



L'agroforesterie

un outil pour l'emploi?



L'agriculture: le géant silencieux

- L'agriculture et la foresterie ne contribuent que pour **4.8 %** au PNB global...
- Mais comptent pour ...
 - **≈ 30%** des émissions de GES
 - **≈ 50%** des emplois
 - **≈ 66%** de l'utilisation des terres
 - **≈ 75%** de l'utilisation d'eau douce!

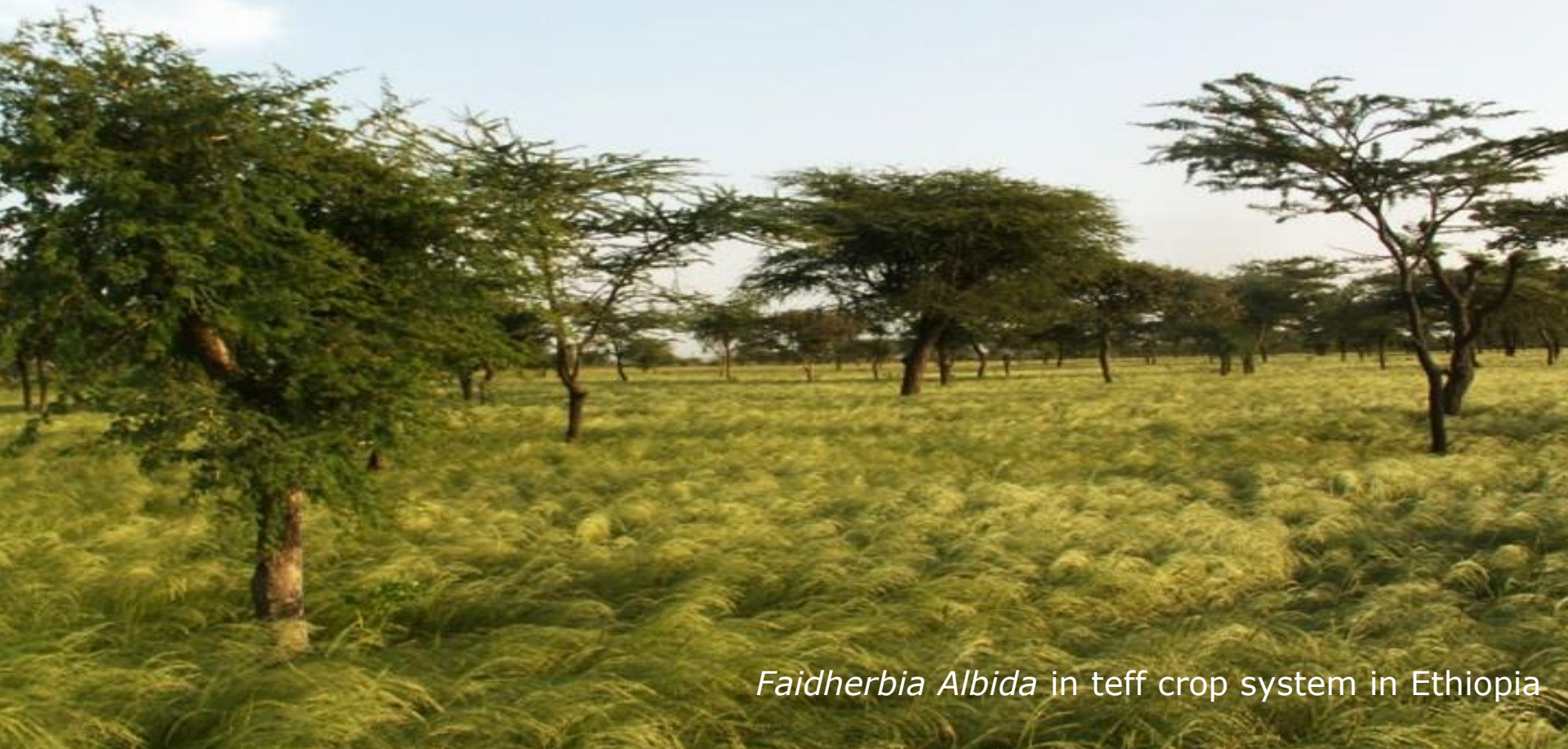


L'agriculture africaine

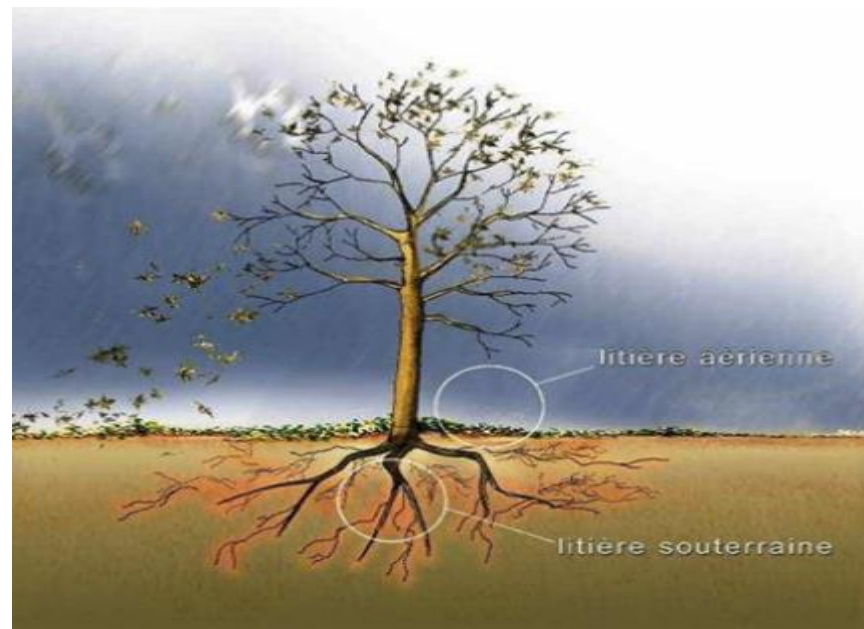
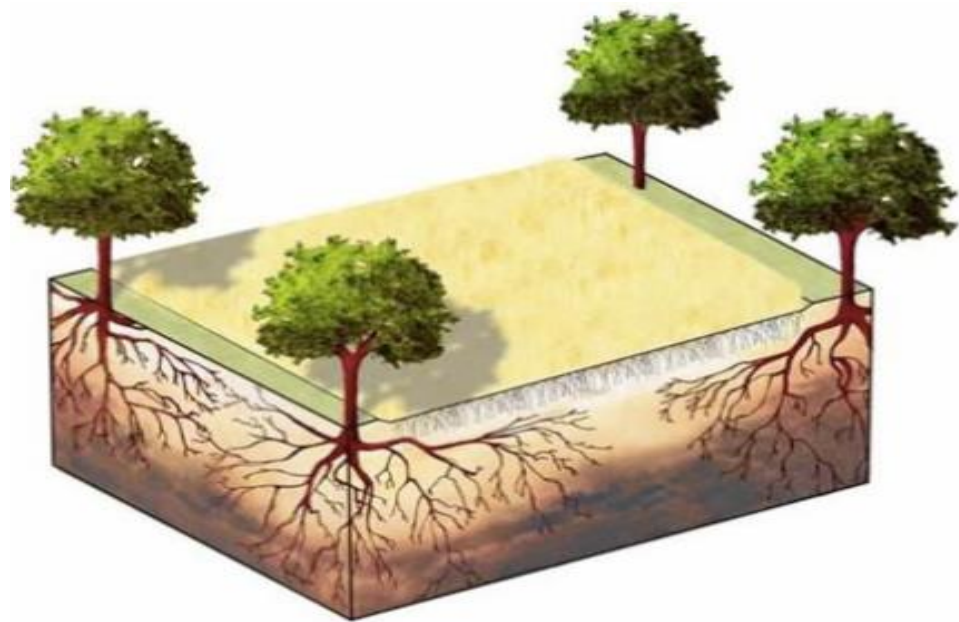
