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SOUTH ITALY AND SICILY – HOTSPOTS FOR CULTIVATED PLANTS

Karl Hammer*[1], Gaetano Laghetti*[2] & Domenico Pignone[3]

*[1]University of Kassel, Agrobiodiversity - Steinstr. 19 D - 37213 Witzenhausen

[2 &3]Plant Genetics Institute, National Research Council, via G. Amendola, 165/A, 70126 – Bari, Italy

Corresponding Author:- Gaetano Laghetti, Email:-gaetano.laghetti@ibbr.cnr.it

Abstract

South Italy and Sicily played an important role in the evolution of cultivated plants. Although the first crops have been introduced to this area from the South-eastern Mediterranean, the area soon developed into an important gene center (according to Vavilov).

A combination of historical studies and botanical field work resulted in a list of more than 600 species of cultivated plants, in the definition of Mansfeld (i.e. excluding ornamentals). A classification of these plants into chronoelements brought the result that less than 105 elements of the present agri- and horticultural flora are archaeophytes. Palaeophytes coming from the 5th century BCE to the 15th century CEconstitute about 16 % of the cultivated plants.The neophytes are a very large group, about 36%, mostly from the Americas. Nearly of the same dimension, but mostly of minor economic importance, is the group of crops which have been newly domesticated in the area from native species. The specific combination of many introductions through the times from different regions and selection pressure in the developing agro-ecosystems within an area of cultural richness resulted in a wealth of cultivated plants. The evolutionary power of this area has to be stressed. The result is a hotspot of cultivated plants.

At present we have a tendency towards reduction at the infraspecific level (genetic erosion) and at the species level (extinction) mainly as a result of specialization and globalization effects. On the other hand there is an increase in the flora of ornamental plants (by new introductions).

I. INTRODUCTION

Cultivated plants, in the sense of Mansfeld [1], which are or have been cultivated for food, forage, medicine, oil, fibre, spice, green manure and other purposes, without considering their economic importance, nor areal restrictedness or degree of domestication. Hedge plants and plants cultivated for environmental purposes, e.g. wind protection, etc., are also included. Mansfeld [2], in the first edition of the above cited book excluded the complicated and rich group of ornamental plants. We followed his intentions, because our exploration, based on field survey and collection of endangered species and races, was the basis for our studies. Ornamental plants, though often observed and highly appreciated, did not fit into the concept. Heywood [3] estimated the number of the European Garden Flora to consist of ca. 12,000 species. A recent account of world-wide existing cultivated plants (14 % of the totally existing higher plants [4]), estimated the ornamental plants alone to consist of some 28,000 species, to be the largest group, followed by the species from the above indicated Mansfeld approach (7,000 species) and some other small groups, such as plants from forestry cultivation [5].The high number of ornamental plants would, thus, exceed the narrow borders of our working capacity. Ornamental plants have been only included if they are grown for reasons included in the Mansfeld approach (see [6]).

The specific approach in dealing with cultivated plants has been discussed by Hammer et al. [7]. A combination of natural history and cultural studies is necessary as already proposed by V. Hehn (see [8]). A recently published booklet of Hondelmann [9], historical studies observing modern natural and agricultural sciences, provides basic information on the cultivated plants of classical times. South Italy and Sicily have been outstanding areas for the evolution of agriculture.

Medieval sources are relatively rare. Palladius (4th or 5th century CE), the last Latin writer on agricultural economy wrote the "opus agriculturae" [10]. The "capitulare de villis" of Charlemagne (768 – 814) is one of the most important sources. His Empire covered also the north and most of the centre of the present days Italy and even reached the northern part of our area. A newly elaborated version of his famous register has been taken as one of the principal sources for our compilation [11]. Many new medicinal plants have been introduced into the gardens during that time.

There is a growing number of accounts on cultivated plants in the late Medieval times with the highlight of Albertus the Great (c. 1200 – 1280). His work has been extensively used by Petrus de Crescentiis (Pier de' Crescensi) (1233 – c. 1320) from Bologna who wrote an excellent manual of agriculture [12] (see also [10]).

Later Italian sources clearly indicate Northern parts of Italy as decisive for the development of agriculture, contrary to classical times.

New input came from the developing botanical research. Useful sources include the "exotic flora of Italy" [13]. An excellent account on the development of botany is provided by Pignatti [14]. Cultivated plants have been treated notably by Mattioli (1500 ? – 1577) and Scopoli (1723 – 1788). Tenore (1780 – 1861) and Gussone (1787 – 1866) concentrated their work on the southern parts of Italy. Bertoloni (1775 – 1869) wrote the first flora of Italy followed by a number of important floras, the fifth of which, compiled by Fiori (1865 – 1950) contained many detailed information on cultivated plants. The same is true for Pignatti's flora [14], which has been used as an important basis for our compilation of the cultivated plants of South Italy in form of a checklist [15]. This checklist , again, served as the basis for a catalogue for cultivated plants of South Italy [16]. Northern and central Italy were covered in another catalogue [17] and, finally, the outcome of a treatment of the cultivated plants including the whole of Italy is expected [6]. This dynamic approach is the basis for the list of the cultivated flora of South Italy. Step by step new species have been introduced from other areas or taken into cultivation from local wild plants.
It should be mentioned that the checklist method is now also applied for the wild plants of Italy [18, 19]. Our continuing field work since 1980 [20] has produced a good knowledge towards the flora of cultivated plants of Italy, comprising now more than 700 species.

