

# Biodiversity conservation: collection and propagation of local cultivars and wild-type ancestors of edible plants



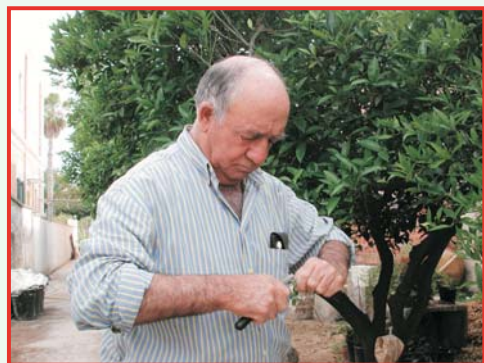
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## ABSTRACT

Plant biodiversity preservation is considered highly important because of the need to safeguard the spontaneous species which are the ancestors of the region's crop species. Local varieties are usually better adapted to marginal environments and require less input in terms of chemicals, irrigation, etc.; they are more stable, of better quality and may be used to obtain typical local products. Within the framework of the conservation and rehabilitation of local endangered cultivars, 215 varieties of cultivated fruit trees (typical of agricultural settings in the Salento, e.g.: *Ficus carica* L., *Vitis vinifera* L., *Olea europaea* L., *Pyrus communis* L., *Prunus dulcis* (Miller) D. A. Webb, *Punica granatum* L., *Cydonia oblonga* Miller and the most common citrus plants) and 362 vegetable crops were identified and collected in a germplasm bank. Special attention was also paid to those wild-type plants which for centuries have been associated with local folklore and traditions and which are still used in the Salento in salads or in food preserves. Spontaneous species of significant economic value (herbs and spices, together with plants used in the production of fibre and medicines and in other industrial processes) were collected and propagated in order to support scientific research programs.



## GERMPLASM COLLECTIONING

An important aspect of our biodiversity conservation programmes is the recovery of the germplasm of crop varieties at high risk of extinction. These species still play an important role in agriculture, but they have an exclusively local market. The process of genetic erosion has affected nearly all the local species and varieties of the Salento. Research has been conducted among the area's farmers, focusing on smallholders and the oldest members of the community, who maintain the closest links with traditional crops and are the least affected by commercial considerations. An important crop in this regard is a local variety of *Daucus carota* L., still cultivated not for its commercial value, but simply as a traditional product; its capacity for producing large quantities of cyanidin, compounds with antioxidant and anti-inflammatory properties has been established.

## ANCESTORS

The identification of wild-type plant progenitors among the regional flora makes it possible to reconstruct past ecological and socio-cultural conditions, to obtain an assessment of local biodiversity and, most importantly, to acquire precious genetic material for agricultural purposes. The cultivated forms can still be crossed with spontaneous ones, yielding fecund and diversified progeny, in a continuous exchange of genes between ancestor and derived species, guaranteeing intra-species diversity and the possibility of obtaining individuals that are resistant to disease and climatic variation. The identification of the localities in which these ancestors are spontaneously distributed entailed both studying the literature and conducting field surveys. The work led to the creation of a catalogue or "Ancestor" field inside the Botanical Garden.



## ENDANGERED FRUIT CVS.

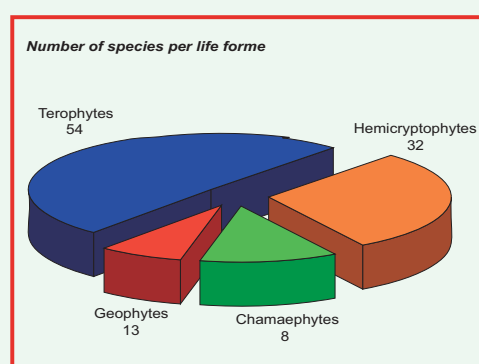
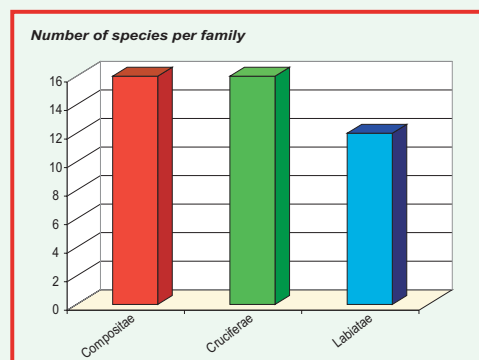
In recent years, traditional fruit species have suffered a serious reduction in their internal diversity, due partly to the replacement of older varieties with new ones (e.g. Pears, Almonds, Vines), and partly to a general abandonment of cultivation of certain species altogether (e.g. Figs, Quinces, Pomegranates, European Medlars). The plants were retrieved from smallholdings or farms, thanks to the cooperation of elderly farmers, whose comments were often confirmed by bibliographical data. In order to conserve the genetic characteristics of the mother plants, traditional plant propagation techniques (grafting or cutting) were always used. For the correct identification of the collected material, morphological and agronomic parameters were used; for some collections, genetic parameters were also used, via AFLP markers.



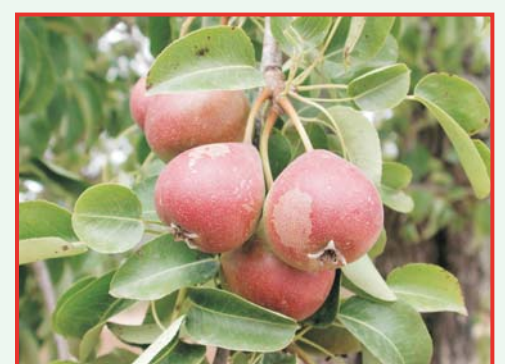
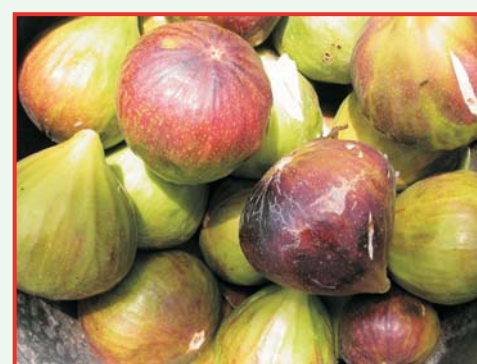
## PLANTS FOR HUMAN USE

Numerous local plant species are eaten as food directly or used in food processing; others are used in industry or handicraft (including production of small objects used in farming or domestic activities) or for making medicines or animal feed. These uses represent a sustainable way of exploiting the flora of the Salento; indeed, it is precisely the continuity of these uses which have kept the natural populations of many plant species alive, facilitating their diffusion and distribution.

From the check-list of the flora of the Salento, species which are known to have a culinary function, currently or in the recent past, were extrapolated. Approximately 150 edible species are mentioned in local bibliographical sources and oral testimony taken from "experts", the custodians of local knowledge.



Fruit species	N° of cvs
<i>Ficus carica</i> L.	90
<i>Vitis vinifera</i> L.	50
<i>Pyrus communis</i> L.	35
<i>Prunus dulcis</i> (Mill.) D. A. Webb	30
<i>Citrus</i> spp.	10
<i>Punica granatum</i> L.	4
<i>Olea europaea</i> L.	3
<i>Cydonia oblonga</i> Mill.	2



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