- La croissance des populations rends la jachère de plus en plus difficile
- La surexploitation des sols les épuise
- Dans les zones semiarides d'Afrique, la fertilité des sols diminue de 10-15% par an (*Bunch, 2011*)
- Les engrais inorganiques sont un luxe impayable
- Les subsides existent, mais sont aléatoires et insuffisants

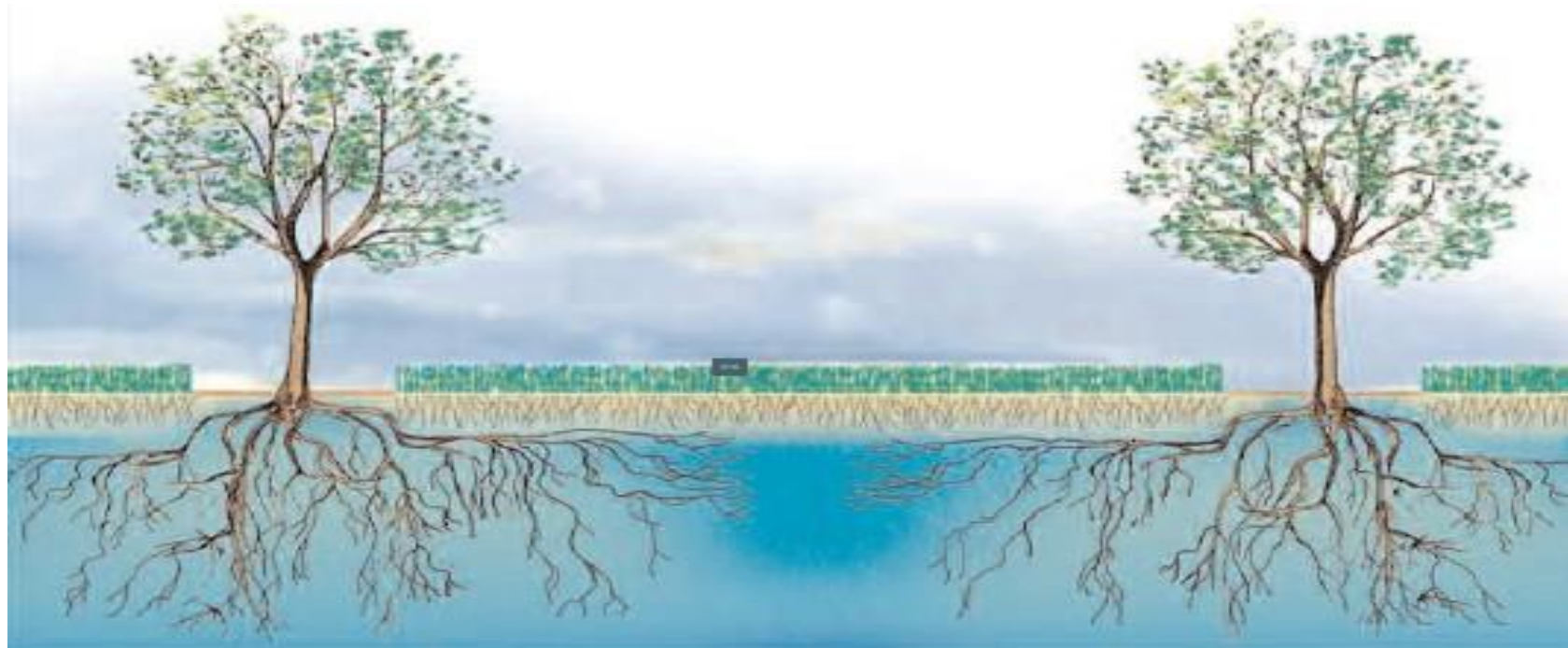
***D'ou viendra la fertilité des sols? La matière organique?
La résistance aux aléas climatiques?***