A recent treatment of the cultivated plants of South Italy and Sicily was compiled in connection with a booklet discussing the influences of the Arberesh (Albanian) population on the development of the flora of cultivated plants of this area [7]. For this pupose the neophytes were only of minor importance. The same was true for a number of other plants coming from the western Mediterranean, northern Africa and Central Europe. In the present elaboration all available sources are included.

II. MATERIAL AND METHODS

For the present treatment we consider archaeophytes (c. 5000 – 4000 B. C. to 6th cent. B. C.), palaeophytes (5th cent. BCE to 15th cent. CE) and neophytes (16th cent. A. D. to present) following a previously proposed classification [21] which is largely based on the classical work of De Candolle [22]. A chronological history of the cultivated plants in the sense of Pickering [23] could not be achieved. There are some reports which provide excellent accounts of selected crops, as e.g. forage crops (Ambrosoli [10], area specific) or the vegetables *Rumex* and *Rheum* (Foust [24], general approach), but, as a rule, we could only record some short indications about the large amount of many different crops. The critical reconstruction of cultivated plants' history was always checked against the results of our intensive field work which proved the survival of most of the crop plants at least at the species level (see also [9], p. 109).

Apart from botanical (classical and modern) and archaeological sources [25, 26, 27, 80], a large amount of other data has been used, e.g. from paintings, so that a dynamic picture of the flora of cultivated plants could be produced. Zohary and Hopf [28] served as a basis for putting our results into a palaeoethnobotanical framework.

The area includes South Italy (Apulia, Basilicata, Calabria, Campania) and Sicily. For a brief overview of the exploration missions see Laghetti and Hammer [29]. Also results from several missions to Sardinia are included [30, 31, 32, 33, 34]. But this large and diverse island needs still a better exploration in view of new and so far not described crop types, e.g. the *Citrus* race "Pompia" [35] or the formerly rich wheat resources [36] which are partly preserved in genebanks.

III. RESULTS AND DISCUSSION

The following concise checklist is the result of our studies. It contains the botanical names and families (for a more complete treatment see [6]), the commodity groups of cultivated plants and the parts used (see following explanation), and the chronoelements (after Hammer and Laghetti [21], A = archaeophytes, P = palaeophytes, N = neophytes and E cultivated plants originated in the area). In some cases a short discussion is provided, mostly concerning the introductory history of cultivated plants. Additionally the Latin names are given (mostly after Hondelmann [9]). The great number of Italian folk and other names can be found in Penzig [37], Hammer et al. [6, 16].

Plant uses		**Parts used**	
C.	cereals	(b.)	bulbs
Fi.	Fibre crops	(ba.)	bark
Fo.	Fodder crops	(fl.)	flowers
Fr.	Fruits	(fr.)	fruits
I.	Industrial crops	(h.)	herb
M.	Medicinal plants	(l.)	leaves
N.	Nuts and related	(r.)	roots, rhizomes
Oi.	Oil crops	(s.)	seeds
Pu.	Pulses	(st.)	stem
Sp.	Spices and condiments	(w.)	wood
St.	Starch plants excl. cereals		
V.	Vegetables		

Other (minor or rare) uses are given in full text, e.g. "hedges".

Abelmoschus esculentus (L.) Moench (Malvaceae). V. (fr.) N
Abelmoschus moschatus Medik. (Malvaceae). I. (s., perfume) P
Acacia dealbata (Wendl.) Link (Leguminosae). I. (ba., tanning) N
Acacia farnesiana (L.) Willd. (Leguminosae). Hedge plant N
Acacia horrida (L.) Willd. (Leguminosae). Living fences N
Acacia mearnsii De Wild. (Leguminosae). Wind break, I. (ba., tanning) N
Acacia pycnantha Benth. (Leguminosae). I. (ba., tanning), wind break N
Acacia saligna (Labill.) Wendl. (Leguminosae). Wind break N
Acca sellowiana (Berg) Burret (Myrtaceae). Fr. N
Acer campestre L. (Aceraceae). Hedge plant E
Achillea millefolium L. (Compositae). M. (fl., h.) E
Acorus calamus L. (Araceae). I. (r., essential oil) N
Actinidia deliciosa (A. Chev.) Ferguson (Actinidiaceae). Fr. N
Aesculus hippocastanum L. (Hippocastanaceae). I. (ba., tanning) N
Agave americana L. (Agavaceae). Hedge plant N
Agave sisalana Perrine (Agavaceae) Fi. (l.) N
Agropyron elongatum (Host) Pal. Beauv. (Gramineae). Fo. E
Agropyron intermedium (Host) Pal. Beauv. (Gramineae). Fo. E
Agrostis stolonifera L. (Gramineae). Fo. E
Agrostis tenuis Sibth. (Gramineae). Fo. E

Ailanthus altissima (Mill.) Swingle (Simaroubaceae). Fo. (l.) N
Alcea rosea L. (Malvaceae). M. (fl.) P
Allium ampeloprasum L. (Alliaceae). V. (bu.), Sp. (bu.) P
Allium cepa L. (Alliaceae).V. (bu., l.), M. (bu., l.) A cepa, cepula.

