

Harlan III

3-7
June
2019

SupAgro Montpellier
France



www.harlan3symposium.org

ABSTRACTS BOOK

Program - Abstracts - Lists of participants

Third Jack R. Harlan International Symposium

Dedicated to the Origins of Agriculture
and the Domestication, Evolution,
and Utilization of Genetic Resources

WELCOME ADDRESS

On behalf of the Organizing committee, it is our pleasure to invite you to **Montpellier in June 2019 for the Third Jack R. Harlan International Symposium** Dedicated to the Origins of Agriculture and the Domestication, Evolution, and Utilization of Genetic Resources.

The First Harlan Symposium was held at the International Center for Agricultural Research in the Dry Areas (ICARDA) at Aleppo, Syria, 10-14 May 1997, as a tribute to Jack R. Harlan who was an American botanist and agronomist (1917-1998). The Second Harlan Symposium was held 10-14 September 2008 at University of California (UC Davis) at Davis, USA. J.R. Harlan was a pioneer in the study of the origin of agriculture and crops, showing the importance of the relationship between the activity resulting from human development and the evolution of agricultural biodiversity. His most famous book, «Crops and Man», 1975, remains a reference and has been the bedside book of generations of students in plant breeding, especially in France, where J.R. Harlan's influence was very strong in the scientific community dealing with plant genetic resources.

In many respects, the history of agriculture and genetic resources could be a preview of the future facing the (still) wild world in the Anthropocene era: the evolution of populations, species and communities under human-imposed selection pressures and in artificialized environments, marked by dramatic changes in landscapes and by tensions in governance systems. Agriculture is a strong driver of anthropogenic global change. It must also be an important part of solutions to minimize human impact on the biosphere. With increasing recognition of the necessity for ways of farming that preserve biodiversity and ecosystem functioning (nature-based solutions, agroecology, biodiversity-friendly agriculture), genetic resources -collectively, agrobiodiversity- have taken on new functions. They are called upon to enhance not only the provisioning of food but also other ecosystem services, such as the conservation of biodiversity in mosaic landscapes and mitigation of the impact of climate change.

Since the 2nd J.R. Harlan Symposium in 2008, due to dramatic progress in biological sciences, we know more about agricultural trajectories of past and contemporaneous societies, the diversity and adaptive potential of genetic resources and their management in its technical, social and political dimensions. Owing both to this progress and to the changing expectations of farmers and consumers, our research questions on these themes have evolved.

The third Harlan symposium will highlight the major advances in knowledge on these themes and draw attention to emerging issues in the history of agriculture and the evolution, conservation and use of genetic resources. It will maintain the originality of the Harlan symposium series by emphasizing the multidisciplinary aspects of the science (from archeology to genetics and agroecology), the variety of biological models (plants, animals, microorganisms) and the broad temporal scale (from the origin of agriculture to the current problems of use of agricultural biodiversity).

We look forward to meeting you in Montpellier in 2019.

The Organizing Committee

ORGANIZERS



The Research Institute for Development is a french Institution, and an internationally recognized multidisciplinary organization, working mainly in partnership with the Mediterranean and intertropical countries.

Through its network and its presence in more than 50 countries, it has an original approach to research, expertise, training and knowledge sharing for the benefit of territories and countries that make science and innovation one of the most first levers of their development.

<http://www.ird.fr>



The Association Agropolis International was founded in Montpellier 24 January 1986 by the research and higher education institutes located in Montpellier and the Occitanie area working in the field of agriculture, food, biodiversity and environment, with the support of the government and local authorities. This platform is open to the development of the Mediterranean and Southern countries; it also gathers a large range of stakeholders and partners of the economic development and from the civil society.

<https://www.agropolis.fr>



Montpellier SupAgro contributes to changes in agricultural research thanks to the involvement of its research professors in 22 mixed research units and 3 mixed technology units. Montpellier SupAgro's scientific teams work in close collaboration with major research organizations based in Montpellier (INRA, CIRAD, Ird, Irstea ...) and regional higher education institutions (University of Montpellier, Paul Valéry University, University via Domitia de Perpignan, CIHEAM-IAMM ...).

<https://www.montpellier-supagro.fr>



Bioversity International is a research-for-development organization that provides scientific evidence of the role that on-farm and wild agricultural and forest biodiversity can play in a more nutritious, resilient, productive and adaptable food and agricultural system. Bioversity International is a member of the CGIAR Consortium. CGIAR is a global research partnership for a food secure future.