Des arbres.



Faidherbia Albida in teff crop system in Ethiopia



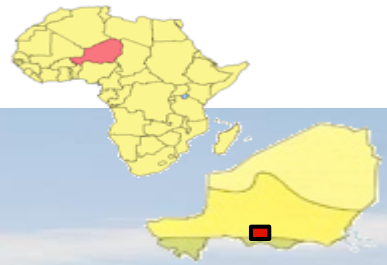


C Dupraz, P Liagre





Zinder, Niger, 1980s



Zinder, Niger, 2012.

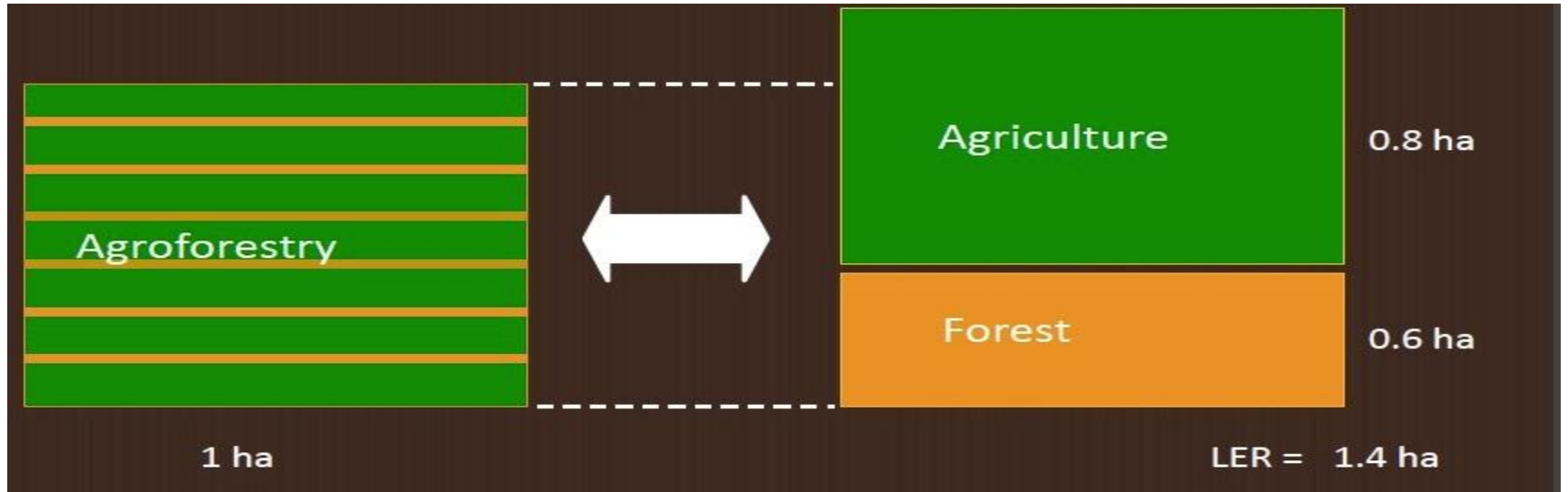
**Ces 5 million d'hectares de parcs
agroforestiers génèrent**

+/- 500,000 tonnes

de plus.

