Livelihoods and wider social benefits. Experiences from the Trees For Food security Project

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When, Where & Who?

A four year (2017-2021) Regional project
Countries Rwanda, Ethiopia, Uganda
Funded by ACIAR

Aim: To improve food security and smallholder livelihoods through the widespread adoption of appropriate locally adapted agroforestry practices
The Context

Environmental degradation, fragile ecosystems, water scarcity, landslides, low systems productivity.

Variability in climate, markets, policy, Institutions, knowledge.

Low quality, less diverse and inadequate planting material germplasm.

Great demand for tree products

Capacity gaps in various institutions
Projects Theory of Change

Theory of change. Activities in red boxes, outcomes in blue, impacts in green
Rural Resource Centres and satellite nurseries

The challenge
- Limited quantity and quality germplasm
- Low species diversity
- Limited capacity

Achievements
- **Five RRCs and 18** satellite nurseries established.
- Production of over **1.8 million** diverse (14-28) tree seedlings; from satellite nurseries over 80%
- **Training hubs**, with 817, 1505 and 1250 farmers (with the female – male ) rations of 1:2; 1.1 and 1:3 been trained in Ethiopia, Rwanda & Uganda respectively
- **Peer learning**, social gathering and demonstration plots
- Income generation from seedlings

![Graph showing species diversity and tree seedlings production for Ethiopia, Rwanda, and Uganda.](image)
Ethiopia RRC- Business, partnerships, and scaling

Ziway RRC 2015
Megerissa group 10 members 50% female & male
• Jobs for women and youth,
• Income in 2018 from sale of fruits & vegetables sales, 35,080 Birr- (1250 $)
• Operate a demonstration plot
• Trainings and peer learning

Bako RRC- 2016
Replicated from Ziway
Job for women and jobless youth, income fruits & Coffee seedlings trainings and peer learning

SCALING

New RRCs requests
Government committed to scaling up RRC Projects, AGBIO project, Government Other NGOs, Private Mine companies
Why tree tomato

- **Malnutrition** 38% among children under five years
- **Short growing** period unlike other fruits 10-12 months
- **Great demand** BUT low yields
- Poor and limited quality germplasm and varieties
- Poor management and disease

The Intervention

- Provision of **quality germplasm** of various varieties,
- **Training** of proper management for disease control
- **Scaling out** of Tree tomato growing in Bugesera

Outcome

- 6000 farmers growing tree tomatoes (20-3000 plants/ farmer)
- **Increased production** 15-20 kg tree tomato per tree
- Increased consumption- 0.5-1 kg per day per family
- Adopted in model villages

The Change

- Pay school fees
- Pay health insurance for the entire family
- House rehabilitation
- Buy clothes
- Reduce malnutrition
- Open an account in local Bank Sacco

**Emmanuel Tuyizere (Rweru)** “I started with 500 trees and now I have more than 15,000 trees on my 2.5 ha piece of land this success has been as a result of the training I received from the project on tree planting, tree management and record keeping’. On average I earn a net of 150,000 RWF (185$) per month.

**Clemena Mukarugwira (Kadahenda)**

“I planted tree tomatoes through the support of the project and after selling the produce, I was able to acquire health insurance and membership in a SACCO. This enabled me pay school fees for my children I harvest at least 20kg of tamarillo fruit every season, three times a year and sells at RWF 500 per kg (USD $0.64).
Agroforestry boosting climbing beans yields in Rwanda

**The issue**

**Great demand** for beans - 29 kg person\(^{-1}\) Yr\(^{-1}\)  
**Highest** 
**Limited land** - 0.3 ha to 0.6 ha  
**Limited stakes** for Climbing beans - *Pennisetum purpureum* *(Weak)* and less durable - besides also in great demand as fodder. - One cow per poor family  
Climbing beans produces -0.5-2 times more

**Project Interventions**

**Alternative sources of stakes** *Acacia augusitissima, Alnus acuminata* and *Vernonia amygdalina.*  
**More durable, strong, vigorous growth & green**  
**Scaled out** climbing beans production to Bugesera district, 83 farmers.  
Average yields 0.9 t ha\(^{-1}\) - 1.1 t ha\(^{-1}\), compared to bush bean yield is 0.4 t ha\(^{-1}\) - 0.6 t ha\(^{-1}\)  
**Increases household income / saving by 50-100%** from beans, 30 stakes of *Alnus* 4$ dollars while 45 *Pennisetum* costs 1.7 $.  
Additional source firewood, green manure and fodder
Wheat under *Faidherbia* canopies, to pollard or not

**Why Faidherbia?**

- Important AF parkland species in Ethiopia
- Has reverse phenology
- Diverse uses including fodder and fencing
- BUT: Farmers in Mojo heavily pollard it

*Faidherbia* wheat – microclimate effect

1. Pollarding should be discouraged
2. Training on right level of pruning required
3. Alternative for fencing necessary

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1. Pruning significantly decreases tree water uptake and wheat yield and soil moisture tree canopy (Assefa under rev Agric systems)

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In *F. albida* influences microclimate-cooling and enhances wheat yields wheat yield under the tree (,Sida et al 2017, Assefa under review)
Pruning *G. Robusta*, saves water & Increases maize yield

**Context**
Bugesera—Low rainfall and limited land
Competition between trees—*Grevillea robusta* and crops
Maize yields under trees low—crop failure
Limited knowledge on tree pruning

**Aim**
Impact of tree pruning on Water use and maize productivity – 36 farmers

**Implication**
Pruning reduced water use of Grevillea by over 100%
Increases maize yield 4.7 t ha⁻¹ (P) against 2.8 t ha⁻¹ (NP); under canopy
Farmers taken up tree pruning in Bugesera—socio change
Pruning’s source of firewood & Income

Comparable tree crop interactions studies going on in Uganda, where *Cordia africana* and *Albizia coriaria* monthly total sap volumes are 360-450L and 600-960L respectively. (Buyinza et al. 2018)
Specialty coffee. Two IPs: Mt. Elgon women in coffee IP and Chema coffee IP in Kapchorwa
Partners Adelaide University, coffee roaster/buyer from Australia Adam Marley & Makerere University
Key elements – Trainings (3) on land care, conflict management, business skills, managing dairy for profit, training on quality picking (103 pickers, 470 producers)

Benefits
Income - Four tons quality cherries processed to 800 Kg specialty coffee- Income UGX 9.6m- 2550$
Bought a new electronic coffee grinder, repair of old pulper, new pulping machine
Saved to buy more cherries and equip the station
Cohesive farmer groups able to engage with buyers and sellers
THANK YOU


Trees for food security Data repository site in: Dataverse https://dataverse.harvard.edu/dataverse/T4FS

Forests, Trees and Agroforestry (FTA): http://www.foreststreesagroforestry.org/