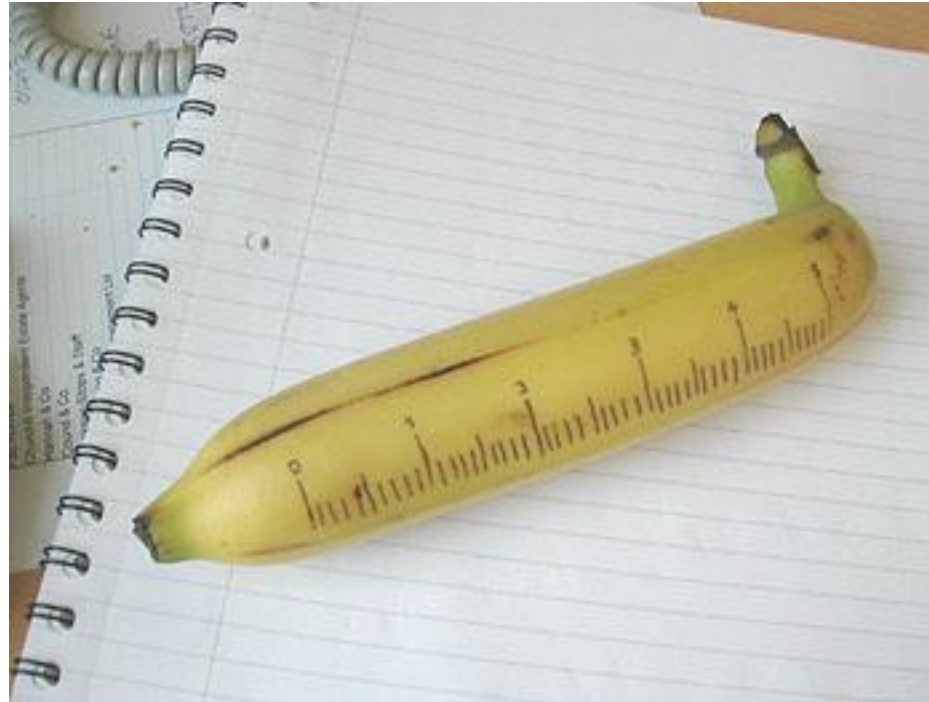


Evaluation Thematic Group



Miguel Dita & Kodjo Tomekpe

Stages and levels of Germplasm Evaluation:

1. In situ assessment of genetic resources and compilation of indigenous traditional knowledge, to guide early selection and acquisition of new accessions with relevant traits into collections
2. Preliminary evaluation of accessions in ex situ collections, recording relevant observations on basic traits, such as general performance in the specific environment or fruit quality
3. Targeted screening of a wide range of germplasm for specific traits of interest through phenotyping and genotyping, including high-throughput mass-screening under controlled conditions
4. Evaluation in early stages of selection and preliminary yield trials to assess the performance of accessions for specific traits under field conditions
5. Advanced yield trials in multiple locations to fully assess the influence of the environment and growing conditions on the performance of promising accessions
6. Farmers' participatory trials in target end-user environments to select end-user-preferred accessions for cultivar release and wide-scale adoption