(Reij, 2012)

Concept clé: la Surface Equivalente Assolée





Climate-Smart Agriculture

Africa: A Call
to Action



agriculture,
forestry & fisheries
Ministry of Agriculture, Forestry and Fisheries
REPUBLIC OF ZIMBABWE



African Union
AGRICULTURE



CLIMATE CHANGE
AGRICULTURAL CENTRE
CCC



IFAD
Enabling poor rural people
to overcome poverty



THE WORLD BANK



World Bank
Institute



Africa: Maize-mixed

Aggregated Assessment

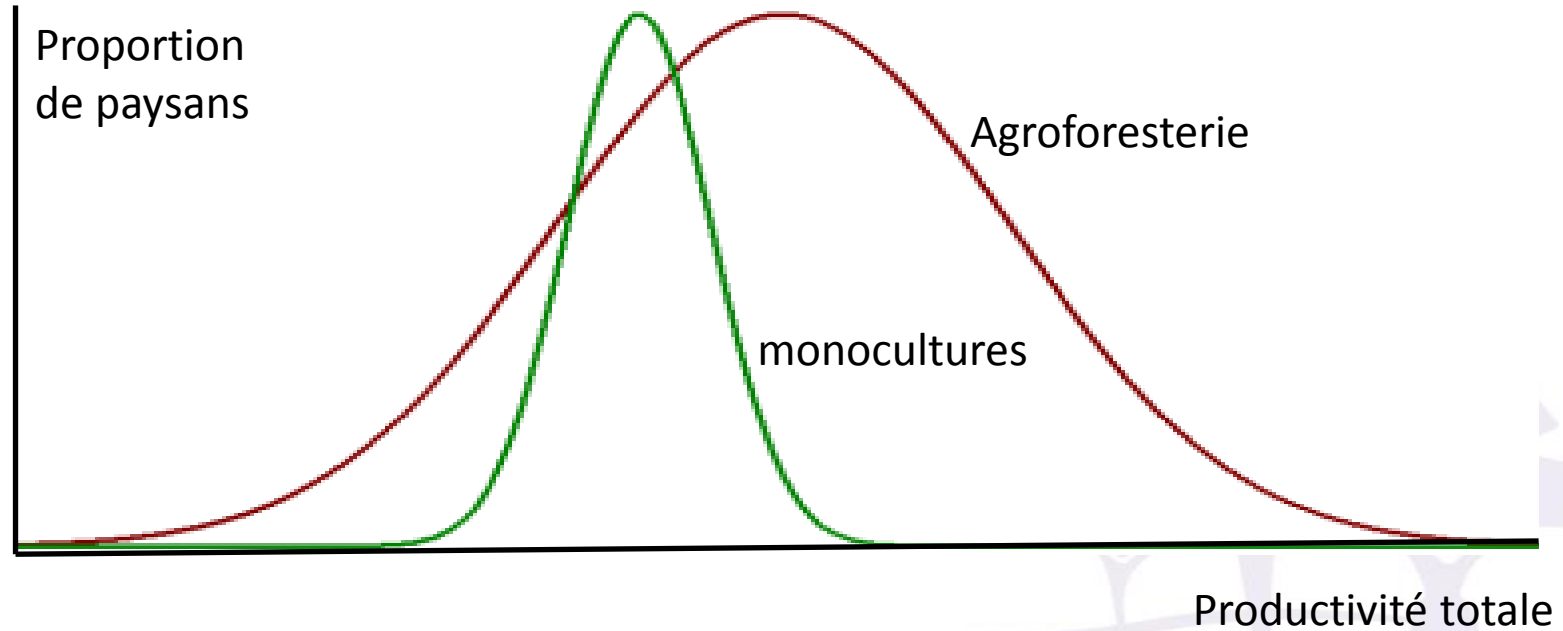
		Production	Resilience	Mitigation
	Practices			
Soil fertility	Nitrogen fertilizer (e.g. urea) ‡	+++	+/-	-
	Integrated nutrient mgmt. (e.g. banding, microdosing) ‡	++		-
	Reduced residue burning γ	++	+	++
	Reduced tillage / no-till γ	+	+	+
	Green manures (reduced fallow) γ	+++		
	Fertilizer trees (e.g. Faidherbia albida) γ	+++	+++	++
	Conservation agriculture (mulch, no-till, etc.) γ	++	++	++
	Conservation ag with fertilizer trees ‡	+++	++	+++
Grain, livestock, and fertilizer tree integration ‡		+++	++	++
Genetics	Improved crop variety (breeding, engineering) γ	++	++	-
Water use	Water pumps for irrigation (petrol) ‡	+++	++	--
	Irrigation techniques (amount, timing, technology) γ	++	++	+/-
	Microcatchment (e.g. Zai pits, microbasins, terracing) ‡	++	++	
	Rainwater catchment, storage, delivery (e.g. farm ponds) ‡	++	++	
Information Technology	Planting date recommendations γ	++	++	
	Sentinel warning systems (drought, pests) γ	+	++	







L'intrant clé en agroforesterie: le savoir faire.