In the area since classical times. *Allium cepa* var. *aggregatum* G. Don (var. *ascalonicum* (L.) Backer) was already mentioned by Theophrastus . Columella used the name "cepa capitula". This name was interpreted as *Allium x proliferum* (Moench) Schrad. ex Willd. , a proposed hybrid between *A. cepa* and *A. fistulosum*, . but we have to consider the late arrival of *A. fistulosum* (Middle ages or a little later [22]) and the hybrid in the Mediterranean area (see also [9]). No long tradition in the area has also *A. schoenoprasum* L. which is selected by Hondelmann [9] as a possible candidate for one of the numerous variations described by the classical authors. Our knowledge about classical onions is still very limited. For the uncertainty of using ancient texts see Pignone [38].

Allium controversum Schrad. ex Willd. (Alliaceae). V. (bu.)P? Possibly not very long in the area. Not mentioned by the classical writers nor by Charlemagne [22]. But this species gives the impression of a traditional crop belonging to the area [6].
Allium fistulosum L. (Alliaceae). V. (l., bu.) P?
Allium porrum L. (Alliaceae). V. (bu., l.) P porrum. Today often classified as a cultivar-group of *Allium ampeloprasum* L., a native plant of the Mediterranean area. The species was well known to Pliny. He also mentioned "sectivum" which is closely related to "porrum". Hondelmann [9] tends to *A. schoenoprasum* in the interpretation of this race. Probably another race is more likely – *A. porrum* var. *sectivum* F.H. Lueder?
Allium x proliferum (Moench) Schrad. ex Willd. (Alliaceae). V. (l., bu.)P?
Allium sativum L. (Alliaceae). Sp. (bu.), V. (bu.), M. (bu.) A allium, alium. Cultivated in the area since classical times. A large diversity is described by Theophrastus. Columella mentioned "afraskorodon" [9]. This could be a member of the Ophioscorodon Group of *A. sativum*. Some classical descriptions give also a hint to *Allium ampeloprasum* L., the great-headed garlic [6].
Allium schoenoprasum L. (Alliaceae). V. (l.) N
Aloe arborescens Mill. (Asphodelaceae). M. (l.) N
Aloe vera (L.) N.L. Burm. (Asphodelacee). M. (l.), hedges P
Alopecurus pratensis L. (Gramineae). Fo. E
Althaea officinalis L. (Malvaceae). M. (r.) E A traditional medicinal plant in the area [6].
Amaranthus cruentus L. (Amaranthaceae). V. (l.) N
Amaranthus hypochondriacus L. (Amaranthaceae). Repellent. N. Other *Amaranthus* species, as *A. caudatus* L. and *A. tricolor* L. are cultivated as ornamental plants and often naturalized. Possibly also old leaf vegetables.
Amaranthus lividus L. em. Thell. ssp. lividus. (Amaranthaceae). V.(l.) P blitum.This is an old cultivated plant of the area [6]. Hondelmann [9] cites Pliny as a possible source for this traditional race.
Amelanchier ovalis Medik. (Rosaceae). Fr. (grafting stock) E
Ammi majus L. (Umbelliferae). Sp. (s.), M. (s.) P? Probably cultivated as a medicinal plant since classical times. After Maaß [39] listed in the "capitulare de villis" of Charlemagne [11].
Anacyclus pyrethrum (L.) Link (Compositae). Sp. (r.) P
Ananas comosus (L.) Merr. (Bromeliaceae). Fr. N
Anethum graveolens L. (Umbelliferae). Sp. (l.), M. (fr.) P anetum. Already described as a cultivated pot-herb by the classical writers.
Annona cherimola Mill. (Annonaceae). Fr. N
Anredera cordifolia (Ten.) Steenis (Basellaceae). V. (l.) N
Anthemis tinctoria L. (Compositae). I. (dye, fl.) P.
Anthriscus cerefolium (L.) Hoffm. (Umbelliferae). V. (l.) P cerefolium. Firstly mentioned by Columella and Pliny as cultivated in the area [22].
Anthyllis vulneraria L. (Leguminosae). Fo. E
Apium graveolens L. (Umbelliferae). V. (l., r.), M. (r.), Sp. (l.) E apium.

Very old crop in the Mediterranean (Homeric times, [40]). Var. *dulce* (Mill.) Pers. seems to be the oldest cultivated race in the area, var. *secalinum* Alef. is also traditional. Var. *rapaceum* (Mill.) Gaud. is known from Italy since the 16th century [6].

