

Intensification and diversification of banana production systems: Key drivers for increased income and food and nutritional security in the Great Lakes region

Introducing the legacy product

The African Great Lakes region is a secondary centre of banana diversity. Production is constrained by poor agronomic practices exacerbated by climate change. Hence household food and income security is low. Coupled with small farm sizes and high rates of population growth, agricultural intensification and diversification is needed. Integrating livestock, trees, legumes and vegetables backed by capacity development and appropriate extension materials has significantly increased and diversified banana-based system productivity in the region.

Utility of the legacy product

Fallowing is not feasible due to high population pressure, thus agricultural intensification is needed to feed the growing population. Building more productive and resilient farming and food systems to increase and diversify production and consumption is feasible but requires targeted investments in nutrient inputs, smart crop combinations, conservation of the fragile natural resource base and training of farmers on appropriate technologies along the value chain. These investments further benefit from the use of improved varieties coupled with the integrated management of pest and diseases.

How does it work?

The International Institute of Tropical Agriculture (IITA) in collaboration with the International Transit Center (ITC) of Bioversity International hosted at Katholieke Universiteit Leuven (KULeuven) introduced improved and elite varieties including vitamin A bananas. This is backed by science-based information on integrated approaches for sustainable intensification and training to enhance local capacity. Training materials and tools are developed while NARS and NGOs are engaged in technology transfer and capacity building for farmers through associations and cooperatives. Private sectors are involved in the supply of inputs and take up products while enabling environment is ensured by policy makers.

Results and outputs

The benefit-cost ratio (BC ratio) indicates that banana intercropping with vegetables is more profitable (5.35) followed by coffee (4.79) and common bean (4.44). If the BC ratio is greater than 1, the production system is suitable because the benefits, measured by the value of the total revenues (inflows), are greater than the costs, measured by the value of the total outflows. Follow up studies are underway in the target community to affirm any changes with regards to consumption patterns and nutrition status during the intervention period. Inclusion of shade- and drought tolerant food and feed crops is being evaluated for year-round use of available space, light and soil moisture especially when banana already has developed a dense canopy.



Banana intercropping with coffee and in association with vegetables and legumes for maximum whole plot productivity and diversification for increase income and food and nutritional security.



Key partners



Introduced improved varieties including vitamin A bananas backed by science-based information on integrated approaches for sustainable intensification and training to enhance local capacity

Key contacts

Njukwe Emmanuel (E.Njukwe@cgiar.org)
 Ekesa Beatrice (B.Ekesa@cgiar.org)
 Ocimati Walter (W.Ocimati@cgiar.org)
 Blomme Guy (G.Blomme@cgiar.org)
 Kamira Muller (mkamira2@yahoo.fr)
 Amah Delphine (D.Amah@cgiar.org)
 Swennen Rony (R.Swennen@cgiar.org & Rony.Swennen@kuleuven.be)
 Okafor Chris (C.Okafor@cgiar.org)
 Ndayisaba Pierre Celestin (pierrec.ndayisaba@gmail.com)

Who is the legacy product useful for?

Smallholder farmers are primary beneficiaries of this legacy product as they seldomly plant in an appropriate combination and density for maximum whole plot productivity and year-round cultivation. In addition, control strategies have been fine-tuned through a better understanding of the Xanthomonas wilt of Banana epidemiology and farmers sensitized to adopt improved and quality planting material. This work is a legacy product from Humidtropics that fits well in the CRP RTB *agric food systems* flagship for food, income and nutrition security. In environmental terms, by virtue of the genetic resistance of improved varieties to pests and diseases, no chemical control that could harm the environment and the people is needed.