World Agroforestry

Trees on Farms - Diversity for Nutrition

Stepha McMullin

Global Landscapes Forum
3rd June 2020

CGIAR RESEARCH PROGRAM ON Forests, Trees and Agroforestry

Agroforestry – trees on farms

Fodder

Food

Micro-climate

Carbon sequestration

Medicine

Fuelwood

Income

PRODUCTIVITY & RESILIENCE

Soil fertility

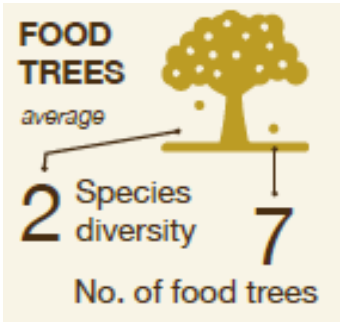
Biodiversity

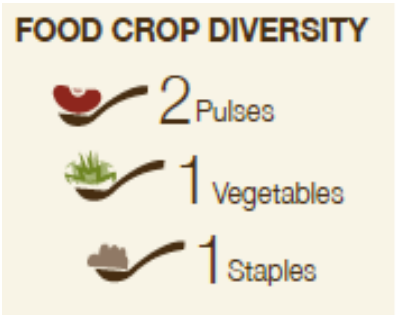
Erosion control

The *Portfolio* Approach – promoting diversity

These portfolios are combinations of indigenous and exotic food tree, and crop species - that could provide for year-round harvest and address key micronutrient gaps in local food systems.

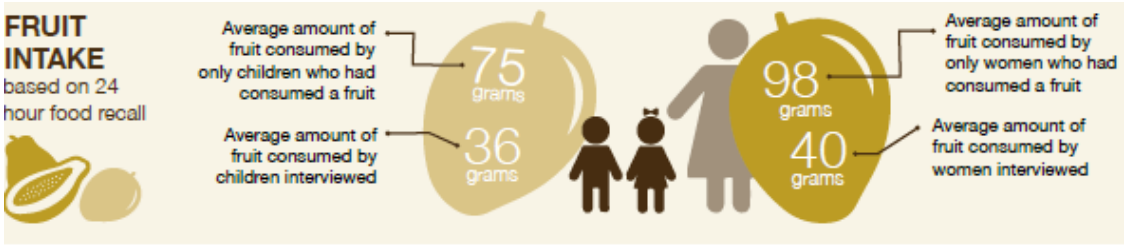
Generating evidence & priority setting: on-farm food production



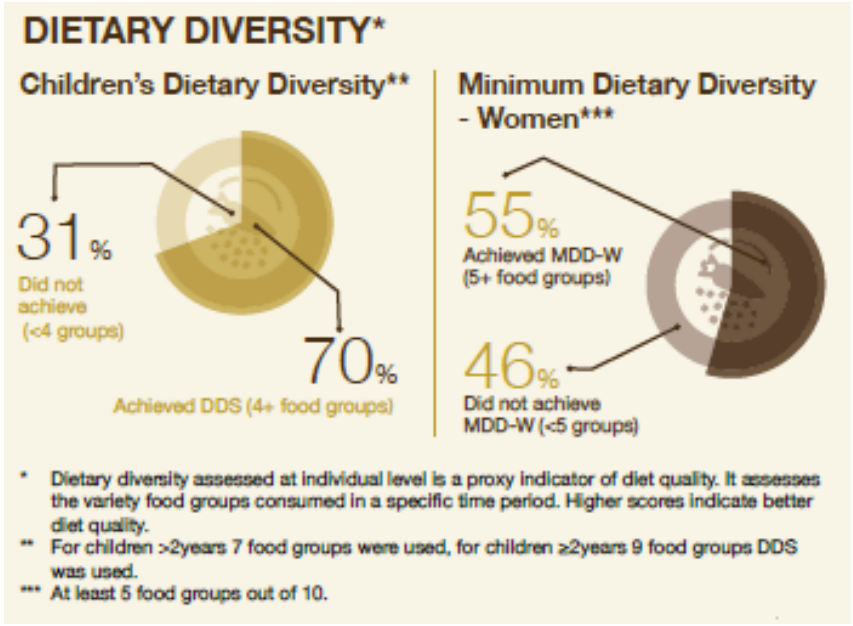


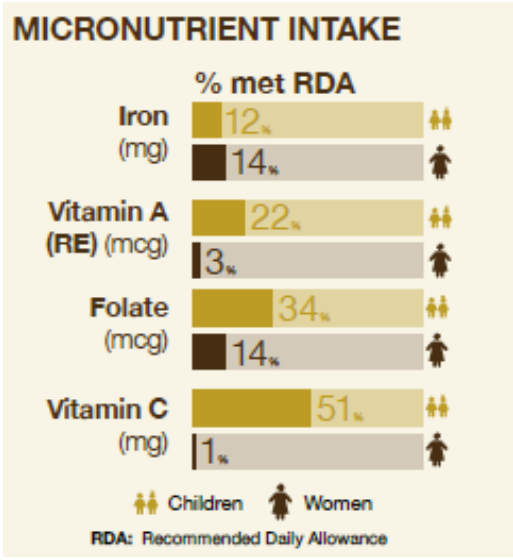
***Food trees: those that provide a variety of nutrient dense foods including fruits, leafy vegetables, nuts, seeds, & edible oils are important in local food systems. ** Example data from one site, Kitui West, Kitui County, Kenya (Source Food Tree Project)**

