

# THE GHOUT TRADITIONAL HYDRO AGRICULTURAL SYSTEM OF EL-OUED IN ALGERIA

The *Ghout* traditional hydro agricultural system of El-Oued in Algeria is one of the Globally Important Agricultural Heritage Systems enlisted in the GIAHS Initiative.

Sustainable and adapted to the environment, the *Ghout* system underlines the farmers' ingenuity and the possible adaptation of agricultural systems to hostile lands. During the 15th century, *Ghout* oasis system has been developed resulting from the adaptation of the farmers to the arid climate.

The *Ghout* system consists in digging a crater in the soil, ten meters deep, in order to plant the date palm on the top of the ground water. Being planted next to the ground water resource, the roots of the palm will get an easy access to the water without needing rain or irrigation.

The digging is done depending on the direction and the speed of the wind on the dunes. To maintain the *Ghout* farmers protect it thanks to palm leaves windbreak and take out the sand regularly.

Generally, the surface does not exceed from 0.5 to 1.5 hectares and *Ghouts* represents a sustainable technique but also an adapted way of farming in the desert. This method made it possible to transform a dune massif into a constellation of gardens. There are more than 9500 *Ghouts* shaping the unique landscape of the El-Oued Wilaya.

*Ghout* oasis systems gather a high biodiversity. Especially the date palm, with its high varietal and heterogeneous biodiversity giving birth to very different dates appreciated by local people with about 800 different cultivars. These varieties are the results of the farmers' long selection.

Furthermore, oasis systems are refuges and relay habitats for a number of local wild or domestic animals. In addition, *Ghout* agricultural systems do not use chemical products and doing so, promote the sustainability of environment and biodiversity.

Dominated by the date palm, with a multi layered organization of fruit trees and herbaceous crops, these ancient systems produce a huge amount of fruits and legumes, cereals and fodder, medicinal and aromatic plants. Among the fruit trees there are apricot trees, fig trees, lemon trees, jujube trees, peach trees and pomegranates.



These ingenious systems allow to grow vegetable crops such as radish, carrot, bean, melon, watermelon, celery, zucchini, pumpkin, potato, as well as industrial crops and condiments as henné, tobacco, peanut, fenugreek (*trigonella*) and coriander.

*Ghouts'* communities have also developed agro tourism activities which are a complement income to their agricultural activities. Besides offering a great diversity of varieties of dates, the palms offer shade and diminish the environmental temperature creating a microclimate. This is the reason why the oasis are the best place where to live in the Sahara and an important resource for tourism.

In addition to the agriculture, thanks to the cereals cultivation from the *Ghout*, the local communities raise domestic animals for the meat. Local and traditional carpentry is made thanks to the plants from the *Ghout*.

As it happens in all traditional and ancient agricultural systems the *Ghouts* need specific actions to be safeguarded in the future. A research made in the Souf region by the [University of Ouargla](#) summarizes the main problems affecting the future sustainability of these ingenious water and crops management systems and the priorities for increasing their value.

In registering the *Ghouts* system into the GIAHS Initiative, Ministry of Agriculture of Algeria has associated the main national competent institutions, local governments, universities and associations of the El-Oued Wilaya. [All these involved actors](#) are carrying out initiatives to relaunching these production systems that form part of the local, national and global heritage in the framework of the sustainable management of environmental resources to ensure their availability for the future.

### To know more

[GIAHS Initiative](#)

[Ghout presentation in GIAHS Initiative](#)

[FAO Document and brochure](#)

[FAO document and brochure](#)

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[Document University of Ouargla](#)

[Document in Psf.org](#)

