Over the millennia, desert dwellers have selected hundreds of different date palm varieties, each with particular characteristics. Currently, a single variety, the deglet nour, is favoured by the international market and is the most predominantly cultivated date palm in Tunisia, threatening the long-term survival of alternative varieties and leading to genetic erosion.

A Bioversity International project was implemented to encourage the diversification of date palms, as reliance on a single crop could threaten farmers’ future livelihoods if the vulnerable deglet nour were to fail due to pest and disease, or succumb to changes in market forces.

This evaluation analyzes what impacts remain from the project 7 years beyond completion, and examines how the economic situation and the agricultural landscape of the farmers has evolved, with a view to determining valuable lessons for future project design.

The project aim was to promote agricultural biodiversity in the palm tree domain to enhance and stabilize farmer incomes. It focused on two different oasis zones in Tunisia between 2000-2005.

The two zones differed in both agricultural activities and local ecology. Chenini was in the coastal Mediterranean zone and more urban than agricultural, which offered alternative income sources, while Degache was in the continental, more desert environment where date production plays a more significant role.

The project interventions were twofold: providing alternative date palm species, and helping farmers to regenerate trees from their own genetic stock in laboratories.

The integrated management approach involved farmers participating in field demonstrations, educational trips, and involvement with research laboratories, with stakeholders including NGOs, farm organizations and researchers.
Methodology

The methodology to evaluate the follow-up study involved extensive literature reviews and conducting interviews with key informants such as project directors, key researchers, NGO members and a selection of farmers.

Approximately 100 farmers were then surveyed with a detailed questionnaire across four zones—two project areas, Chenini and Degache, and two control areas in comparable oasis zones, Kittana and Mrah Hwar.

Results

RESULTS: FARM PRACTICES AND BIODIVERSITY

Overall, it appears that there have been few changes in farming practices. In Chenini, the share of agriculture in farmers’ incomes has declined. Specifically, the volume of marketed dates has declined by around 7%, while that of other crops—such as pomegranates—have experienced an increase in volume by around 13%. Farmers did diversify their farms in Chenini, but it was away from date palms, and instead into other crops such as pomegranates, citrus, Al Hinna (cosmetics) and vegetables.

In Degache, date palm plantations gained even further ground. The share of agriculture towards household income increased by 12%, and the volume of marketed dates grew from 75% to 87%. Regarding the biodiversity of the palm plantations, despite such strong growth, the project succeeded in levelling off the dominance of deglet nour in Degache, with the percentage of this variety dropping from 52% to 50%.

Farmer responses to the project varied largely. And although farmers maintained the distributed palm plants from the project, this was in varying degrees—40% in Chenini, and up to 80% in Degache.

KEY OBSERVATION

- Pursuing project objectives to increase biodiversity was met with differing responses. Biodiversity in Chenini did increase, but not within date palms. In Degache, where deglet nour predominates, increasing biodiversity has proved harder to achieve.

The project succeeded in levelling off the dominance of deglet nour, with the percentage of this variety dropping from 52% to 50%.
RESULTS: FARMER ADOPTION
Of the two project interventions—which were selecting indigenous varieties and propagating them in collaboration with scientists (*in situ*); or providing them with imported and alternative date palm varieties (*ex situ*)—the farmers preferred the approach of improving their own plant stock.

This assertion was similar in both locations, although there was a greater lack of satisfaction for introduced varieties in Degache.

KEY OBSERVATION
- Advising farming on how to work with their own varieties had more appeal than accepting introduced plant stock.

RESULTS: COMPARISON OF PROJECT AND CONTROL ZONES
In the Chenini oasis and the comparable control zone of Kittana, palm plantations seem to be stagnating. There has been diversification, but towards alternative crops and not within date palms. Pomegranates have increased from an average of 30 to 40 trees per farm, while dates have dropped by 5 trees per farm on average. An increase in citrus and olives has also been measured.

However, in Degache and Mrah Hwar, the predominance of dates, and in particular deglet nour, has continued with a distinct lack of diversification—272 to 313 date trees per farm.

KEY OBSERVATION
- What the project perceived as a source of genetic erosion, the farmers instead perceive to be a source of income.
- It appears that farmers in the Degache area would be unlikely to adopt alternative varieties unless they could out compete deglet nour.

IMPACT ON HOUSEHOLD INCOMES
In Chenini, approximately 10% of farmers declared an increase in income. Of those that did, the increased income was not from dates, but from the other crops, such as pomegranates, Al Hinna, vegetables, olives and citrus.

In Degache, agriculture is a major source of household income. Whereas it contributed 54% during the project, it now contributes 72% towards household income. Date production in Degache is almost entirely destined for market, and 20% of farmers indicated an increase in income since the project.

KEY OBSERVATION
- Incomes have increased in both project areas, although more significantly in the date producing areas of Degache.

RESULTS: CONSUMPTION
In Chenini, the share of home consumption of farm crops has remained high, and with increased diversification, it could be assumed that nutrition from agricultural produce should have improved.

In Degache, the majority of crops are going to market and the home consumption of agricultural produce is on the decline. So any improvements in nutrition are likely to be from the additional income from marketed dates.
Similarly, the impact of the project on the scientific and research community in the area has been highly significant. The project created two research laboratories, one in Degache handling the in vitro cultivation of palm trees, and another laboratory in Sfax, on the coastal zone which is focusing on the rehabilitation of a date palm variety similar to deglet nour.

The scientific work at Sfax who are generating alternative palm cultivars is proving very promising, and a sizeable number of plants have been produced which have a comparable quality to deglet nour.

**KEY OBSERVATION**

- The development of the institutional environment has been one of most successful project outcomes.

**Concluding remarks**

The project appears to have resulted in limited impact on farmer welfare, yet impressive scientific contributions and an improved institutional environment. While scientific work may not have an immediate affect on farmer welfare, with time this situation could turn out to be very different.

**RESULTS: THE INSTITUTIONAL ENVIRONMENT**

Although not a direct objective of the project—but a success that has resonated throughout the project areas—is the motivation that now exists for communities to form local associations which are continuing to support environmental and biodiversity endeavours beyond the original scope of the date palm project.

Typically of an NGO nature, these ‘Safeguard Associations’ have formed in most major cities of the Degache and Chenini region and biodiversity is on the agenda of every association.

**KEY RECOMMENDATIONS**

**Intervention package:** The relevant biodiversity packages could have been different for each zone. For the coastal zone of Chenini, they needn’t have been limited to palm dates, but more diversified into other trees and crops giving the farmers the option to choose.

**Supply and demand:** The aim was to promote the supply of alternative dates to deglet nour, yet the market demand for them was not there. Diversifying for alternative income sources is a legitimate activity, but as well as making the alternative supplies available, there needs to be a simultaneous demand from the market—which in the case of such an established commodity as deglet nour, may take a long time.

**Palm production:** The activities on the supply side of date palms is still relevant. The scientific development of alternative palm cultivars will potentially be able to supplement existing date palm incomes.

**Biodiversity:** Farmers can be responsive to biodiversity, as shown in Chenini, but mainly when it corresponds with the market demand.