Generating evidence: local food consumption



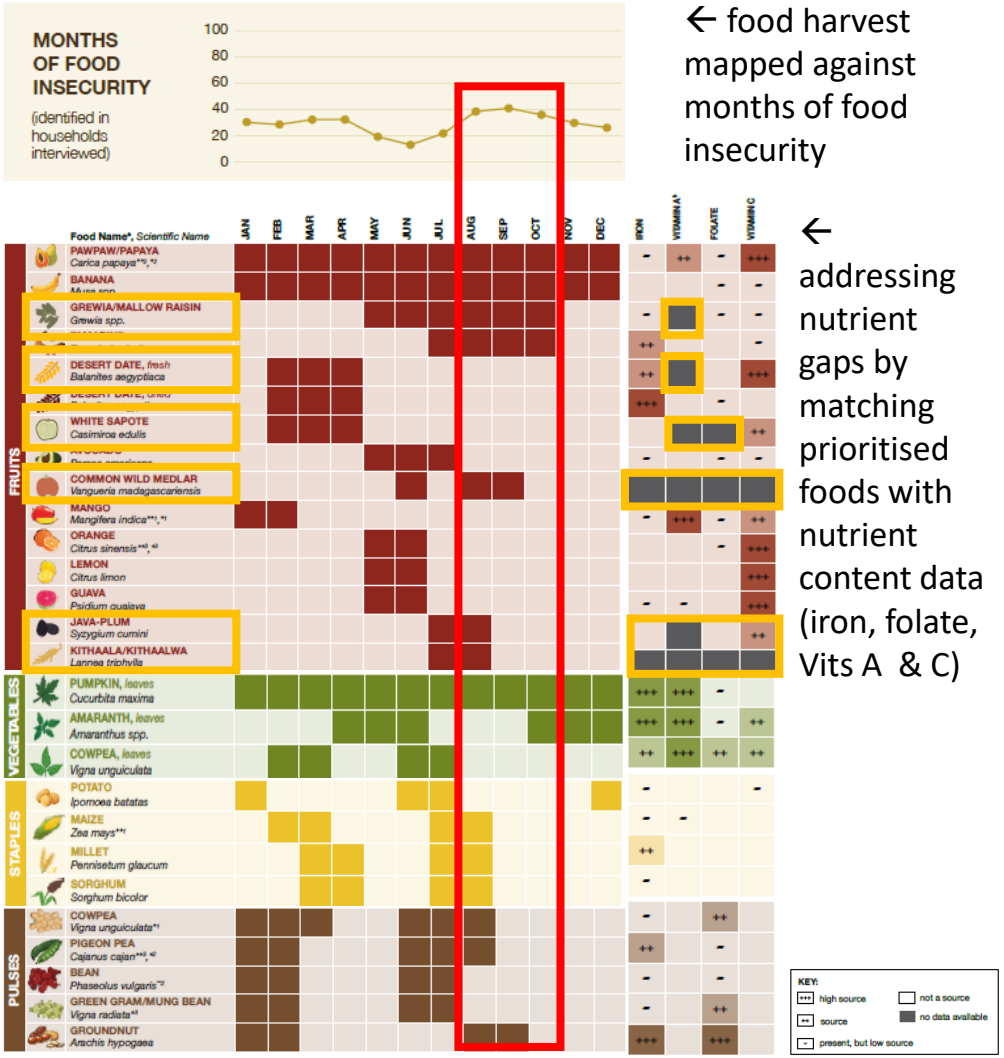
* of WHO recommended 200/400gram for fruit/vegetable intake