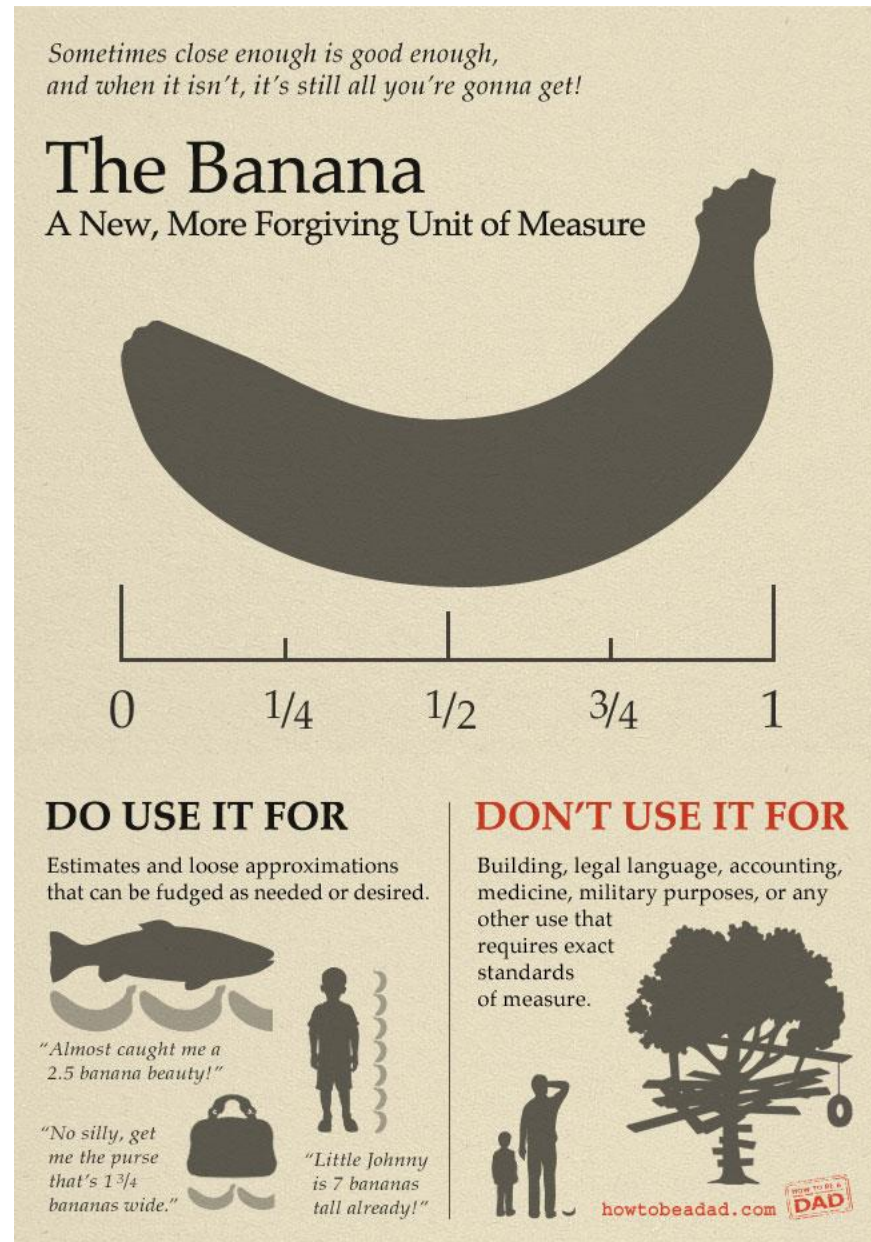
