



# Traditional Vegetables of Sicily

Ferdinando Branca and Giuseppe La Malfa

Increasing attention is now being paid to diversity in horticulture in order to understand and chronicle food crop variation and to safeguard and conserve valuable genetic material. This is particularly true for vegetables that have important implications in agrosystems and growing techniques, the exploitation of niche environments, social systems, and culinary history. Here we briefly review some traditional vegetable crops grown in home gardens and peri-urban farms in East Sicily and especially the Catania province as a result of the unique environmental conditions that prevail and the special history of Sicily.



Map of Sicily showing Catania Province and Mt. Etna.

Sicily is the largest Italian region with 25,000 km<sup>2</sup> of surface, of which only 15% is plain, while 60% is hilly and 25% is mountainous, and about 5 millions of inhabitants, which represent about 10% of Italian people. The population is concentrated mainly along the coastal areas, such as in the populated cities of Agrigento, Catania, Messina, Palermo, Siracusa and Trapani, which were the first ones to be colonised in ancient time. The history of the island, traversed in turn by Phoenicians, Greeks, Carthaginians, Arabs, Normans, Spaniards and French, is reflected in its ethnic composition and horticultural diversity. As a result of Sicily's ancient past and its unique geographic location there are a great number of vegetables grown under various environmental,

agronomical, economical, and social contexts including home gardens and peri-urban farms. Some unique vegetables make up a prominent part of the well known Sicilian cuisine, which remains linked with traditional local events and customs, many of which are related to particular areas. Catania province and the slopes of Mount Etna (37°N) is one of these special sites based on a combination of specific soils and temperature conditions as well as for its historical and ethnic anthropology. In this context, vegetable crops show unique traits and characteristics as a consequence of particular growing methods and special culinary uses. The mild climate conditions along this part of the east coast of Sicily are characterised by high temperature and radiation value but with great fluctua-

tion, both during the year and within a single day. These conditions are in fact some of the causes of the great diversity of vegetables utilised in Sicily, representing a special genetic patrimony and world resource (Viani, 1926; La Malfa and Bianco, 2006; Tribulato et al., 2007).

There are also many wild species in Sicily, often representing crop relatives which are either gathered or occasionally cultivated, that make up the rich vegetable resources of this magical Mediterranean island (Branca, 1992a,b, 2000a). Typical examples include *Cynara cardunculus* subsp. *flavescens*, Asteraceae, a relative of the cultivated artichoke, of which the small and thorny capitula are gathered and sometimes sold in local markets; the shoots and seeds of wild fennel (*Foeniculum vulgare* ssp. *vulgare* var. *dulce*, Umbelliferae), which are gathered and used to prepare and flavour typical dishes; the bulbs of *Leopoldia comosa*, which are appreciated in the pickling industry; and various species of *Asparagus* (*A. acutifolius*, *A. albus*, and *A. stipularis*), whose bitter spears are often more appreciated than the cultivated one (*A. officinalis*). Other wild species occasionally cultivated are borage (*Borago officinalis*, Boraginaceae), whose boiled leaves are used in soups; and caper (*Capparis rupestris*, Capparidaceae), in which the flower buds, vegetative apices, and young fruits are preserved in salt or oil and used as a condiment (Bianco, 1989; Branca, 2000a).

A rather particular contribution of Sicilian vegetable biodiversity is represented by particular varietal groups that are characterised by unique characteristics appreciated by local consumers. These include special landraces of brassicas such as violet and green curded cauliflower, sprouting broccoli, red kohlrabi, and leafy kale (Branca and Iapichino, 1997; Branca, 2006). There are several special cucurbits, including bottle gourds (*Lagenaria siceraria*), which are still eaten in Sicily, winter melons (*Cucumis melo* var. *inodorus*), long light-green pumpkins (*Cucurbita pepo*) and special solanaceous fruits, including the small long shelf-life tomatoes and the light violet and/or white aubergines (Branca, 1999a,b; Argento et al., 2006).

Some of these vegetables grown in Sicily cover small surface areas but remain in high local demand. Unfortunately the supply of these products is steadily diminishing due to the modification of the agro-economical and social contexts in which they were grown, particularly





● Peri-urban horticulture in Sicily.

peri-urban farms and home gardens. In these agrosystems, which are based on many species and landraces, there is the risk of loss and of genetic drift caused by outcrossing with commercial cultivars. Peri-urban vegetable crops are also steadily declining as a result of competition from specialised intensive crop growers and the enlargement of the town, which increases land value within or near urban areas. In Catania, for example, the once important peri-urban vegetable farms belt is now reduced to about 10 hectares (La Malfa and Branca, 2001).

