Multi-Crop production system: Intercropping Strategies for Banana and Plantain

Improved system production for better yield

Intercropping, growing bananas or plantains alongside other plants, offers farmers numerous benefits but also poses challenges like nutrient competition, disease spread, and careful handling during planting and harvesting to avoid root damage.

Banana with common bean understory (Credit: B. Dhed'a)

International Institute of Tropical Agriculture (IITA)
Rony Swennen

✓ This technology is **TAAT1 validated**.

5·7 Scaling readiness: idea maturity 5/9; level of use7/9

Inclusion assessment 4

Climate impact 7

Problem

- Competition for nutrients and water
- Weed proliferation
- Soil degradation and erosion
- Vulnerability to pests and diseases
- Dependency on external inputs
- Susceptibility to extreme weather
- Loss of biodiversity

Solution

- Allows for early yields before banana crops, while suppressing weeds.
- Canopies and roots protect against soil erosion.
- Legume intercrops provide nitrogen through biological fixation.
- Biomass from intercrops serves as mulch and organic nutrients.
- Intercropping diversifies farmers' income sources.
- Reduces disease spread, Enhances soil health.
- Strengthens food systems' resilience.…

Key points to design your program

This multi-crop production system combines banana or plantain with compatible companion crops to improve land productivity, diversify household income, and strengthen climate resilience. It can be integrated into banana and plantain value chain development, agroecology, food security, sustainable intensification, climate-smart agriculture, and rural livelihood programmes. By improving resource-use efficiency, restoring soil fertility, and reducing production risks, the technology strengthens household resilience while creating new economic opportunities for women and smallholder farmers. It supports SDGs 1 (No Poverty), 2 (Zero Hunger), 3 (Good Health and Well-being), 8 (Decent Work and Economic Growth), 12 (Responsible Consumption and Production), and 13 (Climate Action).

To successfully integrate this technology, consider the following key actions:

- Identify banana and plantain production areas where diversified cropping systems can improve productivity, soil health, and household income.
- Establish partnerships with IITA, ProPAS, research institutions, extension services, and farmer organizations to support locally adapted intercropping systems.
- Strengthen technical capacity through Farmer Learning Platforms on intercrop design, integrated crop management, and soil fertility improvement while promoting demonstration sites and farmer learning networks.
- Monitor improvements in land productivity, crop diversification, household income, soil fertility, technology adoption, and programme outcomes.

IP

Open source / open access

Technology from

ProPAS

Commodities

Bananas & plantains

Sustainable Development Goals

2 ZERO HUNGER
3 GOOD HEALTH AND WELL-BEING
8 DECENT WORK AND ECONOMIC GROWTH
13 CLIMATE ACTION
1 NO POVERTY
12 RESPONSIBLE CONSUMPTION AND PRODUCTION

Categories

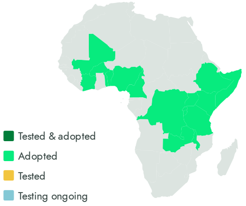
Production, Practices, Weed management, Soil fertility

Best used with

Biofortified Beans for Improved Nutrition, Orange-Fleshed Sweet Potato (High provitamin A), Disease resistant cassava varieties, High yield rice varieties for Africa

See all 4 technologies online

Tested/adopted in



Where it can be used

This technology can be used in the colored agro-ecological zones.