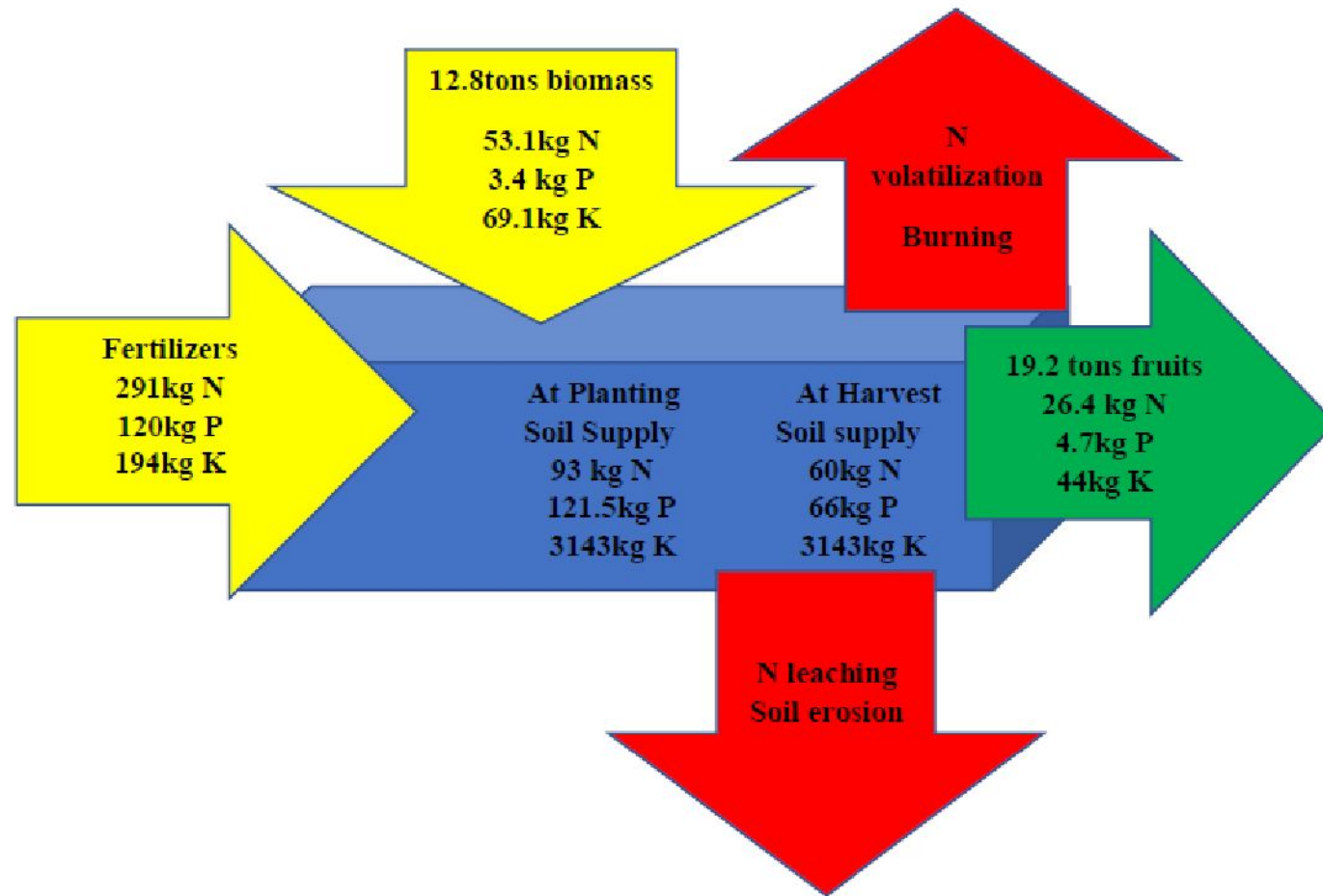
## 1. Development of the Pacific Soil Portal

- ACIAR funded project “Soil Management in Pacific Islands: Fiji, Tonga, Samoa, Tuvalu and Kiribati
- All soil data including legacy soil data are loaded into the portal and is accessible to the public

## 2. Development of a nutrient balance sheet for a watermelon crop grown on Fahefa soil in Tongatapu



## Nutrient Budget in a Watermelon Plot on Fahefa Soil



**Inputs**  
 $N = 291 + 93 = 384$   
 $P = 120 + 121 = 241$

**Removal**  
 $N = 26.4 + 53.1 = 79.5 \text{ kg}$   
 $P = 4.7 + 3.4 = 8.1 \text{ kg}$   
 $K = 44 + 69.1 = 113.1$

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From the nutrient balance sheet:

- The total nitrogen input was 384kg at planting and only 79.5kg was removed by the crop.
- The balance is 304.5kg but the soil test after harvest showed only 60kg left in the soil. About 244.5 kg is lost mainly due to leaching and volatilization.
- This shows that the nitrogen use efficiency was only about 20% and this is very low
- Need to improve the N use efficiency



3. Soil samples collected from 20 tax allotments affected by tsunami in January and ash samples were sent to CSIRO lab (Attn: Dr. Ben MacDonald) for analysis.



# Main activities implemented under Pillar 5



## Update on in reviving MAFF Soil Laboratory

- Laboratory Glassware arrived at Vaini Research station yesterday. It was purchased from New Zealand.
- Planned to order an AA spectrophotometer in the next financial year (this year) and some other equipment
- CSIRO under ACIAR funded project Soil Management in the Pacific is providing these equipment: Soil auger; Laboratory electrical conductivity and pH meter; soil oven; and GPS unit,
- Hopefully by the end of next year our lab will be able to function.





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*Malo aupito*

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