● Home garden in Sicily.



Despite this trend there is currently renewed interest in peri-urban and home vegetable production because consumers are increasingly interested in products that evoke the idea of genuine and typical food that is associated with increased nutrition and general health (Branca et al., 2002). It is now appreciated that the problem of loss of diversity needs to be faced and conservation activities implemented. For some of them ex situ conservation may be required where for others in situ or even on farm conservation strategies would seem more appropriate (Negri et al., 2007).

Since 1970, we have actively evaluated biodiversity in relation to the history of Sicilian vegetable cultivation in order to avoid the risk of germplasm disappearance of cultivated species as has occurred, for example, in parsnip (*Pastinaca sativa*, Umbelliferae) and seakale (*Crambe maritima*, Brassicaceae) as well as to recuperate ancient landraces (Scuderi and Branca, 2006).

In the following summary we give examples of some of the unique vegetables considered traditional, since they have a long history and are produced in restricted geographic areas.

## LILIACEAE

### *Allium cepa* var. *aggregatum* (Cipudda agghiarola)

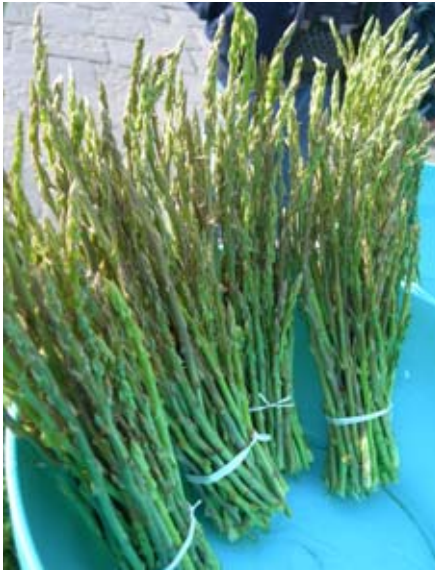
Information on the cultivation of this unusual allium is scarce but the history of the crop would seem similar, at least in part, to that of the onion to which it is related. It is common only in home gardens along the Ionian coast, where the leaves and the false stem are used to flavour some dishes, salads in particular.

The plant is characterised by continuous growth; it does not enter quiescence during the summer if irrigated and continuously produces shoots. A few months after sowing the plant becomes caespituous, forming matted tufts. The plant does not normally produce floral scapes and propagates by division; its difficulties in sexual reproduction resemble garlic.

Experimental data show a rapid growth of cipudda agghiarola; shoots weighed about four times more than the common onion cultivars such as 'Dorata di Parma' and 'Texas Grano', about nine months after autumnal transplanting of the same plantlets size. The rapid growth of the plant and its delicate aroma enhance its cultivation, although consumption is limited. No alternative uses other than those described are known. Sale of the fresh plant is sporadic and limited to local markets near the cultivation areas.

### *Asparagus* spp. (Wild asparagus)

Wild asparagus (*A. acutifolius*) is well known and utilised along with the cultivated types (*A. officinalis*), which are only recently cultivated by F<sub>1</sub> hybrids. The wild asparagus is widespread mainly in rocky and in sandy soil from the coast to the mountains, *Asparagus albus* is found mainly in clay soil in the plain or on hillsides, and *A. stipularis* is found in sandy soil along the coast and in the plain (Branca, 1997). The spears of wild asparagus are harvested during spring and autumn seasons and are characterised by a bitter taste. The produce is usually boiled and dressed with olive oil or used to prepare delicious omelettes. The spears of wild asparagus are thinner than those of cultivated species and for this reason the wild species are occasionally grown in home gardens and recently several peri-urban farms are interested



● Wild asparagus (*Asparagus albus*).  
 ● .....  
 ●



● Sicilian cauliflower diversity.  
 ● .....  
 ● Ciuretto.  
 ●



to introduce them in cultivation to respond to increased demand.

**Leopoldia comosa (Cipuddazzu)**

This species, another member of the lily family, is widespread in several habitats characterised

by sandy soils from the plain to the mountains. The bulbs are appreciated for their bitterness, which is removed partially by boiling. Bulbs are preserved under olive oil and/or vinegar and utilised as starter or as a condiment. There is great interest for their cultivation but at the moment the bulbs are only collected in the countryside. The flowering plant is very attractive as an ornamental.