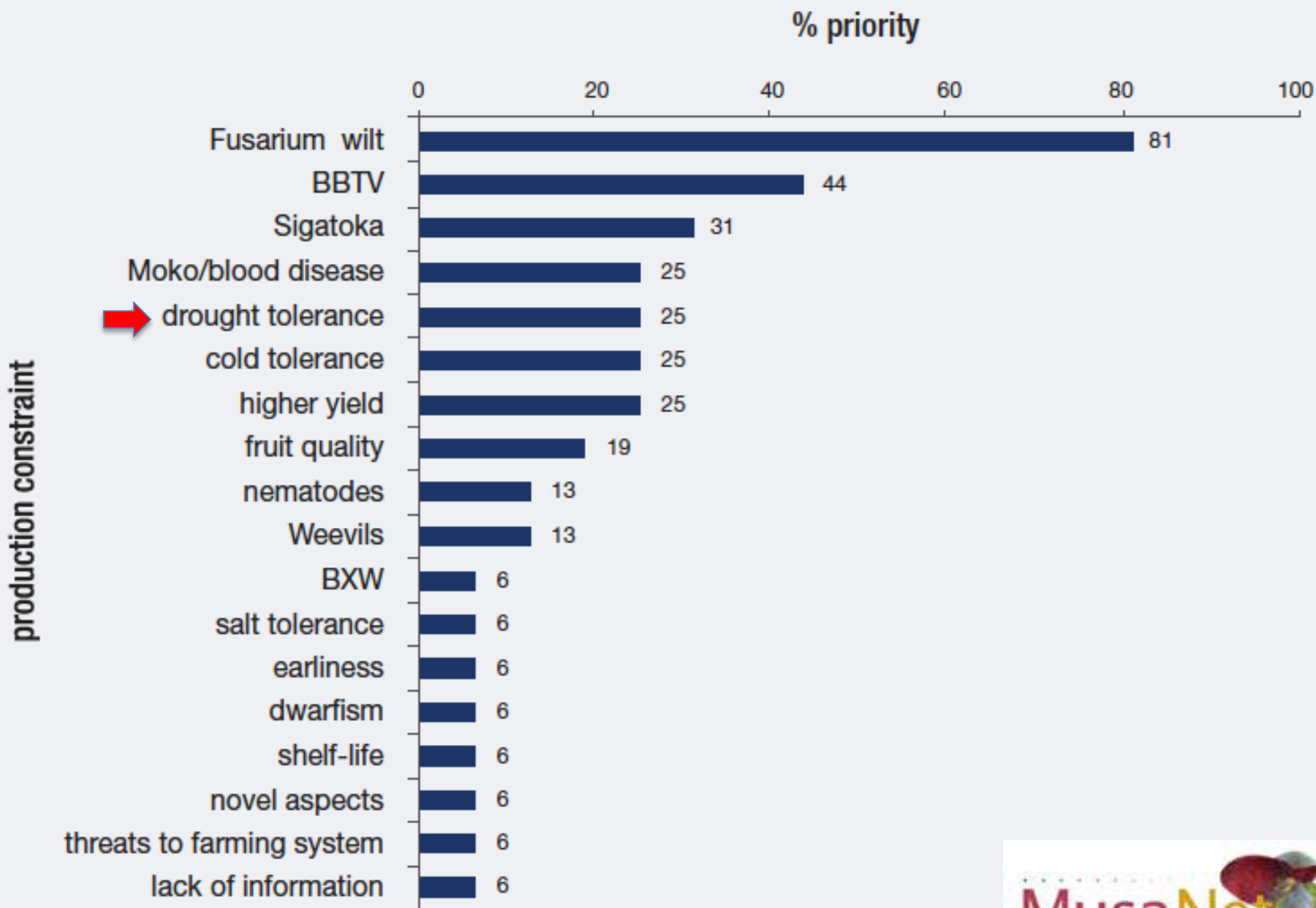