Sumatra (Indonésie)



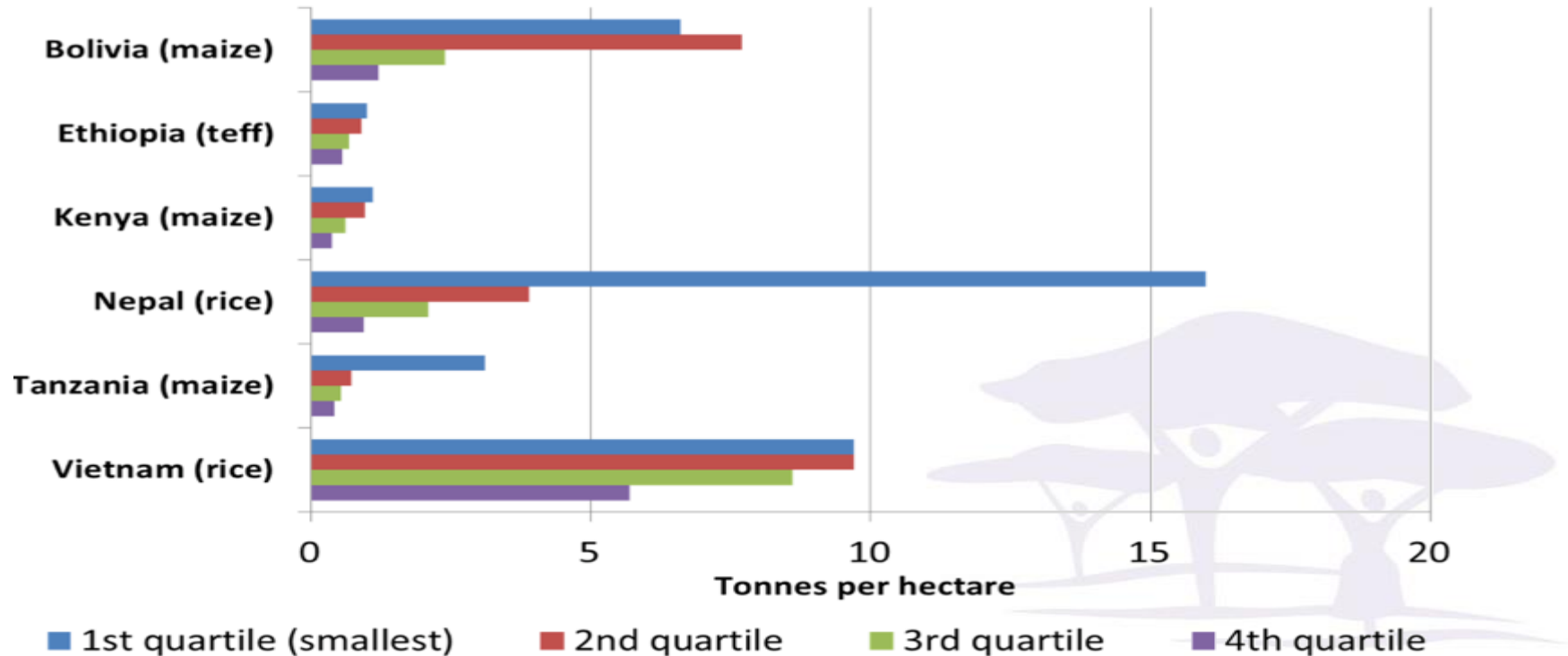
	Rubber plantation	Improved germplasm jungle rubber garden
Farm/plantation size	1,000 – 15,000 Ha	3 – 5 Ha
Income after costs Ha ⁻¹ Yr ⁻¹ (USD)	~ 800	~ 3,000
N° of value chains	1	> 10
Biodiversity ratio (compared to biodiversity of undisturbed local land)	~ 2%	~ 60%
Phytosanitation use	High	Low to nil
Social costs	Medium to high	Low to nil
Environmental costs	Very high	Low