**BRASSICACEAE**

**Brassica oleracea var. botrytis (Ciuretto)**

This violet cauliflower is considered a culton, that is a plant group that is diversified from previous cultivars. The “ciuretto” – literally small flower – is commonplace but cultivated almost exclusively in home gardens and peri-urban farms. The small size and the dark violet colour of the curd represent the characteristics that distinguish it from the more common and widespread violet cauliflower landraces. The inflorescences are particularly appreciated in typical dishes and meet the demands of different markets.

The plant is rather vigorous and the leaves normally have entire margins, rarely lobate. Removal of the curd, as with the cauliflower, does not induce branching. The inflorescence is smaller in size than in the common violet cauliflower that it would appear to have originated from, and the curd is rather rough on the surface because all the flower buds evolve into fertile flowers like broccoli. On the basis of preliminary genetic studies, other characteristics of this type are intermediate between those of the two putative relatives, cauliflower and broccoli.

The available genetic variability is rather broad based for both the plant's vegetative phase, as well as the size, structure, flower bud size, and colour of the curd (Branca, 1998, 2000b, 2008; Negri et al., 2007). The specific activities of collection, characterization, and conservation underway have up to now avoided genetic pol-

● .....  
 ● Cipudda agghiarola (*Allium cepa* var. *aggregatum*).  
 ●



● Wild plant (photo by Avner Cohen) and bulbs of *Leopoldia comosa* (*Muscari comosum*).  
 ● .....  
 ●

lution and the risk of genetic erosion due to the widespread presence of new F<sub>1</sub> hybrids of cauliflower, characterised by short cycle and smaller sized plants.

**CUCURBITACEAE**

**Lagenaria siceraria (Cucuzza longa, Bottle gourd, Calabash gourd)**

Bottle gourd is an ancient cucurbit that was referred to by Columella and Pliny. The plant has white flowers and fruit size and shape can be very variable; many have a very long neck. The mature fruits have thick woody rinds and have been used as vessels, floats, and many other uses. There are two common types: a short necked ornamental type, var. *a fiasco*, and a long edible type, var. *longissima*. The long fruits harvested at immature green stage were a popular vegetable in antiquity (*cucuzza longa*) but they were replaced by various immature fruits of *Cucurbita pepo* from the New World where various types are known as zucchini. However, the *cucuzza longa* is still a common vegetable in Sicily and is largely grown in home gardens and in peri-urban farms both for fruit and shoot production. The shoots, called *tenerumi*, are very appreciated in Sicily and they are very popular in summer season in



●  
: Cucuzzi or bottle gourd (*Lagenaria siceraria*)  
: on trellesis.  
:.....

local markets. Young shoots have a low sugar content and are boiled and eaten by diabetics. The immature fruits, undeveloped with small seeds, are usually sliced, after removing the epicarp, and boiled to make soup with onion and tomato or mixed in pasta dishes with chopped potatoes. In the past fruit slices were dried and rehydrated during the winter season and then boiled. Some farmers have selected types characterised by long, thin shape and light green colour (Iapichino et al., 2006). Recently the crop has been introduced in protected cultivation mainly for fruit production that is geared to local markets during the winter (Lipari, 1994; Iapichino et al., 2003).

***Cucumis melo* var. *flexuosus* (Cucummuru, Citrangolo, Snake melon)**

In Sicily, the snake melon or *cucummuru* is cultivated in specific locations on the Ionian coast and particularly in the province of Catania, from the coast up to 600 m above sea level. It is widespread in peri-urban farms where different growing cycles take place during the spring-summer seasons. Young, immature fruits are used in salads and are preferred to cucumber for its more delicate and pleasant aroma, for its greater digestibility, and for the absence of bitterness.

:.....  
: Cucummuru or snake melon (*Cucumis melo*  
: var. *flexuosus*).  
●



Different types with hairy fruits are grown in Puglia (e.g. Tortarello) and with smooth ones in coastal areas of some North African countries.

The stem is rather thin so the plant should be supported on trellises. The fruits are quite long, slender, and twisted, with a more or less strong green exocarp (rind) and longitudinal grooves, sometimes lighter, with a slightly hairy surface. The fruit is yellow at maturity and gives off the typical melon aroma.