Aptenia cordifolia (L.f.) Schwantes (Aizoaceae). Sand binder N
Arachis hypogaea L. (Leguminosae). N. N
Arbutus unedo L. (Ericaceae). Fr. E
Arctium lappa L. (Compositae). M. (l., r., fr.) E
Aristolochia clematitis L. (Aristolochiaceae). M. (r.) E Probably already mentioned by Pliny as a fish poison.
Armoracia rusticana Gaertn., Mey. et Scherb. (Cruciferae). Sp. (r.), M. (r.) N? armoracia. Pliny described a form of "raphanus" (cerais) from "Pontus armon", which was also called "armoracia". With a very long root and leaves up to 1 m long it matches the description of this species, but it could be also a form of *Raphanus*. The time of arrival of *A. rusticana* in the area is still under discussion.
Arrhenatherum elatius (L.) J. et C. Presl (Gramineae). Fo. E
Artemisia abrotanum L. (Compositae). M. (l.), Sp. (l.) P Medicinal plant mentioned since the times of Dioskorides [11].
Artemisia dracunculus L.(Compositae). Sp. (l.), M. (h.) P A garden plant since the Middle ages [11].
Artemisia vulgaris L.(Compositae). M. (h.) E Mentioned as important medicinal plant by Petrus de Crescentiis [12].
Arundo donax L. (Gramineae). M. (h.), hedges and wind break E.
Asimina triloba (L.) Dunal (Annonaceae). Fr. N
Asparagus officinalis L. (Asparagaceae). V. (sprouts) E asparagus. Known as cultivated in the area since Roman times [14]. The word "asparagus" is used for the first time in Latin language by Cato (De agri cultura VIII, 4, [9]).
Astragalus boeticus L. (Leguminosae). I. (r.) E?
Atriplex halimus L. (Chenopodiaceae). Fo., living fences N. Possibly introduced from northern Africa.
Atriplex hortensis L. (Chenopodiaceae). V. (l.) P atriplex. A vegetable already mentioned by the classical writers (e.g. Theophrastus), but of decreasing importance [11].
Avena brevis Roth (Gramineae). C. P
Avena byzantina Koch (Gramineae) C. P avena, bromos. The so-called "Greek avena" with non-shattering grains mentioned by Columella is quite probably this species [9]. Pliny mentioned avena as used for pap ('polenta') north of the Alps. This was for sure another species, e.g. *Avena sativa* L., of no great importance in the area. The interpretations of the classical informations with respect to modern taxonomy is not easy. Other *Avena* spp. may be also tradional crops in the area, e.g. *A. sativa* and *A. strigosa* Schreber (see [6, 22]).
Avena strigosa Schreb. (Gramineae). C. P
Ballota pseudodictamnus (L.) Benth. (Labiatae). M. (h.) P?N?
Basella alba L. (Basellaceae). V. (l.) N
Bassia scoparia (L.) Scott (Chenopodiaceae). I. (brooms) E
Berberis vulgaris L. (Berberidaceae). Fr., M. (fr.) hedges E As a cultivated fruit shrub mentioned by Petrus de Crescentiis [12].
Beta vulgaris L. (Chenopodiaceae). V. (r., l.) E beta. This species was domesticated in the Mediterranean. Leaves and roots of the same plants were used in classical times [9]. A differentiation into leaf-beets (convar. *cicla* (L.) Alef.) and beets with fleshy roots (convar. *vulgaris*) occurred later on. Still cultivated taking seeds from the wild, as observed in several occasions [38]
Bituminaria bituminosa (L.) C. H. Stirton (Psoralea bituminosa L.)(Leguminosae). Fo., M. (h.) E trifullon. Cultivated already during antiquity as a medicinal plant and later on as a forage crop [10].
Borago officinalis L. (Boraginaceae). M. (h.), V. (l., fl.) N? P?
Bougainvillea spectabilis Willd. (Nyctaginaceae). Wind break N
Brachypodium pinnatum (L.) Pal. Beauv. (Gramineae). Fo. E
Brassica napus L. (Cruciferae). V. (r.) P? napus (rapum). The exact determination of this tetraploid beet-crop (ssp. *napobrassica* Hanelt) was only possible since the 16th to 17th century. But, in fact, it should be much older. The oil-crop ssp. *napus* (colza), is known from some herbals (16th to 17th centuries). See also under *Brassica rapa* L.
Brassica nigra (L.) Koch (Cruciferae).M. (s.), V. (l.) E An old crop in the area.