The *Portfolio* Approach – Customising recommendations

17 location-specific food tree and crop portfolios in East Africa developed →



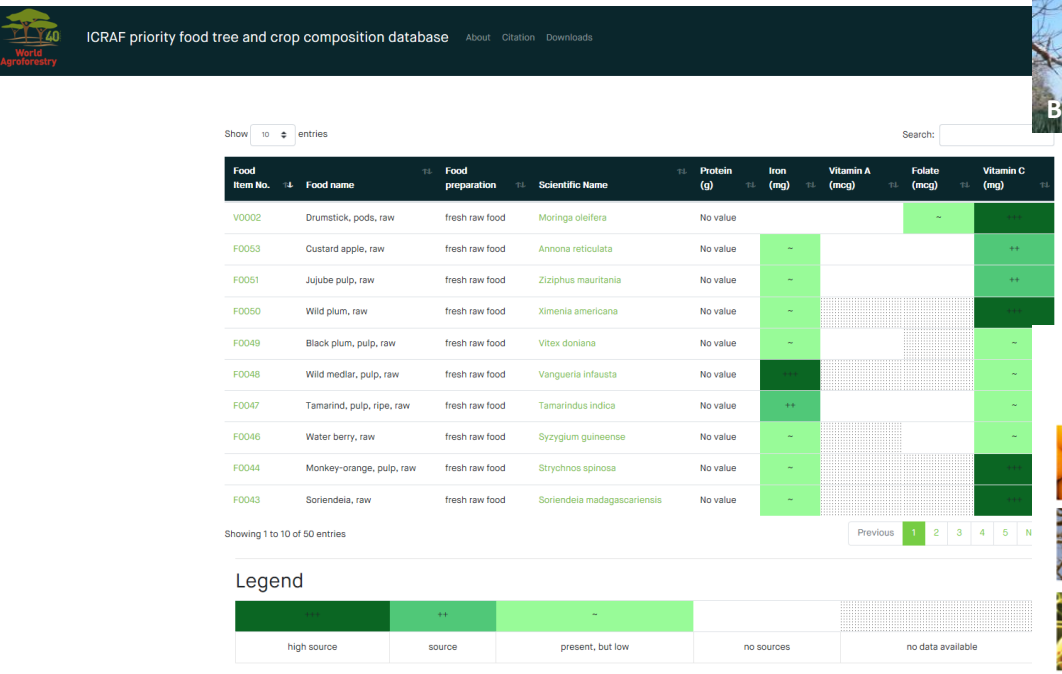
← food harvest mapped against months of food insecurity

← addressing nutrient gaps by matching prioritised foods with nutrient content data (iron, folate, Vits A & C)

http://www.worldagroforestry.org/project/foodtrees/publications

Nutritional value of indigenous & underutilised food tree and crop species

Database to support decisions



Food	Vitamin C (mg/100 g EP)	Vitamin A* (RE) (mcg/100 g EP)	Iron (mg/100 g EP)	Folate (mcg/100g EP)
Oranges, raw *(Citrus sinensis)*	**53**	22	0.1	30
Baobab, fruit pulp, raw *(Adansonia digitata)*	273		2.7	
Marula, fruit, raw *(Sclerocarya birrea)*	167		3.4	
Amaranth leaves, raw *(Amaranthus gangeticus)*	77	652	6.8	64

Vitamin A retinol equivalent (RE)*: mcg retinol + 1/6 beta-carotene + 1/12 alpha-carotene + 1/12 beta cryptoxanthin

FAO (2012) West African Food Composition Table. FAO Rome. FAO/Government of Kenya. 2018. Kenya Food Composition Tables. Nairobi, 254 pp. Nutrient composition of selected indigenous fruits from sub-Saharan Africa. Journal of the Science of food and Agriculture. Pictures © i Stock; © CIFOR

Source: Barbara Stadlmayr

http://www.worldagroforestry.org/products/nutrition/index.php/home

- Diversity of exotic & indigenous species in database highlights the relevance of agricultural biodiversity to support nutritious diets.
- Nutrient content data important for domestication and breeding programmes, to select highly nutritious species.

Capacity & outreach: quality planting material

Schools & Youth

Agroforestry Innovation Hubs

Community tree nurseries

- The *Portfolios* are a recommendation for promoting greater diversity of food tree species and crops on farms.

- This approach, and the Database can support decision-making for selecting species for food security, nutrition & income.

- Importance of indigenous & underutilised species for their nutritional value, & resilience in current and future food systems should not be overlooked.

Thank you

s.mcmullin@cgiar.org

https://www.foreststreesagroforestry.org/news-article/priority-food-tree-and-crop-food-composition-database/

http://www.worldagroforestry.org/blog/2019/11/29/year-round-micronutrients-ten-species-fruit-trees-are-better-just-few

http://www.worldagroforestry.org/news/using-agroforestry-address-seasonal-food-and-nutrient-gaps-communities-case-study-kenya

http://blog.worldagroforestry.org/index.php/2015/08/04/first-fruit-tree-portfolios-established-in-kenya-in-a-novel-approach-to-improve-year-round-nutrition/

World Agroforestry (ICRAF),
United Nations Avenue, Gigiri,
P.O Box 30677-00100, Nairobi, Kenya
Phone: +254 20 722 4000
Fax: +254 20 722 4001
Email: icraf@cgiar.org
Website: www.worldagroforestry.org

World Agroforestry

CGIAR RESEARCH PROGRAM ON Forests, Trees and Agroforestry

IFAD Investing in rural people

CGIAR Science for a food-secure future