In local trials the plant appears to be adapted to greenhouse cultivation, and yield is comparable to F<sub>1</sub> cucumber hybrids (Noto and Branca, 1993; La Malfa et al., 1996) even though genetic improvement of the plant has been neglected. The plant is somewhat sensitive to the main Cucurbitaceae viruses and to powdery mildew.

***Cucurbita ficifolia* (Cucuzza di Sette Anni, Fingleaf gourd, Malabar gourd)**

The area of cultivation for this gourd is the coastal citrus area in eastern Sicily where it is common in home gardens where only few plants are usually grown in relation to the large area it dominates. Specimens can be also found up to 600-700 m above sea level on the slopes of Mount Etna. It has special temperature requirements and grows successfully in irrigated lemon groves. The growth rate is rapid, and biomass production is high due to the numerous basal branches, some of which exceed 10 m. Plant growth and development occurs during summer and the fruit reaches commercial size in autumn. Productivity is higher; each plant produces about 20 fruits of about 1 kg each.

The plant is perennial but it can die with hard frosts and acts as an annual. Usually, the above ground part desiccates in winter and produces shoots at the base of the plant during spring. The plant is recognizable for the classic lobed form of the leaf, similar to that of the fig (hence its English name, fingleaf gourd). The plant is monoecious with staminate and pistillate flowers. In Sicily the plant flowers and fruits at the end of August to October.

The fruit is boiled in the early developmental phase when the rind, which must be eliminated before use, is still tender and seeds are small. The fruits in Sicily are light green and white spotted; other rind colours reported in literature are not common in Sicily. The plant does not suffer any particular disease problems and the fruits are appreciated as an "organic" product. Recently some genotypes are utilised as rootstock for the main cucurbitaceous vegetable species.

***Sechium edule* (Zucca centenaria, Cucuzza spinosa, Chayote)**

The plant has been introduced since the 18th century in Europe from Mexico, but there are no details on its arrival in Italy or Sicily. Individual plants or groups can be found along



●  
: Cucuzza or fingleaf gourd (*Cucurbita ficifolia*).  
:.....

the eastern coast of Sicily. The plant has intense growth and it is often supported by stakes or trellises or shaded pergolas well appreciated in summertime. The plant is perennial and produces shoots from the base of the stem but it desiccates completely in autumn and winter.

Propagation is usually by seed. Fruiting is abundant and flowers are regularly visited by bees and other insects. The green fruits, often in groups of two or more at the same node, are usually spiny, although there are plants with fruits that are smooth.

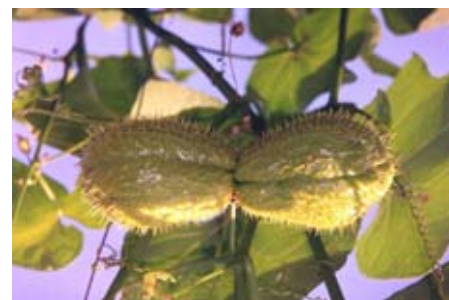
The peeled immature fruits are sliced and boiled like greens or fried; taste is sweet and sour. Occasionally, young shoots are collected, cooked and used in the same way as cucuzza longa (see above). The use of this vegetable is increasing.

**ASTERACEAE**

***Helianthus tuberosus* L. (Patacca, Topinambur, Jerusalem artichoke)**

Topinambur or Jerusalem artichoke, an early import from the New World, is occasionally found in home gardens where it is used both as an ornamental and as a food crop; the tubers are used in preparing a number of local dishes. It is a hardy plant that colonizes larger and larger areas through its numerous tubers. Tubers are 3-5 cm in diameter, with a creamy white or reddish-wine surface colour with white or yellowish pulp. In the Sicilian climatic and

:.....  
: Zucca centenaria or chayote (*Sechium edule*).  
●





● Flowers and tubers of patacca or Jerusalem artichoke (*Helianthus tuberosus*).  
●●●●●●●●

growing conditions, the plant propagates vegetatively from tubers. Tuberization takes place from the end of summer to autumn; harvesting may start in autumn and is carried out before the above-ground part is completely desiccated and can overcome the whole winter. The tubers, only about 20% dry matter, easily lose water and deteriorate. Most of the dry matter consists of inulin, a polysaccharide that hydrolyzes and turns into fructose, and that is better tolerated by diabetics. The flavour resembles that of the artichoke. Genetic variability is very limited in Sicily, and tuber production is decreasing.