Brassica oleracea L. (Cruciferae) V. (l., bu., fl.) E, partly P brassica. After Hanelt [41] var. *viridis* L. and var. r*amosa* DC. are the orginal races in the area. Theophrastus describes several races, including the wild one and primitive cultivars [9]. Cato (De agriculture CLXV, [9]) writes: "Brassica est quae omnibus holeribus antistat", thus characterizing the species as the best of all vegetables. Interestingly he mentiones also a wild *Brassica*: *Brassica cretica* from Kriti which could be the still existing Brassica cretica Lam. (*B. oleracea* ssp. *cretica* (Lam.) Gladis et Hammer), which is often discussed as progenitor of the cauliflower. Pliny describes several forms, among others head-forming races from Cumae and races with curly leaves.
Brassica rapa L. em. Metzg. (Cruciferae). V. (l., bu., fl.), Oi, (s.)E. but also P and N rapum (napus). Columella differentiates between rapa and napus, as also Pliny and some other authors. But it is not clear, which species is meant in the present understanding. *Brassica rapa* is extremely variable in the area, showing nearly the same variation as *B. oleracea* , and should be an old group of diploid cultivars in the area.
Brassica tournefortii Gouan (Cruciferae) V. (l.), Oi. (s.) E (see [6])
Bromus inermis Leyss. (Gramineae). Fo. N (introduced from North Italy).
Bromus secalinus L. (Gramineae). C. E Possibly an old domesticate.
Bromus willdenowii Kunth (Gramineae). Fo. N
Broussonetia papyrifera (L.) L'Hèr. ex Vent. (Moraceae).I. (paper) N
Bryonia alba L. and Bryonia dioica Jacq. (Cucurbitaceae). M. (r.) E Known since classical times [42]. Important Mediaeval medicinal plants [11]. Today mostly a climbing ornamental for pergolas and fences [81].
Calamintha nepeta (L.) Savi (Labiatae). Sp. (h.) E
Calendula officinalis L. (Compositae). M. (fl.) E Today a common ornamental. But since Mediaeval times also an important medicinal plant. The identification of classical sources is difficult [11].
Camelina sativa (L.) Crantz (Cruciferae). Oi. (s.) E?
Campanula rapunculus L. (Campanulaceae). V. (r., l.) E
Canna edulis Ker-Gawler (Cannaceae). St. (r.) N
Cannabis sativa L. (Cannabaceae). Fi. (st.), Oi. (s.) A cannabis. Herodotus describes this species as an introduced fiber crop for Greece [43]. Varro and Columella mention it for Rome [9].
Capparis sicula Duham. (Capparaceae). Sp. (fl. buds) E
Capparis spinosa L. (Capparaceae). Sp. (fl. buds, fr.), M. (ba.) E capparis. Described from cultivation by classical writers.
Capsicum annuum L. (Solanaceae).V. (fr.), Sp. (fr.) N
Capsicum chinense Jacq. (Solanaceae). Sp. (fr.), V. (fr.) N Relatively late introduction. Detected in the area on some small agricultural islands [21].
Capsicum frutescens L. (Solanaceae). Sp. (fr.) N In agricultural literature mostly not differentiated from *C. annuum.*
Cardiospermum halicacabum L. (Sapindaceae). N Grown as a curiosity for kitchen use [37].
Carica x heilbornii Badillo (Caricaceae). Fr. N
Carica papaya L. (Caricaceae). Fr. N
Caria pubescens Lenne et C. Koch (Caricaceae). Fr. N
Carissa macrocarpa (Eckl.) DC. (Apocynaceae). Fr. N
Carpinus betulus L. (Corylaceae). Hedge plant E
Carpobrotus acinaciformis (L.) L. Bol. (Aizoaceae). Sand fixation N
Carpobrotus edulis (L.) N.E. Brown (Aizoaceae). Sand fixation N
Carthamus tinctorius L. (Compositae). Oi. (s.), I. (fl., dye) P Known in the area since classical times as a medicinal plant. Later on, the flowers were used for dying [6].
Carum carvi L. (Umbelliferae). Sp. (fr.), M. (fr.) E Known since late antiquity as a condiment and medicinal plant [9, 11].
Carya illinoinensis (Wangenh.) K. Koch (Juglandaceae). N. N
Carya ovalis Wangenh.) Sargent (Juglandaceae). N. N
Carya ovata (Mill.) K. Koch (Juglandaceae). N. N
Casimiroa edulis La Llave ex Lex. (Rutaceae). Fr. N
Castanea molissima Blume (Fagaceae). N. N

Castanea sativa Mill. (Fagaceae). N. A? A traditional tree of the area. Highly domesticated races (marroni with single kernel) are propagated by grafting. The art of grafting can be still observed in the area. This art has been demonstrated recently in Spain in a publication reporting about grafting *Castanea sativa* on *Quercus suber* L. [44]. The presence of marroni in Pliny's time is not sure [22].
Casuarina equisetifolia J.R. et J.G. Forster (Casuarinaceae). Wind break N
Casuarina stricta Dryand (Casuarinaceae). Wind break N Occasionally also other *Casuarina* species are cultivated, e.g. *Casuarina glauca* Sieber ex Spreng [6].
Cathayeia polycarpa (Maxim.) Ohwi (Flacourtiaceae). Fr. N
Celtis australis L. (Ulmaceae). Fr., shade tree E lotus. A traditional fruit tree in the area but on a low level of domestication [9].
Cephalaria syriaca (L.) Roem. et Schult. (Dipsacaceae). C. A A co-domesticated cereal weed.
Ceratonia siliqua L. (Leguminosae). Fo. (fr.), St. (fr.) P In the area since classical times [6]. The Italian names "carrubo" and "carubio" have a Arab origin [22].
Cercis siliquastrum L. (Leguminosae). V. (l., fl.) E
Cereus jamacaru DC. (Cactaceae). Fr. N
Chaerophyllum bulbosum L. (Umbelliferae). V. (r.) E A very rare crop in South Italy.
Chamaemelum nobile (L.) All. (Compositae). M. (fl.) P
Chenopodium album L. (Chenopodiaceae). V. (l.) E Formerly grown as vegetable [6].
Chenopodium ambrosioides L. (Chenopodiaceae). M. (h.) N
Chenopodium bonus-henricus L. (Chenopodiaceae). V. (l.) E
Chenopodium botrys L. (Chenopodiaceae). M. (h.) E Formerly cultivated [6].
Chenopodium giganteum D. Don (Chenopodiaceae). V. (l.) N
Chrozophora tinctoria (L.) Juss. (Euphorbiaceae). I (dye) E
Chrysobalanus icaco L. (Chrysobalanaceae). Fr. N
Cicer arietinum L. (Leguminosae). Pu. P cicer. Variable and important crop already in classical times. In Greece since Homer's time [22].
Cichorium endivia L. (Compositae). V. (l.), Fo. (l.) E A race with crisp leaves (var. *crispum* Lam.?), etiolated during winter to reduce the bitter principle of the leaves, was cultivated in Roman times [45].
Cichorium intybus L. (Compositae). V. (l., r.), Fo. (l.), M. (r.) E cichorium, seris intubum. According to Pliny also cultivated in Egypt. But mostly wild plants have been used for vegetable [9].
Citrullus colocynthis (L.) Schrad. (Cucurbitaceae) M. (s.) A
Citrullus lanatus (Thunb.) Matsum. et Nakai (Cucurbitaceae). Fr. A colocynthis. Well known already in classical times. *C. colocynthis* (L.) Schrad. and this species are known under the same classical name [9] , see discussion by Andrews [46] also with respect to *Cucumis*.
Citrus aurantiifolia (Christm. ex Panz.) Swingle (Rutaceae). Fr. P
Citrus aurantium L. (Rutaceae). Fr., Sp. (fr.), M. (fr.) P
Citrus bergamia Risso et Poit. (Rutaceae). Sp. (fr. peel), M. (fr. peel) P It is in the area since the 15th century [47].
Citrus deliciosa Ten. (Rutaceae). Fr. N
Citrus limetta Risso (Rutacee). Fr., Sp. (fr.) N
Citrus limon Burm. f. (Rutaceae). Fr., M. (fr.) P
Citrus medica L. (Rutaceae). Sp. (fr. peel), Fr., M. (fr.) P citrus, malum medicum. This was the first *Citrus* fruit coming to the Mediterranean basin about 400 BCE [78]. *Citrus aurantium* L. (aurancium, arangium) and *Citrus limon* Burm. f. have been introduced to the Italian territories only in late Mediaeval times. Today many other *Citrus* species are cultivated in the area [6].
Citrus myrtifolia Raf. (Rutaceae). Fr., Sp. (fr.) P?
Citrus paradisi Macfadyen (Rutaceae). Fr. N
Citrus sinensis (L.) Osbeck (Rutaceae). Fr. N
Citrus unshiu Marc. (Rutaceae). Fr. N
Cnicus benedictus L. (Compositae). M. (fl., fr., h.) E
Coccoloba uvifera (L.) L. (Polygonaceae). Erosion control N
Cochlearia glastifolia L. (Cruciferae). M. (h.) N
Cochlearia officinalis L. (Cruciferae). V . (l.), M. (l.) N

