

THE RAMLI AGRICULTURAL SYSTEM IN THE LAGOON OF GHAR EL MELH IN TUNISIA

The Ramli agricultural system in the lagoons of Ghar El Melh in Tunisia, represents an ingenious method of cultivation on sand, using sea tides to irrigate crops with fresh rainwater.

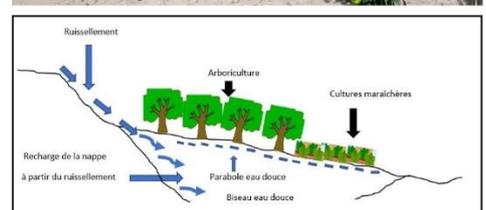
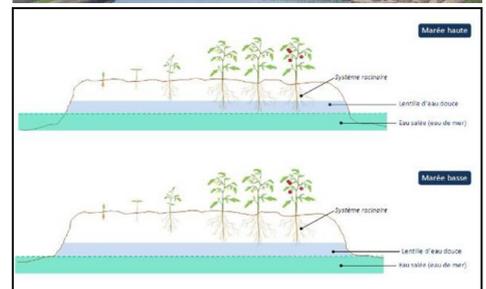
In 2020 the Ramli agricultural system was recognized by the GIAHS Initiative managed by FAO as [one of the 62 Globally Important Agricultural Heritage Systems of the world](#).

The type of culture called Ramli (Ramli means *on sand*) is practiced by the inhabitants of Ghar El Melh on the coastal strip bordering the sea, on the banks of the lagoon of Sidi Ali El Mekki and on plots located on the islets (guettayas), inside the wetland. In Ghar El Melh, the land space is enclosed between the mountain, whose foothills present ungrateful soils, and the wetlands of the lagoons, leaving little room for agricultural activities. This physiographic restriction and the scarcity of arable land is combined with the scarcity of fresh water (surface and groundwater).

The principles of this practice are the development of crops (arboriculture and vegetable crops) without irrigation, on a soil whose level allows the plants to meet their water needs by contact of their root system with a fine lens of fresh water supernatant salted water. This lens or blade rises and falls about ten centimeters twice a day every six hours respectively at high tide and low tide. It is reconstituted each year thanks to rainfall allowing two cycles of culture per year.

In addition to the work on the crops themselves, the particularity of the system lies in maintaining the soil at the right level: neither too low so that the roots do not come into contact with salty water, nor too high to prevent the roots from drying out. This soil regulation work is done by the farmers before planting, by adding a layer of sand and animal manure regularly. The added substrate varies from 40 to 50 centimeters thick, so that the root system coincides with the freshwater. Several *guettayas* on the islets are also backfilled with sand brought back from the lagoon rim, and thanks to manure inputs, the sandy texture in turn evolves into a soil very favorable for gardening, especially for potato cultivation.

In order to reduce the effects of drying winds and sea spray, reed trays are laid out to protect crops and guarantee the microclimate necessary for plant development. Hedges of fruit trees and shrubs are also planted on the lagoon barrier to protect the cultivated plots from wind and sea spray, to slow down evaporation and to fix the sand. On the coastal edges, drains are also installed to allow the flow and channelling of excess water.



No active irrigation is in place and the needs of plants in all seasons are met by the rainwater stored and supernatant on the surface of the seawater. This ingenious system makes it possible to grow crops all year round without artificial water supply, even during periods of drought.

All products from Ramli cultures are recognized for their organoleptic qualities. The farms of the Ghar El Melh Ramli System are small (81% less than 5 hectares) and include various crops as potatoes, beans, garlic and onions. Farmers are very attached to local varieties, which they regularly exchange in small quantities in the form of seeds. Sometimes other crops such as peppers, melons and watermelons are cultivated. Sold in local markets, these products are known to have a unique flavor, due to the natural irrigation which exactly meets the water needs of the plants.

Created in the 17th century by the Andalusian diaspora cornered on a territory devoid of agricultural land, the Ramli lagoon system is composed of singular gardens. Formed on the lagoon cord and on the banks of the lagoon, they allowed farmers to cope with the physiographic constraints and scarcity of arable land combined with the scarcity of fresh water.

The [Document of Proposal presented to the GIAHS Initiative in 2020](#) by the Union of Agriculture and Fishery of Ghar El Melh and the Ministry of Local Affairs and the Environment of Tunisia (annexes) extensively describes the Ramli System in its different aspects. The characteristics of the Ramli sophisticated and natural technology that respond to the needs of local communities by enhancing and protecting natural resources are presented with data and detailed information. The GIAHS initiative emphasizes that without the Ramli cultivation, the lagoon would probably have already disappeared. Regular inputs of sand and organic matter to maintain the barrier separating the fresh water from the Mediterranean Sea. Thanks to this influence on the maintenance of the lagoon, also the wetland has been able to continue to play its role as a habitat for a rich and particular fauna and flora.

The document also provides elements to appreciate the ability of local communities to use for hundreds of years these traditional ways of managing local resources keeping alive an efficient agro-ecological system that guarantees high quality products. The Ramli System, among others, combines with other cultural potentials of the territory: archaeological, an old port with unique aesthetic features, an intangible heritage of great value as well as an exceptional landscape heritage.

An Action Plan for the dynamic conservation of the Ramli System has been drawn up by the involved national institutions and local producers' associations. The Plan envisages identifying and addressing the risks and challenges of maintaining the fragile equilibrium of the system, also considering the possible effects of climate change, like rising on sea levels.

More in general, as for all systems recognized as being part of the world heritage GIAHS, the Ramli System is considered as an agricultural heritage and a legacy for the future. The involved actors in Tunisia with the support of international organizations are working to conserve the extraordinary knowledge behind it and the experience accumulated of its management for many years and, at the same time, to promote its evolution for the future, thanks to new studies, innovation, transfer to the new generations and exchange with other innovative ecosystems.



To know more

[Ramli agricultural system in the lagoons of Ghar El Melh in GIAHS website](#)

[Partners of Ramli System](#)

[News in GIAHS website](#)

[Document in IUCN website](#)

[Article in journals.openedition.org](#)

[Article in africanews.com](#)

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