

Greater banana diversity contributes to capacity development and improved rural livelihoods in Africa

Why banana diversity matters:

- One of the most important food commodities in the tropics
- Global production: 145 million tonnes (FAO 2014)
- 85% is produced by smallholders for local consumption
- Increasing monoculture = greater vulnerability

What we need to do:

- Conserve the diversity
- Broaden the genetic base for breeding
- Promote the use of diversity



Banana production in Africa

The two major areas of production in Africa are East/Southern and West/Central Africa. **Uganda is the world's third-largest producer** with around 9.5 million tonnes (cooking and beer bananas (photo top left)). Although bananas originate from the **Asia-Pacific region**, the diversity of **plantain** cultivars is highest in **West/Central Africa**, where they are a major diet staple. African banana farming is primarily for **subsistence**, often in small garden plots (photo right).

Threats to banana production

A lack of cultivated diversity leaves banana highly **vulnerable to pests, diseases** and other risks. **Banana Xanthomonas wilt**, a bacterial disease that has spread across the East African region, is devastating and hard to control (bottom far left photo). **Fusarium wilt (Tropical Race 4)**, a lethal fungal disease already present in many banana producing regions, has recently spread to Africa (bottom centre photo). Abiotic stresses, such as **drought**, are common in Africa and often wipe out the most susceptible banana varieties.

Bioversity International

Bioversity International delivers **scientific evidence**, management practices and policy options to **use and safeguard** agricultural and tree biodiversity to attain sustainable **global food and nutrition security**. Together with our **international, regional and local partners**, we work throughout the tropical belt in which bananas thrive: South and Southeast Asia, Pacific, East and South Africa, West and Central Africa, Latin America and the Caribbean.

Bioversity's banana genebank

The **International Musa Germplasm Transit Centre (ITC)** is the world's largest collection of banana germplasm, which contains more than 1,500 accessions (varieties in a collection) of edible and wild species of banana, hosted at the Katholieke Universiteit Leuven (KU Leuven), Belgium (right photo). The ITC is considered the richest source of banana diversity globally and also serves as a transit centre and **safety backup for national banana collections**.

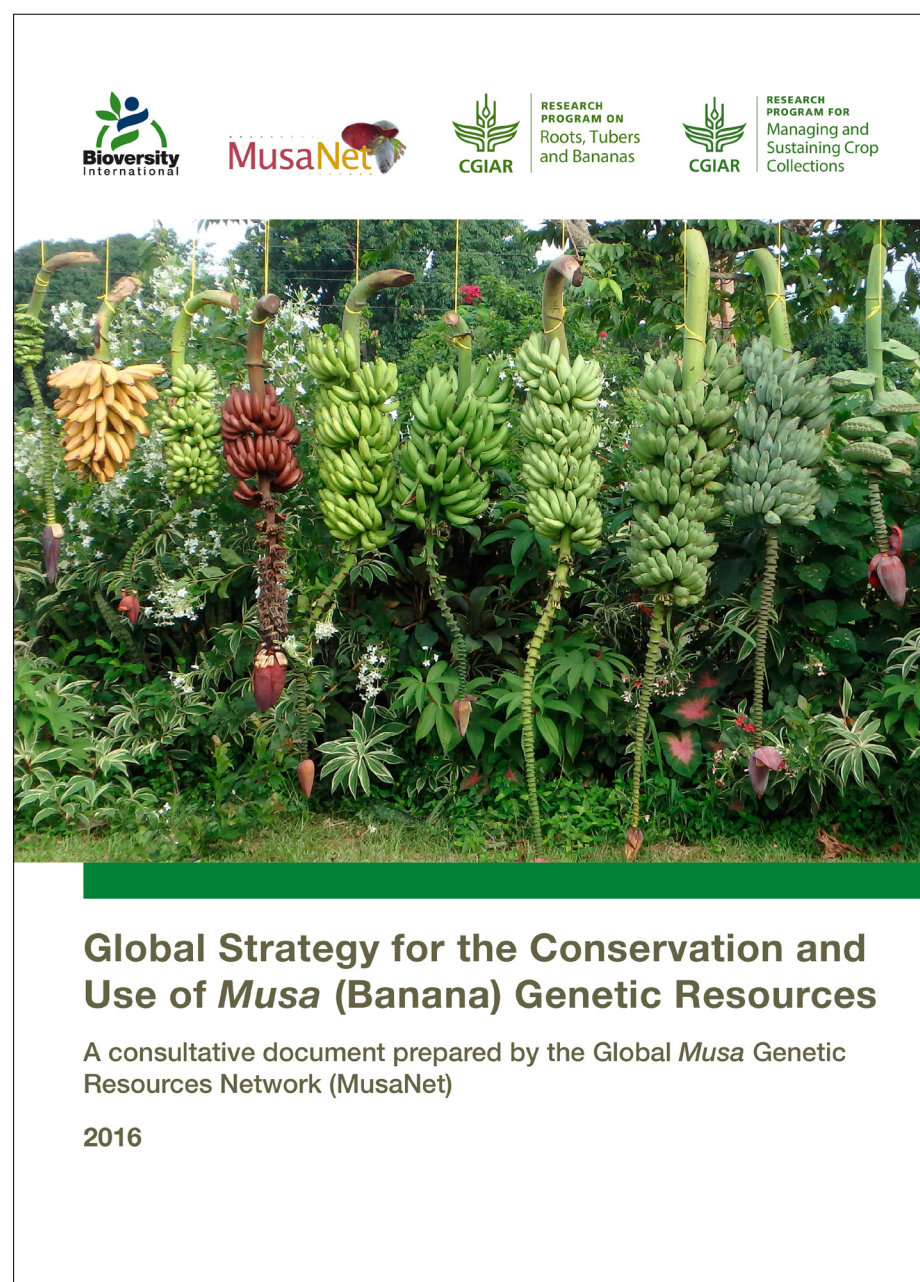


Strengthening local capacity: MusaNet

MusaNet is a global network of stakeholders striving to ensure the long-term **conservation and use** of *Musa* genetic resources.

The network includes **experts** from all branches of *Musa* research and works closely with the two African regional networks **BARNESA** and **Innovate Plantain**.

MusaNet provides a collaborative framework for the implementation of the **Global Strategy** for the Conservation and Use of *Musa* Genetic Resources (left photo).



Training workshops

Two recent MusaNet workshops took place in Africa (at Centre Africain de Recherche sur les Bananiers et Plantains (**CARBAP**) in Cameroon and at the National Agricultural Research Organization (**NARO**) in Uganda) which provided training in field characterization and documentation for over **30 African national and regional Musa collection curators** (centre photos).

New tools and methods

During the workshops, new descriptors for the morphological characterization of two important subgroups in Africa (**Plantains** and **East African Highland Bananas**) were developed and tested by the curators. Handheld **tablets** and software (**MusaTab**) specifically developed for this exercise were piloted with great enthusiasm (right photo).



Working with NARS and farmers

Maximum banana diversity has been **introduced, maintained and characterized** in the East and Central African regional *Musa* collection in Mbarara, Uganda (NARO). Bioversity International's work there focuses on two areas:

- 1) Varieties with potential for **disease resistance** are introduced from the ITC genebank. Traits sources are identified, followed by the development of improved male parents, development of improved hybrids, and finally **farmer participatory evaluation** and variety promotion (left photo).
- 2) Where diversity is low, varieties from the ITC are sent to National Agricultural Research Stations (**NARS**), where they are evaluated on farm and then released to farmers by the **Ministry of Agriculture**. Examples are the cultivars 'Yangambi KM5' (right photo) and 'FHIA 25', which have shown resistance to disease.