

Report on the outcome of episode #1 of the TSARA webinar "Local breeds for sustainable livestock systems in Africa" of 21/11/2024.

The webinar was prepared under the supervision of a steering committee formed by Sonia Bedhief - Romhdani, Pascal Bonnet, Charles Dayo, Benoît Dedieu, Stéphane Fabre, Felix Meutchieye and Mohamed Ouldahmed.

Report written by P. Bonnet, B. Dedieu and S. Fabre; validated by the steering committee.

Resume of webinar elements

In episode #1 "Facing the challenges of tomorrow" we recorded 230 pre-registrations (48 countries) and 108 participants logged on during the webinar.

The programme of episode #1 consisted of the following interventions:

- Place and role of local breeds in Africa in a context of global change - Dr H. Ben Salem (INRAT, Tunisia)
- How are local breeds considered in the activities of researchers? Synthesis of surveys across the continent - Dr S. Fabre (INRAE, France)
- Local breeds: challenges, threats and opportunities:
 - Maghreb - Pr. M.T. Srairi (IAV Hassan II, Morocco)
 - West and Central Africa - Pr D. Sokouri (UNPHB, Côte d'Ivoire)
 - Southern Africa - Pr G. Scholtz (ARC, South Africa)
 - The presentation for East Africa - Pr G. Goshu (Addis Ababa University, Ethiopia) could not take place due to lack of connection.
- Participatory discussions around 3 whiteboards moderated by P. Bonnet, F. Meutchieye (unstable connection, replaced by B. Dedieu), M. Ouldahmed.
- General conclusion by Professor Charles Dayo

This report accompanies the video recording of the webinar (available here, <https://initiative-tsara.org/>) and the presentations by the various speakers. A summary note based on the surveys received was prepared and sent to respondents.

Analysis of whiteboards

The whiteboards resulting from the discussions were analysed *a posteriori* (P. Bonnet, B. Dedieu and S. Fabre) and the outputs are in two parts:

- **Interest and expectations for webinar episode #1** (Whiteboard analysis 1 – what interested you and 2 – what was missing)

Genetic improvement of local breeds.

Major challenge: to reconcile the increase in productivity with the preservation of the qualities of adaptation of these breeds to their specific environments.

- Collection of animal performance data (production, health and hardiness).
- Co-built breeding/selection programs adapted for each breed.
- Development and use of molecular tools.
- Controlled crossbreeding: Cross-breeding with exotic breeds can bring interesting genes (production), but they must be done in a controlled way to maintain rusticity and avoid the loss of genetic diversity of local breeds.

Management and conservation of local breeds

- Genetic characterization of breeds (using molecular tools)
- Development of conservation programs
- Collective management, awareness raising of all stakeholders
- Organization of local (related to environment and markets) and possibly transnational (including health) management structures

Services rendered by local breeds

- The resilience, rusticity and adaptability of breeds make them a major lever for adapting systems to hazards, especially climate (vis-à-vis other levers on fodder, mobility, games on numbers, diversification etc...). There is, however, a need to better describe these abilities of local breeds (production, longevity, health, plasticity, ability to value ingested food (poorly digestible) and to mobilize - replenish body reserves)
- Local breeds play a specific role in food systems, through the quality of products.
- Several hypotheses are advanced that would mark the difference between local breeds and other breeds (exotic):
 - better efficiency in the use of resources (local/ pastoral) (ingestion - of composite and poorly digestible vegetation) to be assessed through indicators of feed costs, energy costs of adaptation, or productive life in very restricted environments.
 - congruence with agroecology with different reformulations: "agroecological" benefits of breeds (in reference to the valorisation of natural and heterogeneous resources); a good fit/insertion in agroecological systems where local breeds are bred; and a contribution to the production of ecosystem services
 - reduced environmental impacts, including water footprint and carbon

Impacts – theory of change, link to public policies

- Aims, Models and Evolution of public policies - case studies of genetic programs impact
 - The historical aspects of crossing policies in Morocco and their long-term effects (loss of diversity)
 - Are there any success stories of local breeds?
 - A broader view of public policies, including agriculture, land, development policies and their effects.
 - Role of public policy: budgets, research stations, breeding programs, etc.
 - Lack of genetic resources management policies
- Taking into account the market, social and economic demand in the development of genetic (and other) policies around local breeds
 - Consumer appeal for local/indigenous breeds
 - The economic aspect and the valorisation appear essential in the conservation of local breeds
 - A more dynamic view of animal breeds and their changing trends in relation to social change
 - Energy cost of adaptation of local breeds.
 - Update of nutritional needs of local breeds for improved productivity
- Take into account the reality of ecosystem benefits from local breeds (services) and trade-offs with household economy and markets. Adaptation Trade-offs - Production - Risk and Opportunity Approach - Socio-economic Aspects
 - Local breeds are adapted to the climate change era, but there are not enough income opportunities for farmers.

- Possible solutions to the challenge of reconciling the increase in consumption (population growth) with respect for the environment/ adoption of agroecological techniques
- Quantify the impacts of local race loss: impacts on consumption, climate and resilience of sectors.

Collective actions by non-academic actors and public policies

- Role of the private sector (animal genetics market)
- Legal framework to be worked out
- There is a lack of analysis in relation to the implications of other actors who are also involved (religion, military, development NGOs...)
- Professional organizations around local breeds

Training/information

Several types of needs

- Training of specialists (local breeds, or local breed assessment), with explicit and harmonized data collection methods
- Accompanying groups of farmers with a genetic improvement initiative: what scientific knowledge mobilized/ synthesized

But it should be possible to capitalize on the training efforts and their impacts. There have been collaborative programs before (country scale, region): success or failure?

- **Expression of work leads and needs following the webinar episode #1**
(analysis of whiteboard 3)

Participants drafted 32 proposals that can be grouped into 3 main lines of work, which are themselves divided into more specific needs.

Work Track #1: Genetic Characterization.

This work track is divided into two main needs, on the one hand the characterization of genetic diversity and its use for conservation (by using genomics), and on the other hand the genetic improvement and selection (which can also use genomics). This second point highlights participatory strategies and the control of crossbreeding.

Work Track 2: Characterization of phenotypes and performance.

This work track is also divided into different points around the comprehensive knowledge of the physiological needs of local breeds within their breeding systems (local environmental conditions and practices: nutrition, water, climate, disease resistance, adaptation, mobility/sedentary) as a starting point for improvement strategies related to genetic characterization (performance recording). This should be done with the characterization/recognition of products from local breeds and market expectations.

Working Track 3: Socio-economic and political aspects.

For this work track, the needs expressed relate to the collection and consolidation of information concerning local breeds (genetic, zootechnical, geographical, economic and social) to improve/influence the legislative and policy framework for regulations in favour of safeguarding, conservation, promotion of local breeds and agroecological livestock systems.

Conclusion

The first episode of the webinar highlighted the need for a multidisciplinary approach to managing local breeds. Participants stressed the importance of genetically and phenotypically characterizing these breeds in order to refine their description and optimize their use in the different breeding systems of the African continent. Where they are absent, the construction of participatory conservation and breeding programs is essential. Finally, it would be crucial to develop tools (management sectors) to value products from local breeds and create a policy framework conducive to their development, while taking into account the specificities and diversity of livestock systems. Thus, this first episode gives very clearly the organization of the next episodes.