Figure 11.1. Priorities assigned to the major production constraints by the participants of the MusaNet/Trust Bogor meeting in 2012.



Importance of different types of constraints by region

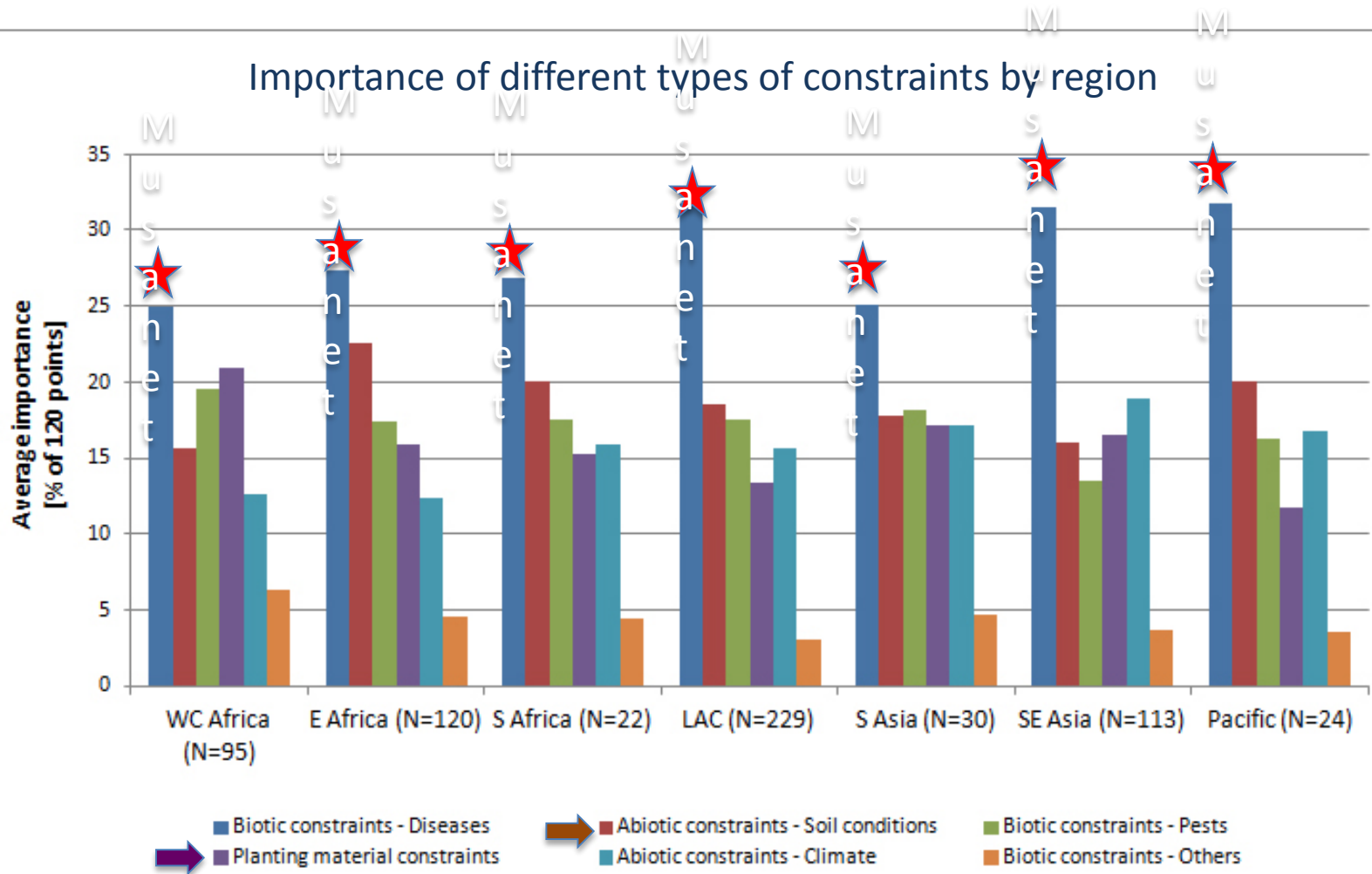


Figure 11.2. Main production constraints per region, as identified by the 2013 RTB online research priority setting survey.