The tubers are cooked for human consumption and fed raw to animals. There is some information on its use to produce syrups and alcohol. The nutritive value is inferior to potato tubers.

## FABACEAE (LEGUMINOSAE)

### *Vigna unguiculata* (Fasulina, Blackeyed pea, Cowpea, Yardlong bean)

Of central African origin, blackeyed pea was used by the ancient Greeks, Romans, and Arabs. The crop is particularly important in some tropical and subtropical countries, such as Nigeria and Brazil. In Sicily it is mainly widespread in coastal areas where it is traditionally grown in summer.

The plant is annual, with a straight-standing, twining stem with both dwarf and crawling forms. Leaves are alternating and formed by three triangular and rounded leaflets at the base. Flower colour varies from white to rose and lilac, grouped in two or three on long pedicels. The cylindrical pods are often curved, 20-35 cm long and pale green. The seeds are oval,

kidney-shaped, yellowish-white with a black hilum. Local cultivars that were well-known in eastern Sicily are increasingly rare in cultivation. Some types belonging to the subspecies *sesquipedalis*, with pods 70-80 cm long, are better known and particularly appreciated.

Immature pods and seeds are consumed and have become part of the traditional cuisine of Catania province in numerous locations. They are used in soups with tomato sauce or just boiled and dressed with salt and olive oil.

## LAMIACEAE

### *Ocimum basilicum* (Baciricò, Bacilicò, Basil)

Originated in subtropical Africa and in central Asia basil was well known during Greek and Roman ages. The plant is widespread in all Mediterranean countries in home gardens where it is well appreciated for its aromatic and ornamental characteristics. In many Mediterranean countries basil is a symbolic plant utilised for specific events such as for the engagement day, wedding day, or St. John's day. For these events the plants are usually grown in pots and exchanged as gifts and are very popular in the balconies and terraces along the coasts of several Mediterranean countries. In fact, basil can be considered a pioneer plant for soilless cultivation. In Italy basil is a traditional crop for its aromatic characteristics widely used in typical dishes. Along with parsley it is the most utilised flavour in the Mediterranean region. In Sicily, the traditionally grown types have a dwarf habit and small leaves (var. *minimum*) but during the last decades types with large leaves (var. *maximum* and var. *bullatum*) have increased and are especially utilised in the northern Italian regions to prepare *pesto* sauce as a condiment for pasta. Basil is an important ingredient for local dishes associated with



● Fasulina or blackeyed pea (*Vigna unguiculata*).  
●●●●●●●●

tomato and/or aubergine. The crop surface is increasing both in open air and in protected cultivation as a consequence of the great request both for fresh and processed products. In order to satisfy the continuous demand for leaves the plant is grown now in greenhouses. In a monitored Catania peri-urban farm we recorded 21 growing cycles, both in open field and in cold greenhouse, providing year round product (La Malfa and Branca, 2001).