***Coix lacryma*-jobi** L. (Gramineae). Grown for the production of rosaries N
Colocasia esculenta (L.) Schott et Endl. (Araceae). St. (r.) P Introduced to the area already in Roman times [48].
Colutea arborescens L. (Leguminosae). Hedge plant E
Cordia myxa L. (Boraginaceae). Fr., I. (dye, l., fr.), M. (fr.) P Native in the Indo-Malaysian area. Introduced to the area in Roman times. Now very rare [6].
Coriandrum sativum L. (Umbelliferae) M. (fr.), Sp. (fr.), V. (l.) P coriandrum. Mentioned by classical writers as a condiment.
Cornus mas L. (Cornaceae). Fr. E Mentioned as a fruit tree which is occasionally cultivated [12].
Cornus sanguineus L. (Cornaceae). Oi. (fr., s.) wind break E
Corylus avellana L. (Corylaceae). N. P Already cultivated since Roman times [49]. Several provenances have been listed by Theophrastus [9]. So important in Campania region that the town Avellino takes its old name from this plant widely growing in the area
Corylus maxima Mill. (Corylaceae). N. P
Corylus pontica K. Koch (Corylaceae). N. P
Crambe maritima L. (Cruciferae). V. (l.) N Occasionally planted.
Crataegus azarolus L. (Rosaceae). Fr. P.
Crataegus laciniatus Ucria (Rosaceae). Fr. E
Crataegus laevigata (Poir.) DC. (Rosaceae). Hedge plant, grafting stock E
Crataegus monogyna Jacq. (Rosaceae). Fr., M. (fr.), hedge plant E
? Crataegus orientalis M. Bieb. ssp. presliana Christensen (Rosaceae). Eventually conspecific with *C. laciniatus* (see there).
Crithmum maritimum L. (Umbelliferae). V. (l.) E Today increasingly cultivated [6].
Crocus sativus L. (Iridaceae). Sp. (stigmata) P According to Pliny cultivated in the area [22].
Crocus vernus (L.) All. (Iridaceae). M. (bu.) E
Cucumis melo L. (Cucurbitacee). Fr., V. (fr.) P pepones?, melo? The names mentioned by classical authors are difficult in interpretation. Dessert melons have been described, but also vegetable melons of different races have been possibly mentioned.
Cucumis sativus L. (Cucurbitaceae). V. (fr.) P cucumis. In the area since classical times. “Cucumis anguineus” of Columella could have been a vegetable race of *Cucumis melo* [9].
Cucurbita ficifolia Bouché (Cucurbitaceae). V. (fr.) N
Cucurbita maxima Duch. (Cucurbitaceae). V. (fr.) N
Cucurbita moschata Duch. (Cucurbitaceae). V. (fr.) N
Cucurbita pepo L. (Cucurbitaceae). V. (fr., fl.) N
Cuminum cyminum L. (Umbelliferae). Sp. (s.), M. (s.) P cuminum. This is the classical “caraway” of antiquity. Columella is the first writer who distinguished *Cuminum* and *Carum* (Lat. careium), which was not yet cultivated in the territories of Italy at this time [9].
Cupressus sempervirens L. (Cupressaceae). M. (cones), hedge plant E Traditional ornamental tree in the area, also planted for hedges [6].
Cydonia oblonga Mill. (Rosaceae). Fr. A cotoneum. Mentioned by Pliny and known from the frescoes at Pompeii [22].
Cymbopogon citratus (DC.) Stapf (Gramineae). Sp. (l.) N
Cynara cardunculus L. (Compositae). V. (l. stalks) P
Cynara scolymus L. (Compositae). V. (fl.), M. (h.) P carduus. The Greek names “kactos”, “kinara” and “scolimos” have been mentioned for this species, but already De Candolle [22] stated, that the description of the plant by Theophrastus “is sufficiently confused”. More about the history of artichoke can be found by Sonnante et al. [50].
Cynodon dactylon (L.) Pers. (Gramineae). Fo., M. (r.) N
Cynosurus cristatus L. (Gramineae). Fo. E
Cyperus esculentus L. (Cyperaceae). St. (r.) A
Cyperus papyrus L. (Cyperaceae). I. (paper) P
Cyphomandra betacea (Cav.) Sendtner (Solanaceae). Fr. N
Dactylis glomerata L. (Gramineae). Fo. E