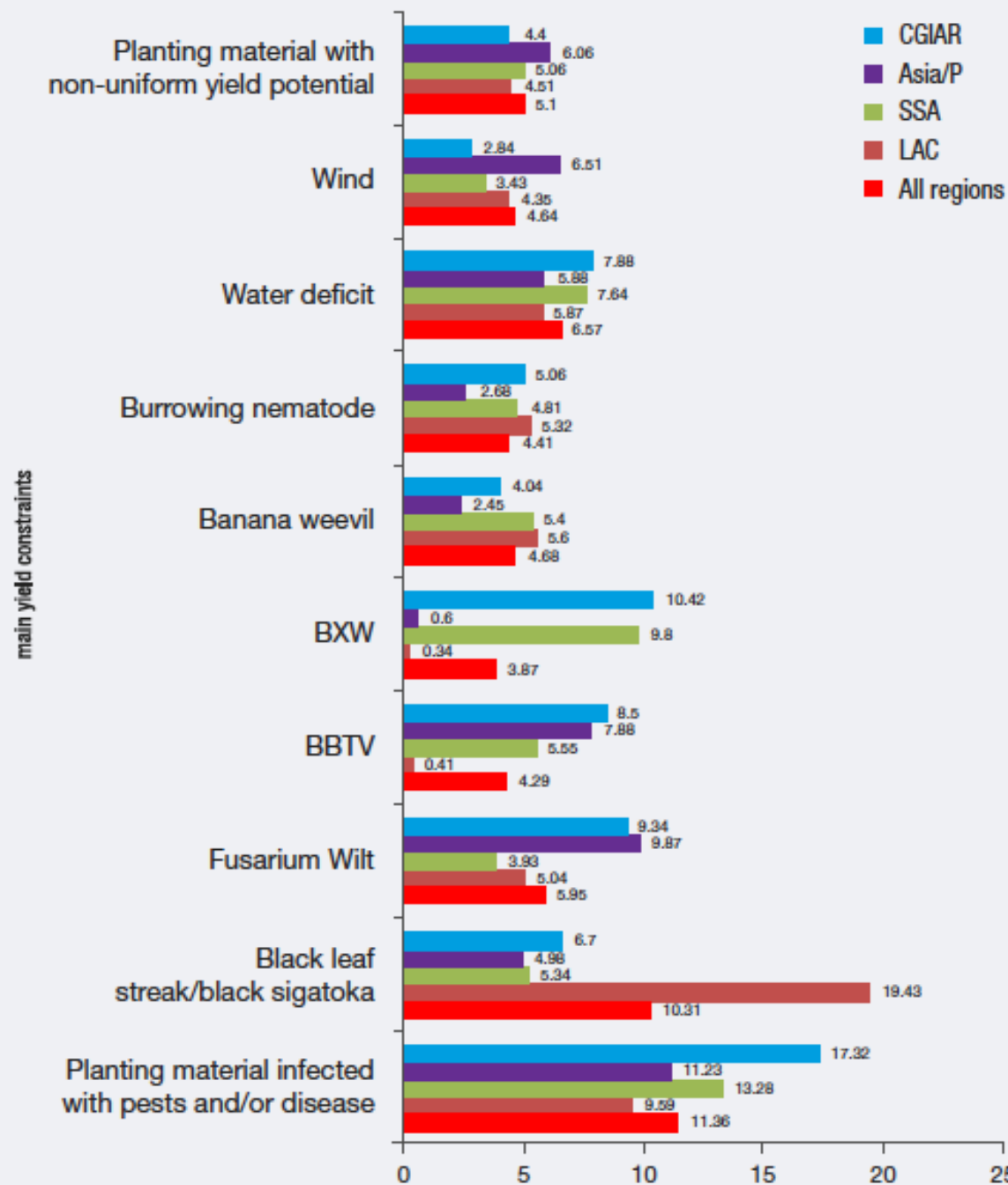


Table 11.3. *Proposed objectives and actions for Musa evaluation.*

Specific objectives	Actions
1. Comprehensive assessment of currently available evaluation data	<ul style="list-style-type: none"> • Review of literature on evaluation of <i>Musa</i> genetic resources • Review of currently available phenotypic and genotypic evaluation data information in MGIS and other collection databases • Identify major gaps in knowledge in terms of traits and accessions
2. Standardization of evaluation protocols	<ul style="list-style-type: none"> • Review currently available phenotyping/genotyping methodologies for evaluation of priority traits • Identify gaps in evaluation methodologies; identify for which traits and/or types of evaluation good protocols are not available • Develop and agree on a set of standard “best-practice” protocols for priority traits, and enter standardized traits/methods in Trait Ontology • Agree on a set of standard check genotypes for all trials • Identify a set of well characterized (climate, soil conditions, etc.) reference trial sites
3. Set up framework for data compilation and analysis	<ul style="list-style-type: none"> • Compile existing evaluation data in <i>The Global Agricultural Trial Repository of CCAFS</i> (AgTrials) (www.agtrials.org) • Ensure link between AgTrials and MGIS • Ensure link between AgTrials and Trait Ontology • Engage in global analyses for germplasm performance and GxE interactions
4. Information and knowledge sharing	<ul style="list-style-type: none"> • Make available and pro-actively share information and knowledge with the broader <i>Musa</i> research community and other users/stakeholders, in collaboration with MusaNet’s Information Thematic Group and the global network ProMusa (www.promusa.org) • Make available a database search tool for information on different varieties that are being screened, such as agronomic, climatic and quality characteristics, in order to help priority setting in the regions.

Data Generation !

What are the current needs in the ETG?

• Specific actions

- It is necessary to undertake a **comprehensive survey of available information** (including grey literature where a lot of the information can be found) on evaluation of germplasm. The preliminary list of publications or available data needs to be completed, relevant information needs to be compiled and shared within the Evaluation Group. This step is a prerequisite to prioritizing trait of interest/importance on a global and regional basis.
- Several sources are privileged, **namely literature search, available data for existing data bases, collections and experimental data.**
- On the basis of the survey undertaken in step 1, an **analysis of the exploitation of available data relative to evaluation in different environmental conditions** needs to be undertaken
- This could be implemented by each member of the Evaluation Group on the basis of his expertise. [**Working groups**]
- The identification of evaluation protocol for the main traits concerned is the next step. Several protocol or approaches exist, new ones need to be developed (e.g. evaluation for abiotic stress, post-harvest...) **BLSD, FW, Drought**
- Again, this could be implemented by (i) each member of the Evaluation Group on the basis of his expertise and current facilities, (ii) developing specific partnership. [**Working groups**]
- On the basis of available information, user needs etc, **a project of global importance will be identified. \$\$\$** It will require close collaboration between different partners in different regions (and probably different MusaNet Groups)
- Similarly, a major project need to be identified for each zone identified as hot spots of poverty. [**Relevant selection areas with capability**]