●●●●●●●●  
● Baciricò or basil (*Ocimum basilicum*).  
●



## REFERENCES

- Argento, S., Ruggeri, A., Branca, F., Todaro, A. and Spagna, G. 2006. Caratterizzazione di tipi locali di *Solanum melongena* L. diffusi in Sicilia. *Italus Hortus* 13(2):614-617.
- Bianco, V.V. 1989. Wild plants utilizable as vegetables and condiment herbs in Italy. International Symposium on Horticultural Germplasm, Cultivated and Wild, International Academic Publishers, Beijing. p.55-64.
- Branca, F. 1992a. La flora spontanea di interesse alimentare. *Giornate Scientifiche SOI* 1992. p.90-91.
- Branca, F. 1992b. Studi su specie erbacee della flora spontanea di interesse alimentare. Tesi di dottorato di ricerca, Università di Catania, Sicily.
- Branca, F. 1997. Confronto tra genotipi di asparago in Sicilia. *L'Informatore Agrario* 39:43-45.
- Branca, F. 1998. Caratterizzazione di tipi di cavolfiore violetto. *Atti IV Giornate Scientifiche SOI*. p.79-80.
- Branca, F. 1999a. Caratteristiche delle bacche in tipi locali di pomodoro da serbo. *Sementi Elette*, XLV. p.17-22.
- Branca, F. 1999b. La zucca da zucchini. p.231-246. In: V.V. Bianco, G. La Malfa and S. Tudisca (eds.), *Fisionomia e profili di qualità dell'orticoltura meridionale*. Consiglio Nazionale delle Ricerche, Roma.
- Branca, F. 2000a. Valutazione di cultivar locali di cavolfiore violetto. Workshop "Risultati del primo anno di attività del Piano Nazionale di Ricerca per l'Orticoltura del Mipa", Sirmione, 29 Marzo 2000. p.114-115.
- Branca, F. 2000b. Prove di coltivazione di specie spontanee siciliane di interesse alimentare. *Italus Hortus* 8(4):22-26.
- Branca, F. 2006. Attività per la valorizzazione della diversità specifica e genetica del genere Brassica. *Italus Hortus* 13(2):562-568.
- Branca, F. 2008. Cauliflower and broccolis. p.147-182. In: J. Prohens and F. Nuez (eds.), *Vegetables I*, Springer, New York.
- Branca, F. and Iapichino, G. 1997. Some wild and cultivated *Brassicaceae* exploited in Sicily as vegetables. *FAO/PGRI Plant Genetic Resources Newsletter* 110:22-28.
- Branca, F., Li, G., Goyal, S. and Quiros, C. 2002. Survey of aliphatic glucosinolates in Sicilian wild and cultivated *Brassicaceae*. *Phytochemistry* 59:717-724.
- Iapichino, G., Incalcaterra, G., Vetrano, F. and Bartolino, M. 2006. Studi su ecotipi diversi di lagenaria (*Lagenaria siceraria* Mol. Standl.) coltivati in Sicilia. *Italus Hortus* 13(2):720-723.
- Iapichino, G., Vetrano, F. and Incalcaterra, G. 2003. Evoluzione della coltura della lagenaria in Sicilia. *Italus Hortus* 10:158-161.
- La Malfa, G. and Bianco, V.V. 2006. Agrobiodiversità nel settore orticolo: espressioni e nuove esigenze. *Italus Hortus* 13(2):31-44.
- La Malfa, G. and Branca, F. 2001. L'orticoltura suburbana: caratteristiche e funzioni. *Atti V Giornate Scientifiche SOI*, Sirmione, 28-30 Marzo 2000. p.247-248.
- La Malfa, G., Noto, G., Branca, F., Leonardi, C. and Romano, D. 1996. Optimisation of protected cultivation by introducing new crops or by modifying some growing techniques. Final report on activities carried out within the EEC Research Project 8001-CT90-0015, Università di Catania, Sicily.
- Lipari, V. 1994. Calendario di raccolta e resa di *Lagenaria siceraria* (Mol.) Standl. in serra fredda. *Atti Giornate Scientifiche SOI*, S. Benedetto del Tronto. p.233-234.
- Negri, V., Branca, F. and Castellini, G. 2007. Integrating wild plants and landraces conservation in farming systems: a perspective from Italy. p.392-402. In: N. Maxted et al. (eds.), *Crop Wild Relative Conservation and Use*, CAB International, Wallingford, UK.
- Noto, G. and Branca, F. 1993. Work in progress on crop diversification in protected cultivation in the Mediterranean climate. Report EUR 15123 EN. p.169-184.
- Scuderi, D. and Branca, F. 2006. La pastinaca in Sicilia: una coltura praticamente scomparsa. *Italus Hortus* 13(2):795-798.
- Tribulato, A., La Malfa, G. and Branca, F. 2007. Il contributo delle piante mediterranee allo sviluppo dell'orticoltura. *Atti II convegno Piante Mediterranee*. p.511-519.
- Viani, P. 1926. *Trattato di Orticoltura*. Casa Editrice Battiato, Catania.

## ABOUT THE AUTHORS



● **Ferdinando Branca**



● **Giuseppe La Malfa**

Ferdinando Branca, Associate Professor of Catania University, has been involved in scientific activities related to diversification of vegetable, ornamental and officinal crops by exploitation of wild and cultivated germplasm and is Chair of the Brassica Working Group and member of the Vegetable Coordinating Network of the European Cooperative Programme on Genetic Resources. Email: fbranca@unict.it

Giuseppe La Malfa is Professor of Catania University, Chair of Vegetable and Flower Crops, and Departmental Director. Research activities since 1960 deal with subjects related to crop diversification, growing methods both in open field and in greenhouse. He presently coordinates activities of EU and national research projects and is an emeritus member of the Italian Horticulture Society. Email: glamalfa@unict.it