



## Contribution of Forest Genetic Resources to food security and nutrition

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Food security and genetic diversity

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# Food Security and Genetic Diversity



## Why care about FGR?

- **80 percent** of the population in developing countries make use of NWFP for their nutrition, health, or income generation.
- **Over 1500 tree species** are managed world wide for food production (fruits, fodder, vegetables, gum, honey..)
- Forest and trees species enhance and protect ecosystems and landscapes.



Wild fruits of *Saba senegalensis* sold by children on the roadside in Burkina Faso



*Khaya senegalensis* leaves used as fodder in Mali



Gum arabic harvested from *Acacia senegal* in Niger

# FGR and Food Security



## Contribution to food Availability

FGR support the provision of a wide diversity of food from forest plants and animals in many areas of the world

- Food production is the main purpose for growing trees or managing forest in some areas:
- Bush meat, edible insects contribute to food security in many tropical countries. Their continuous production depends on the preservation of forest trees and habitats.



**Borrassus sp. fruits fruit production in an agroforestry system**



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# Contribution to Food Availability



## Improve production with research:

Breeding & Domestication of wild food plants can support the increasing demand for food (*Tamarindus indica* (Tamarind), *Dacryodes edulis* (Safu), *Moringa oleifera* (Moringa), *Vitellaria paradoxa* (Karité)....)



Grafting, a domestication technology for trees



Improved moringa from india 14. 04. 2006

# FGR and Food Security



## Access to Food

**Gathering and harvesting** from forest and trees is an essential source of food for **indigenous and local communities** living inside or in the proximity of forest.

- Free access (gathering) of wild food by local and indigenous people.
- Women in particular play an important role in harvesting, processing and marketing of food harvested from the forest.
- Ethnic food (from wild plants) = opportunity for income generation.





# FGR and Food Security



## Stability

**Inter and intra specific diversity** needed to enable adaption and resistance to diseases and other negative factors and to improve production is conserved and managed in forest ecosystems.



Morphological variation of wild fruits  
(*Saba senegalensis*)



Tree seed cleaning in Madagascar



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## Stability

FGR are essential for the implementation of sustainable agriculture :

- Options for low input production
- Habitats and host plants for pollinators and useful insects
- Enhance rain water infiltration and reduce soil degradation



## Natural forest

- Protected forest
- National parks
- Biodiversity reserves
- Community forests

800 000  
Sp.

## Trees outside forest

- Small scale plantations
- agroforestry

## Planted forest

- Single species
- Clonal plantation
- Mixed species

600  
Sp.

## Trade off across FGR management options

Environmental services

FGR

Food  
production  
(NWFP)

No food products  
in highly intensive  
wood production

Intensified forestry (Wood production / unit area)

Harvesting  
from natural  
forest

Small scale  
/ Integrated  
production  
systems

Industrial &  
large  
plantations

FGR are key for achieving sustainability in food production.  
Production options should include a FGR conservation dimension to optimize sustainability, thanks to the unique environmental services they provide to the humanity



# FGR and Food Security



Thank you



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