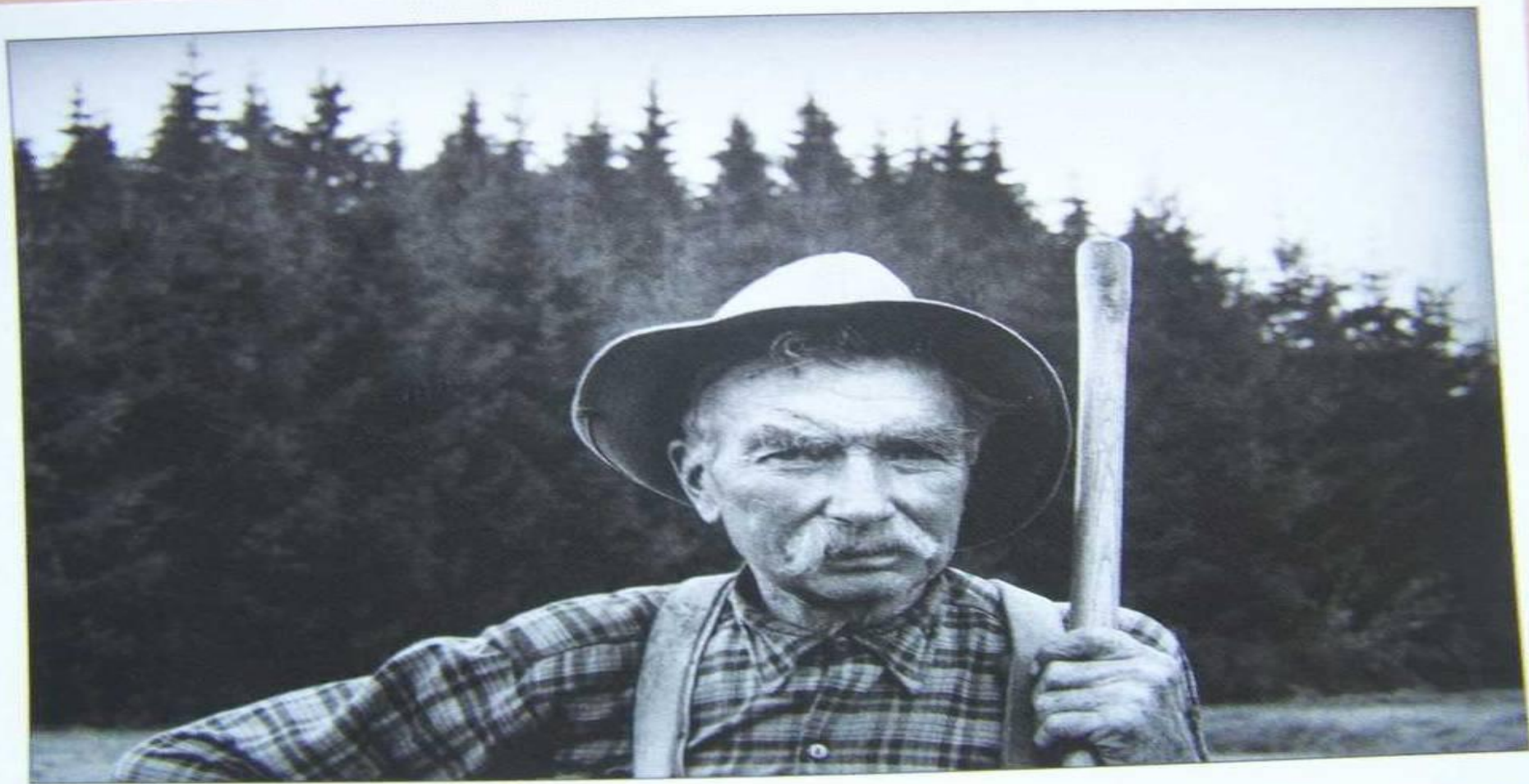


Leakey, 2012

En agriculture, David bat Goliath.

Selected crop yields, by farm size



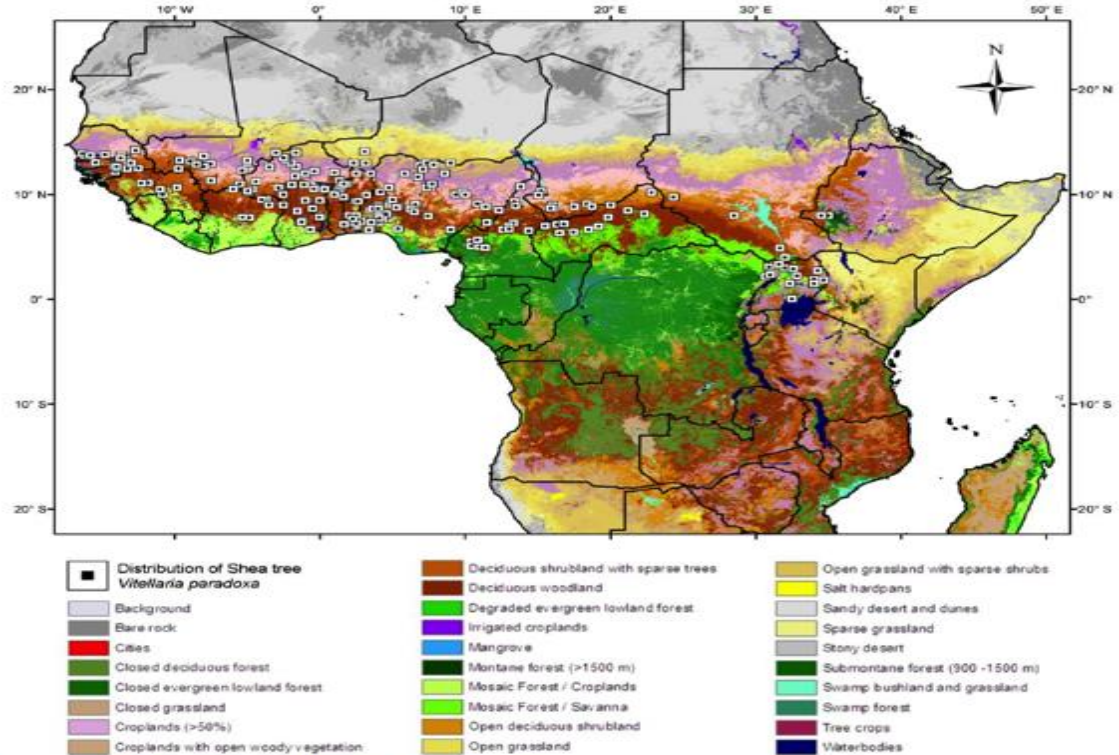


Des succès commerciaux: le karité ...