Dactyloctenium aegypticum (L.) Willd. (Gramineae). Erosion control P Locally medicinal plant since the times of Dioscorides. Also used for the edible seeds.
Dasypyrum villosum (L.) Borb. (Gramineae). C. E Perspective for use in wheat breeding [6].
Datura stramonium L. (Solanaceae). M. (h.) N?
Daucus carota L. ssp. sativa (Hoffm.) Schuebl. et Mart. (Umbelliferae). V. (r.) P daucus, pastinaka. After Heywood [51] white-rooted carrots (ssp. *carota*) have been grown as medicinal plants since classical times. Eastern carrots (ssp. *sativus* (Hoff.) Schübl. et Mart. var. *atrorubens* Alef.) reached Spain with the Arabs in the 12th century and later came to the area. Also the western carotene carrot (var. *sativus* (Hoffm.) Schübl. et Mart.) is of later introduction [52]. The process of distribution and evolution is still under discussion. "Pastinaca" is also the name of the typical carrot today in the area [16].
Delphinium staphisagria L. (Ranunculaceae). M. (s.) E Mentioned as a medicinal plant by Petrus de Crescentiis [12].
Dianthus caryophyllus L. (Caryophyllacee). Sp. (fl.) P Possibly introduced by the Arabs from Spain.
Dichondra micrantha Urb. (Convolvulaceae). Lawn grass N
Diospyros kaki Thunb. (Ebenaceae). Fr. N
Diospyros lotus L. (Ebenaceae). Fr. N.
Diospyros virginiana L. (Ebenaceae). Grafting stock N
Diplotaxis muralis (L.) DC. (Cruciferae). V. (l.), Sp. (l.) E
Diplotaxis tenuifolia (L.) DC. (Cruciferae). V. (l.) E
Dovyalis caffra (J.D. Hook. et Harv.) J.D. Hook. (Flacourtiaceae). Fr. N
Drimia maritima (L.) Stearn (Hyacinthaceae). M. (bu.) E A garden plant with magic and medicinal use since classical times [11].
Ecballium elaterium(L.) A. Rich. (Cucurbitaceae). M. (fr.) E An old medicinal plant mentioned by Theophrastus as an purgative. But mostly harvested from wild plants.
Elaeagnus angustifolia L. (Elaeagnaceae). Fr. E
Elaeagnus latifolia L. (Elaeagnaceae). Fr. N
Eleusine coracan (L.) Gaertn. (Gramineae). C. N
Eragrostis tef (Zuccani) Trotter (Gramineae). C. N
Eriobotrya japonica (Thunb.) J. Lindl. (Rosaceae). Fr. N
Erodium moschatum (L.) L'Hér. ex Ait. (Geraniaceae). M. (s.) E
Eruca sativa Mill. (Cruciferae). V. (l.) E A classical condiment and medicinal plant, possibly mentioned by Pliny [9].
Erysimum cheiri (L.) Cr. (Cruciferae). M. (fl.) E
Eucalyptus globulus Labill. (Myrtaceae). M. (s.), wind break N Other species cultivated are *E. robusta* Sm., *E. rostrata* Schlecht., *E. amygdalina* Labill., *E. camaldulensis* Dehnh. and *E. rudis* Endl.
Eugenia uniflora L. (Myrtaceae). Fr. N
Eupatorium cannabinum L. (Compositae). M. (h.) E
Euphorbia lathyris L. (Euphorbiacee). M. (h.), repellent E lacteridas, catapudia. An old medicinal plant [11].
Fagopyrum esculentum Moench (Polygonaceae). C. N Came to northern Italy only in the 16th century [22], in the South always rare.
Fedia cornucopiae (L.) Gaertn. (Valerianaceae). V. (l.) E
? Ferula communis L. (Umbelliferae) E Is not cultivated in the area but frequently used in different ways, as already mentioned by Theophrastus [9].
Festuca arundinacea Schreb. (Gramineae). Fo. E
Festuca ovina L. (Gramineae). Fo. E
Festuca pratensis Huds. (Gramineae). Fo. E
Festuca rubra L. (Gramineae). Fo. E
X Festulolium braunii (K. Richt.) A. Camus (Gramineae). Fo. N A newly introduced hybrid.
Ficus benjamina L. (Moraceae). Shade tree N (see Hammer and Laghetti [21])
Ficus carica L. (Moraceae). Fr. A ficus, caprificus. Traditional crop in the area with great morphological diversity. The pollination by caprificus was already observed in classical times.