2016 - 2021

ETG Team

17 MEMBERS

Name	Affiliation	Country	Region	Expertise	Traits of interest
NGOH NEWILAH, GÉRARD	CARBAP	Cameroon	Africa	Post-harvest	Post-harvest
ROBOONI TUMUHIMBISE	NARO	Uganda	Africa	Breeding	Foc, BLSD Varietal selection
TURNER, DAVID	University Western Australia	Australia	Asia	Physiology	Physiology general
ZHEN SIJUN	Bioversity	China	Asia	Pathology	Foc, BBTv, Drought, Fruit quality
VIDA SINOHIN	Bioversity	Philippines	Asia	Pathology	Foc, BLSD
DANIELLS, JEFF	DAF	Australia	Asia	Pathology	Foc
DRENTH ANDRE	UQ	Australia	Asia	Pathology	Foc
Weinert Mathew	DPI NSW	Australia	Asia	Entomology	Varieties performance
CARPENTIER, SEBASTIEN	KUL	Belgium	Europe	Drought	Drought, Cold, Fruit quality
CARREEL, FRANÇOISE	CIRAD	France	Europe	Black Sigatoka	YLSD, BLSD
KEMA, GERT	WUR	Netherlands	Europe	Pathology	Foc, BLSD, BBTd
VAN DEN BERGH, INGE	Bioversity	Belgium	Europe	Pathology	Participatory varietal selection and
TOMEKPE, KODJO (Co-chair)	CIRAD	Guadeloupe	LAC	Breeding	Foc, BBTv, Drought, Fruit quality; Varietal selection
AMORIM, EDSON	EMBRAPA	Brazil	LAC	Breeding	Foc, BLSD, Varietal selection
DITA, MIGUEL (Chair)	EMBRAPA	Brazil	LAC	Pathology	Foc, BLSD
DUFOUR, DOMINIQUE	CIRAD	Colombia	LAC	Post-harvest	Fruit quality
PEREZ VICENTE LUIS	INISAV	Cuba	LAC	Pathology	Foc, BLSD

ETG Team

Name	Affiliation	Country	Region	Expertise
NGOH NEWILAH, GÉRARD	CARBAP	Cameroon	Africa	Post-harvest
ROBOONI TUMUHIMBISE	NARO	Uganda	Africa	Breeding
TURNER, DAVID	University Western Australia	Australia	Asia	Physiology
ZHEN SIJUN	Bioversity	China	Asia	Pathology
VIDA SINOHIN	Bioversity	Philippines	Asia	Pathology
DANIELLS, JEFF	DAF	Australia	Asia	Pathology
DRENTH ANDRE	UQ	Australia	Asia	Pathology
WEINERT MATHEW	DPI NSW	Australia	Asia	Entomology

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ETG Team

Name	Affiliation	Country	Region	Expertise
CARPENTIER, SEBASTIEN	KUL	Belgium	Europe	Drought
CARREEL, FRANÇOISE	CIRAD	France	Europe	Black Sigatoka
KEMA, GERT	WUR	Netherlands	Europe	Pathology
VAN DEN BERGH, INGE	Bioversity	Belgium	Europe	Pathology
TOMEKPE, KODJO (Co-chair)	CIRAD	Guadeloupe	LAC	Breeding
AMORIM, EDSON	EMBRAPA	Brazil	LAC	Breeding
DITA, MIGUEL (Chair)	EMBRAPA	Brazil	LAC	Pathology
DUFOUR, DOMINIQUE	CIRAD	Colombia	LAC	Post-harvest
PEREZ VICENTE LUIS	INISAV	Cuba	LAC	Pathology

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Priorities

1. Define working group and WG leaders
2. Define traits and dead lines [W-plan]
3. Agree on the ETG strategy

1. BLSD, YLSD, Freckle
2. Fusarium Wilt
3. Drought and cold Tolerance

Gracias