



# Sorghum as a model crop for bioeconomy : a contribution to the conservation of genetic diversity

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Sorghum's exceptional genetic diversity in Africa and adaptive capacities (C4 metabolism and photoperiodism) provides a large potential reservoir for adaptation strategies to face climate change. It also offers a reservoir for new green economy outputs (i.e. Bioeconomy) both in northern and southern countries, in particular Africa from where sorghum is originated.

Innovative value chains based on sorghum biomass valorization and grain transformations for food and non food products could bring about new adding value opportunities and induced effects in terms of income generation for various actors.



It is crucial not to expand an agro economic model inherited from the past paradigm of agricultural development which has proved to be harmful for agro biodiversity and for the adaptive capacity to biotic and abiotic hazards. Such productivity centered model founded on uniformity and stability of the genetic and biological resources (limited number of uniform patented varieties selected for high yield in large cultivation areas) is not only unrealistic for African family agriculture but also a threat for the resilience of local agri-food systems . **We argue that new ideas and research inputs supported by plant diversity could nourish sustainable and innovative value chains and contribute at the same time to the plant biodiversity preservation.**

An alternative model promoting and preserving genetic diversity would in return, secure the biomass supply through reducing reliance over a single source

	Mainstream model	Alternative model
 Farming	Industrial, monoculture	Family Farming , agro-ecology, cropping systems
Breeding	Exclusively Industrial and productivity oriented	Participative. Farmers breeding. Anchored in the local constraints, needs, habits,
Seeds	"Quick fix ideal" , homogeneity	Variability , adaptability to environment and local farming system; Multi-purpose varieties
 Processing	Processes that require a very homogeneous plant material : one output	Processing integrating local knowledge ; accepting heterogeneous plant material
 Innovation	Breakthrough, technological leap	Incremental, social, frugal.
 Knowledge	Top down : transfer from research	incorporating farmers and traditional knowledge (European model AKIS)
 Value chain	Very specialized ; one output	tiered valuation

## Leverage points for driving a bioeconomy alternative model towards agro-ecology transition

- Articulate plant improvement, genetic resources diversity (*in situ* and *ex situ*) and local actor's dynamics
- Promote participatory territorialized selection using gendered farmer's knowledge for preferences/uses
- Develop flexible processes which accept variability among plants or varieties
- Advocate at the political and institutional levels for policy supporting local value chains



2<sup>e</sup> CONGRÈS EUROPÉEN DU SORGHU

Le sorgho vous attend  
en Italie à Milan.

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**Sorghum**  
L'AVENIR MISE SUR LE SORGHU