

Context

- Most public nurseries rely on **introduced species to improve agrosilvopastoral systems (ASPS)**
- Several key native species have **poor germination** and/or **low seeds viability**
- Several species **need specific climatic conditions** to germinate or take a long time to establish
- Several species at seedling stage are **subject to disease** and **genetic variations**
- Exotic species have **low productivity** due to the lack of high yielding and biotic stress-tolerant cultivars
- Enzymatic browning as well as microbial contaminations of the in vitro plants are considered as **crucial obstacles**, which prohibits successful micropropagation protocols
- **Organic additives** possess antioxidant, antimicrobial and nutritive properties that are of great benefit for the success of the in vitro propagation.

Our innovative approach

- Our approach has the following components:

Identify key indigenous species that have high socio-ecological acceptance using participatory approach with defined criteria

Enhance the in vitro propagation protocol of the selected species by adding growth additives

Coordinate with developing agencies and local nurseries (demand partners) their needs for restoring ASPS

In vitro propagation of the selected species (laboratory)

Promote large scale restoration of degraded silvopastoral systems using native species (field)

Enhance capacity of all partners (importance of native species, their use and management)



INITIATIVE ON

Livestock and Climate

Organic growth additives to enhance *in-vitro* propagation for shrub/tree species for rangeland large scale restoration

The use of organic growth additives to enhance in-vitro propagation for shrub/tree species for rangeland large scale restoration offers the following benefits:

- OGA owing to their nutritive, antioxidant and antimicrobial properties are proposed to substitute other chemical products to improve the in vitro PTC.
- Rapid (overcome dormancy) and efficient production of large numbers of plant species that are well-suited to local conditions.
- Produce high-quality, disease-free, and true-to-type plants at a fast rate.
- Facilitate large scale restoration of degraded ASPS using native species.
- Provide government and developing agencies more options that are ecologically sound and socially accepted by local communities (multipurpose).

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Progress/outcomes

- The methodology has **been evaluated successfully** for *Salsola vermiculata* and *Aloe vera*.
- We are working with the Institut *National de Recherches en Génie Rural, Eaux et Forêts* (INRGREF) and other national partners to **identify plant species** that are well-appreciated by local pastoral communities, well-suited to local conditions and to produce high-quality, disease-free, and true-to-type plants at a fast rate.
- **Two national workshops have been organized to increase awareness** about use of native species and to identify potential species for mass production.
- This innovation align well with the ongoing **UN Decade of Ecosystem Restoration and national programs for afforestation**.
- The plan for 2023/24 is to **validate this innovation** for selected species, publish the results and promote the use of native species for ASP restoration purposes.

From seed collection, to seedlings production in the nursery to landscape restoration



Photos ICARDA/Mounir Louhaichi



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