Production of almost 1 million tons,
exports of more than 350,000 tons
(at value of \$300 – \$500 per ton)

Much of the shea is used
domestically (fruit and kernel for
food)

1 million women involved in the
value chain in northern Ghana and
Burkina Faso



The Shea Tree in Agroforestry Parklands of SSA: Environmental Benefits
P. K. R. Nair

... et le bois de chauffe

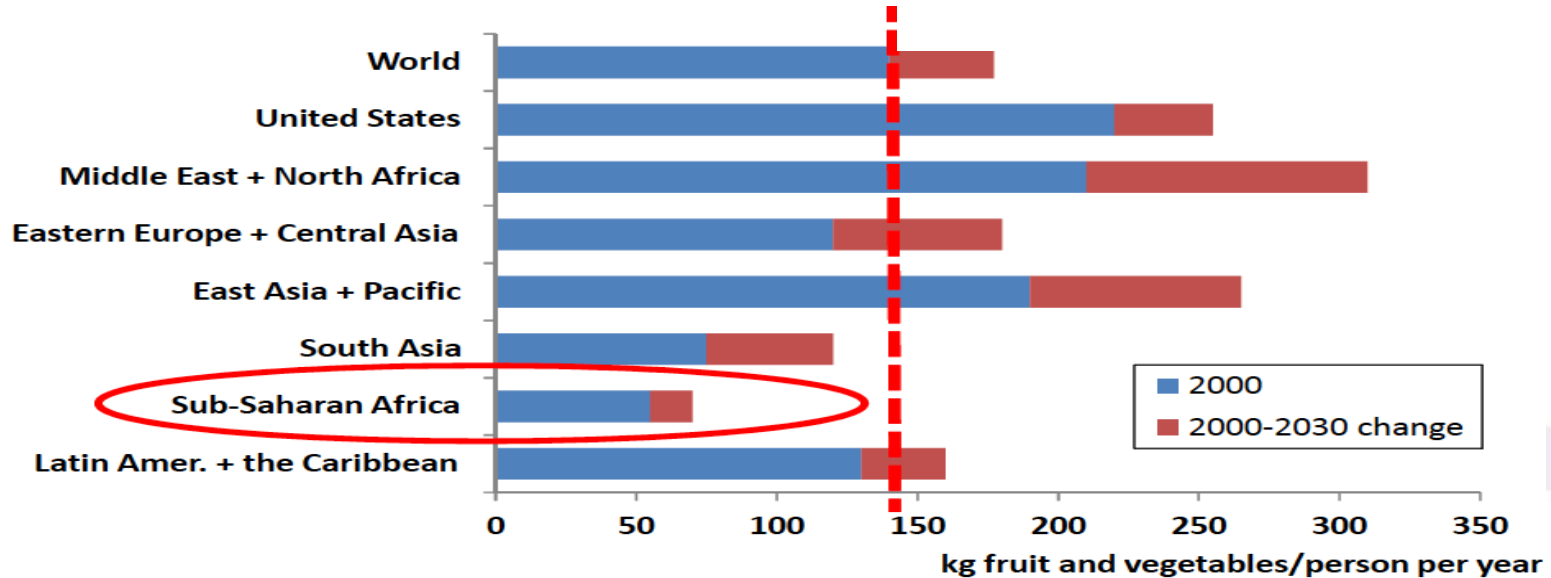
- Drylands produce much of the firewood and charcoal for local and urban consumption.
- In 2013, the retail value of charcoal used in Kenya was estimated at \$920 million (*Owen 2013*).
- By 2030, the charcoal market is predicted to exceed US\$ 12 billion, **employing 12 million people** (*World Bank 2011*)
- Wood as input to producing other types of energy is also emerging as a viable value chain

As agriculture expands, opportunities grow for farmers to increasingly participate to meet these growing demands



Place, F. 2013

Micronutriments. D'ou viendrons-ils?



Modified after: Msangi and Rosegrant 2011. Feeding the Future's Changing Diets.

D'arbres indigènes



Pourquoi? Parce que leurs fruits sont des bombes!

Species	Vit C (mg/100 g)	Vit A (mg/100 g)	Iron (mg/100 g)	Calcium (mg/100 g)
<i>Adansonia digitata</i>	150-500	0.03-0.06	1.7	360
<i>Grewia tenax</i>	N.A.	N.A.	7.4	610
<i>Tamarindus indica</i>	3-9	0.01-0.06	0.7	260
<i>Ziziphus mauritiana</i>	70-165	0.07	1.0	40
Mango	28	0.04	0.1	10
Orange	51	0.07	0.2	54

Et qu'on peut en avoir toute l'année

Tree species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<i>Irvingia wombolu</i>	■	■	■									■
<i>Cola spp.</i>			■	■	■	■	■	■	■			
<i>Dacryodes edulis</i>				■	■	■	■	■	■	■		
<i>Garcina kola</i>						■	■	■	■			
<i>Irvingia gabonensis</i>						■	■	■	■	■	■	■
<i>Ricinodendron heudelotii</i>								■	■	■	■	■

Souvent des espèces non domestiquées



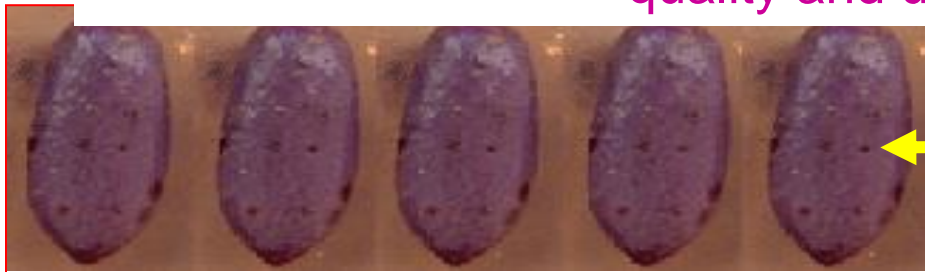
Variations
phénotypique
de fruits de
safou provenant
d'un seul village
(Cameroun)

