20 March 2015

International Workshop on Crop Agrobiodiversity Monitoring

Dates: 23–25 March 2015
Venue: Agropolis International, Montpellier, France
Organizers: Arcad, Bioversity International, Cirad, IRD, with the support of Agropolis Fondation, FEDER Lanquedoc-Roussillon, INRA and Montpellier SupAgro

The status and trends of crop agrobiodiversity have been widely debated over the last decades. Fifty years ago, a worldwide massive effort to develop large *ex situ* collections was not only based upon the need to conveniently access crop diversity for breeding but also on the assumption that the increasing release of high yielding varieties as well as multiple other changes in agricultural landscapes would rapidly endanger the maintenance of landraces and crop wild relatives. While this assumption proved sensible for some crops in various parts of the world, attention given to *in situ* conservation and on-farm management since the 1990s has generated numerous studies that demonstrate that the world's farmers have continued to maintain a considerable capital of crop biodiversity.

Developing the ability to assess the current status of crop diversity and understand its modifications due to global and local changes is required to support strategies to restore and maintain the health of agro-ecosystems. One key driver to better monitoring of agrobiodiversity is to secure the long-term access by farmers to the diversity that supports the resilience of their farming systems.

Assessments of agrobiodiversity must occur from a local scale (e.g. households, landscapes) to regional scale (e.g. river basin) and at a global level (e.g. CBD Aichi biodiversity targets). Research needs to study the functional role of the biodiversity that supports the resilience of ecosystem services and the interaction between species. Additionally, characterization of the adaptive potential and the evolutionary dynamics of crop diversity and its drivers, is needed in the context of global changes.

Therefore, the development of global information systems for *in situ* conservation and for on-farm management (see the recent consultation by ITPGRFA) cannot be envisioned without the identification of the most relevant variables for various stakeholders to measure and monitor for a given objective, indicating for each: what purpose it has, at what scale, how it is measured, at what cost, and to whom is it important.

Over the last few years, new tools and approaches have been mobilized to characterize the extent of crop diversity and its dynamics (DNA technologies, GIS, multidisciplinary research, crowdsourcing, remote sensing, etc.) and sizeable datasets have been gathered.

In this context, scientists are invited to identify the elements required for agrobiodiversity monitoring that will provide meaningful data and knowledge, including the monitoring of processes affecting the evolution and dispersal of agrobiodiversity. The discussion will include how the monitoring of ABD can support research on ecosystem services resilience. To this end, participants will share their experience, methods and results. The workshop should lead to developing collaborative proposals.

More specifically, issues addressed during the meeting will include:

- Scale of agrobiodiversity monitoring
- Review of methods and data available for ABD monitoring
- Identification of new promising approaches
- Identification of methodological gaps: which variables to study? At which scale? Which indicators are available or need to be developed? How many monitoring sites for a given scale?
- Integration of various stakeholders in the monitoring methods and processes: expectations, needs and means
- What information systems are needed to support the monitoring: information systems, knowledge base, monitoring system, decision-making tools?

The expected outputs of the workshop are:

- Identification of key shared objectives and research questions for the monitoring of agrobiodiversity
- Feasible plans and methods to address them
- Identification of the core types of relevant indicators
- Identification of stakeholders to engage and how
- Collaborative project proposals

Organizing team

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