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 combined) (FAO 2014). 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.

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 (East African Highland Bananas and East African High Guinea 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. Trade 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 XMB’ (right photo) and ‘PHIA 25’, which have shown resistance to disease.