<https://www.bioversityinternational.org>



CIRAD is a public establishment (EPIC) under the joint authority of the Ministry of Higher Education, Research and Innovation and the Ministry for Europe and Foreign Affairs. Its activities concern the life sciences, social sciences and engineering sciences, applied to agriculture, the environment and territorial management. Its work centres on several main topics: food security, climate change, natural resource management, reduction of inequalities and poverty alleviation.

<http://www.cirad.fr>



Created in 2015 through the merger of University Montpellier 1 and University Montpellier 2, the University of Montpellier (UM) draws from the excellence and synergy of these two institutions. The University of Montpellier brings together an extensive community of knowledge, from science, technology, medicine and environmental sciences, to educational sciences, economics, management, law and political science. It is involved in a strategic global initiative aiming at making Montpellier one of the European capitals for Health and Agro-environment.

<https://www.umontpellier.fr>

ACKNOWLEDGMENT

The Organizers would like to thank sponsors

for their support of the Third Jack R. Harlan International Symposium



RARe is a research infrastructure on the French roadmap which brings together 5 networks (i.e. 5 pillars) of Biological Resource Centres (BRC) maintaining genetic, genomic and biological resources, produced and characterized by research on crops and model plant species, domestic animals and wild relatives, micro-organisms relevant for agronomy, food science and environment, environmental media and related organisms, and forests. RARe is a network of Biological Resource Centres and collections managed or co-managed by INRA, CIRAD, IRD and CNRS, in partnership with technical institutes and higher education institutions.
<http://www.brc4env.fr/About-AgroBRC-RARe>



Agropolis Fondation is a French scientific foundation established in 2007 to promote and support high-level research and higher education (training-through-research) as well as to broaden international research partnerships in agricultural sciences and sustainable development research.
<http://www.agropolis-fondation.fr>



The French National Institute for Agricultural Research (INRA) is Europe's top agricultural research institute and the world's number two centre for the agricultural sciences. Its scientists are working towards solutions for society's major challenges, and are specialists in food, nutrition, agriculture and its environment.
<http://www.inra.fr>



Agrobiodiversity in homegardens of mato grosso state, Amazon biome, Brazil

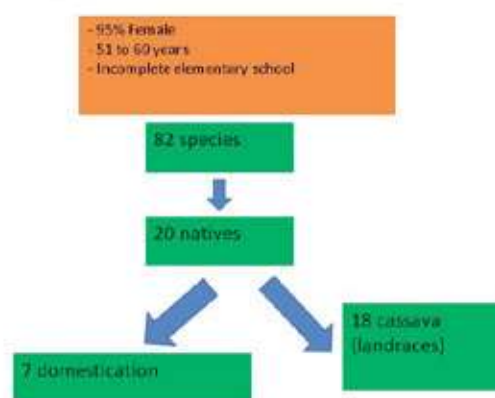
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Embrapa, Sinop, Mato Grosso, Brazil

The Mato Grosso State is located in the midwest of Brazil and has more than 90,000 small farmers. This work carried out the study of vegetal species that compose homegardens biodiversity in rural communities during the year 2018, they are located in Carlinda and Paranaíta / Mato Grosso State / Brazil. Among the informants, 95% were female and 5% male, been both owners of their land. The interviewed group are predominated people aged between 51 and 60 years with incomplete elementary school. A total of 534 plants were mentioned, being 82 different species, belonging to the 44 botanical families. Of these, 53 are for food, 27 for medicinal use and 2 for other use. The observed average was 44 species per homegardens. Twenty native species were cited, of which seven are in the process of domestication, such as cupuaçu (*Theobroma grandiflorum* Schum.), Brazil nut (*Bertholletia excelsa* Humb. & Bonpl.). The main reason for the conservation of genetic resources by farmers was not what could be obtained with the resources planted or collected, but how much can be saved through their use. This information indicates that, when properly managed, yards represent a low-cost alternative to food and health security.



Figure 5. Biomes present in the State of Mato Grosso. (http://biomas.mato.gov.br/estado/brasil/MatoGrosso)



Agrobiodiversity in Homegardens of Mato Grosso State, Brazil

Keywords: food security, rural communities, native.

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