

Proceedings

5th World Congress on Agroforestry

“Transitioning to a viable world”

July 17-20, 2022
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Transitioning to
a Viable World



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POSTER PRESENTATIONS

<p>fruits belong to the top level ($3.30\text{cm} \pm 1.29$). Correlation analysis revealed no significant links between the trees characteristics and fruits traits. Tree morphological characteristics and fruits traits indicated two distinct groups between levels of the hill at Djuié. In conclusion, the study output provides an evidence of the genetic variability among <i>V. paradoxa</i> trees and fruits on the hill and hence the potential for future tree improvement programme.</p>	
<p>Jessour for a diversified and resilient agroecological systems to ensure food security and sustainable livelihoods in arid ecosystems</p> <p>For agricultural production, exploiting mountain slopes for rainwater runoff collection is a low-cost practice that supports sustainable agroecological systems and increases yield. To this day, people in rural communities continue to use an ancient and well-known system called Jessour to strengthen agricultural productive capacity and diversify their livelihoods. However, some effort is needed to maintain these systems and they require careful planning and engineering. A Jessour is composed of three parts, a sloping ground for collection, a terrace and an earth dyke. Jessour are mainly used for cultivating olive trees and sometimes dates, figs and almond trees. During rainy years, cereals (barley, wheat) and legumes (peas, lentils, broad beans) are cultivated between the trees. Once these crops are harvested, the crop residues are used as fodder for grazing livestock. Crop residues help fill feeding gaps, especially during the dry summer season. Livestock is continuously moved between trees, which allows rangelands to rest before winter dormancy. In arid areas of Southern Tunisia, Jessour are a vital agroecological system that support orchard plantation, annual crops and livestock, contribute to resilient, help sustain livelihoods for the majority of households and play an important role in ensuring food security under climate change and water scarcity. Therefore, greater attention is needed to establish and strengthen mechanisms that can make this proven technology more effective while conserving agrobiodiversity.</p>	<p>Louhaichi, Mounir Gamoun, Mouldi</p>
<p>Can the Assisted Natural Regeneration contribute to the renewal of <i>Faidherbia albida</i> parkland in Senegal?</p> <p>In the sudanian and sahelian zone, parklands are archetypal to agrarian landscape. Trees are selected, spared, fostered after land clearing for the various services they provide to the people. However, nowadays most of the African parklands are facing regeneration problems. The <i>Faidherbia albida</i> parkland among the Sereer of Senegal is exposed to such difficulties which stem from population growth, heavy land pressure, extension of cultivated areas, crop mechanization, weakening of governance structures. The drought years of the seventies and eighties caused a sharp rise of tree mortality. The return of the rains allowed to relax the biophysical constraints and now there are more saplings in the fields. However they are poorly protected and seldom survive ploughing or cattle grazing. Still, farmers have a vested interest in the <i>Faidherbia</i> for the fodder it provides and the improvement of soil fertility it allows. Furthermore, this tree is part of the traditional landscape and of the Sereer culture. This is why assisted natural regeneration (ANR) seems to be a relevant choice to rejuvenating the parkland. This communication will capitalize on the work conducted in the RAMSES research project. This project aims at promoting parklands agroecological intensification, including the sereer <i>Faidherbia</i> parkland. After carrying an inventory, documenting and analyzing the various project, past or present, using ARN in the region we will characterize their conditions for success or failure. We will use an extended framework which will allow us to move from the merely technical vision of ARN to take into account socio-economic variables and anthropological data: place of farming in the household activity system, use of wood and non wood trees products, land tenure,</p>	<p>Bidou, Jean Etienne Droy, Isabelle Lavigne Delville, Philippe Sanogo, Diaminatou Seghieri, Josiane</p>

Jessour for diversified and resilient agroecological systems to ensure food security and sustainable livelihoods in arid ecosystems



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Introduction

The main goal of this study was to identify the role of *Jessour* systems in diverse agroecological systems.

Using rainwater to ensure sustainable livelihoods has been a widespread practice in drylands since ancient times. To this day, this process continues to mitigate water scarcity under climate change and global warming. In southern Tunisia, *Jessour* is the most commonly used technique and is gaining attention for its versatility and contributions to sustainable livelihoods.

A simple, robust, and low-maintenance technique

Jessour is one of the earliest techniques used to increase water availability in arid regions. It involves three elements, i) a sloping ground for collection, ii) a terrace and, iii) an earth dike.

Olive, date and fig trees in a *Jessour* system in Tataouine in south Tunisia

Harvested rainwater as a primary source for agriculture



The *Jessour* system improves water supply, food production, and food security. Local communities benefit the most from this system. Rainwater harvesting builds resilience to drought and greatly contributes to agrobiodiversity preservation and increases income from agriculture. Water from *Jessours* support olive, date, fig and almond trees and other fruit-bearing trees suitable for arid environments. During rainy years, cereals such as barley, wheat and legumes are cultivated between trees (peas, lentils, broad beans).

Once these crops are harvested, the residues are used as fodder for grazing livestock. Crop residues help fill feeding gaps, especially during the dry summer season. Livestock is continuously moved between trees, which allows the soil to rest before winter dormancy.

If annual crops are not cultivated between trees, *Jessour* systems can provide a diverse, natural supply of forage for livestock. *Jessours* can connect cultivated areas to other species-rich rangelands or habitats, which allows wildlife to move across the ecosystem. The increased heterogeneity can reduce the need for artificial fertilizers and pesticides.

Livestock grazing crop residue



Effective biodiversity conservation through *Jessour* systems: a valuable resource for grazing livestock



Conclusion

More effort is needed to establish and strengthen mechanisms that can promote this proven technology. In Southern Tunisia, *Jessour* systems are a vital driver for conserving agrobiodiversity encompassing tree plantations, annual crops, and livestock. They contribute to resilience, help sustain livelihoods for a majority of households, and play an important role in ensuring food security under climate change and water scarcity.



Livestock, Climate
and System
Resilience