Nous aidons les paysans à domestiquer leurs favoris



Simple and appropriate propagation technology

Creation of early fruiting, low stature, productive cultivars with high quality and uniformity



Cultivar meeting market specifications



Fruiting cultivar

Les centres de ressources ruraux



 **MIFACIG**
RESOURCE CENTER 

IFAD
INTERNATIONAL
FUND FOR
AGRICULTURAL
DEVELOPMENT 


WORLD AGROFORESTRY CENTRE
TRANSFORMING LIVES AND LANDSCAPES

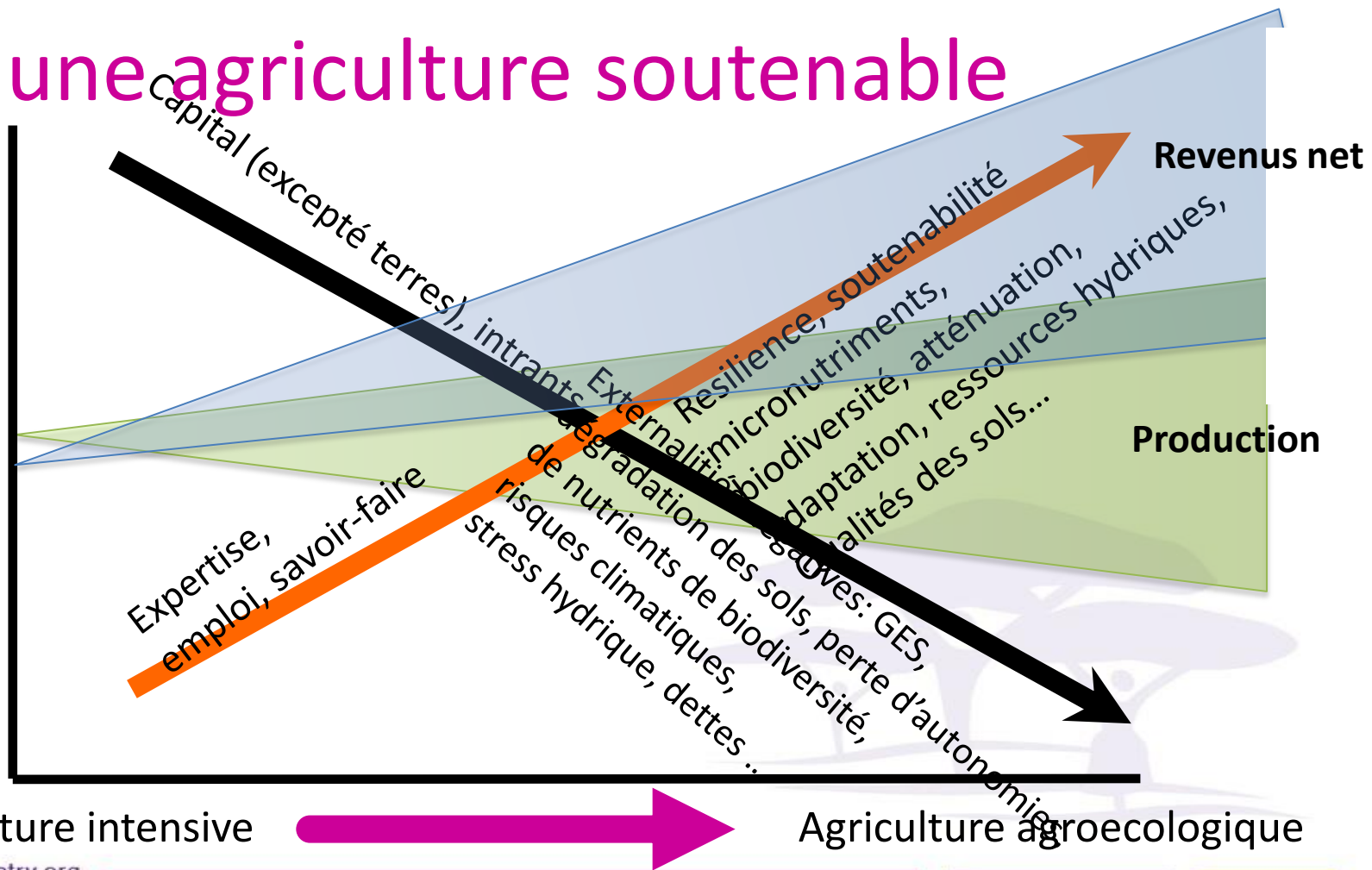
 UNIVERSITY OF BOKKOS
FACULTY OF AGRONOMY &
AGRICULTURAL SCIENCES
DEPARTMENT OF FORESTRY

**DOMESTICATION OF LOCAL FRUIT
TREES AND MEDICINAL PLANTS**

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Vers une agriculture soutenable



Merci !



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