? Ficus sycomorus L.(Moraceae) Mentioned by Petrus de Crescentiis [12] as "sycomorus". A wrong description and misinterpretation of the Latin name.
Foeniculum vulgare L. (Umbelliferae). M. (s.), Sp. (s.), V. (swollen leaf basis) E feniculum, faeniculum. The ssp. *vulgare* is cultivated since Greek and Roman antiquity as a spice, medicinal plant and vegetable [52]. Theophrastus correctly states a close relationship with *Anethum graveolens* [9].
Fortunella japonica (Thunb.) Swingle (Rutaceae). Fr. N
Fortunella margarita (Lour.) Swingle (Rutaceae). Fr. N
Fragaria x ananassa Duch. (Rosaceae). Fr. N
Fragaria moschata West. (Rosaceae). Fr. N
Fragaria vesca L. (Rosaceae). Fr. E *Fragaria* spp. have not been cultivated by Greeks and Romans [22]. Today *F. vesca* is a rare crop in the area.
Fragaria x vescana R. et A. Bauer (Rosaceae) Fr. N A newly introduced hybrid.
Fragaria virginiana Mill. (Rosacee). Fr. N
Fraxinus excelsior L. (Oleaceae). I. (manna) E
Fraxinus ornus L. (Oleaceae). I. (manna) E
Galega officinalis L. (Leguminosae). Fo., M. (fl.), green manure P.
Galium odoratum (L.) Scop. (Rubiaceae). Sp. (h.), M. (h.) E
Gentiana lutea L. (Gentianaceae). Sp. (r.), M. (r.) E
Gladiolus communis L. (Iridaceae). M. (r.) E Formerly cultivated in the area as magical and medicinal plant [11], now only (?) ornamental.
Gleditsia triacanthos L. (Leguminosae). Hedges N
Glycine max (L.) Merr. (Leguminosae). Fo. (s.), V. (s. sprouts) N
Glycyrrhiza echinata L. (Leguminosae). M. (r.) P
Glycyrrhiza glabra L. (Leguminosae). M. (r.) P Mentioned as cultivated medicinal plant by Petrus de Crescentiis [12].
Gomphocarpus fruticosus (L.) R. Br. (Apocynaceae). Fi. (fr.) N Formerly cultivated as a fibre plant, today adventive.
Gossypium arboreum L. (Malvaceae). Fi., M. P gossipium. This species was wide-spread in antiquity [9], later it lost its importance.
Gossypium herbaceum L. (Malvaceae). Fi., M. P gossipium. Known since antiquity, but at that time possibly not cultivated in the area. The introduction to Sicily occurred in the 9th century [6]. In the last century completely displaced by the neophytic *G. hirsutum* L. which is now also going to disappear. De Candolle [22] cites Parlatore and Todaro as great specialists for cotton, thus characterizing Italy as an important country for cotton production.
Gossypium hirsutum L. (Malvaceae). Fi. N
Grindelia robusta Nutt. (Compositae). M. (fl., l.) N
Guizotia abyssinica (L. f.) Cassini (Compositae). Oi. (s.) N
Gypsophila paniculata L. (Caryophyllaceae). M. (r.) P
Hedysarum coronarium L. (Leguminosae). Fo. P sulla, derived from the North African "syllak". Marquis Grimaldi of Seminara (Lower Calabria) was one of the first to point out the value of this fodder plant to cultivators [22]. Possibly crossed the Sicilian channel with imported African wheat [10].
Helianthus annuus L. (Compositae). Oi. (s.). Fo. N
Helianthus tuberosus L. (Compositae). St. (r.), V. (r.) N
Helichrysum italicum (Roth) Guss. (Compositae). M. (fl.) E
Heliotropium arborescens L. (Boraginaceae). I. (perfume) N
Hesperis matronalis L. (Cruciferae). M. (fl., h.) E
Hibiscus syriacus L. (Malvaceae). Hedge plant, ornamental N
Hordeum vulgare L. s.l. (Gramineae). C. A hordeum. Taken by Pliny as the oldest crop [9], this is a very traditional and variable cereal in the area.
Hovenia dulcis Thunb. (Rhamnaceae). Fr. N
Hippophae rhamnoides L. (Elaeagnaceae). Fr., M. (fr.), sand fixation E
Holboellia latifolia Wall. (Lardizabalaceae). Fr. N
Humulus lupulus L. (Moraceae). M. (fr.), V. (young sprouts) E

Hyacinthus orientalis L. (Hyacinthaceae). I. (fl., perfume), V. (bu.) A
Hylotelephium telephium (L.) Ohba (Crassulaceae). V. (l.) E
Hyoscyamus niger L. (Solanaceae). M. (h., s.) E
Hypericum perforatum L. (Guttiferae). M. (h.) E
Hyssopus officinalis L. (Labiatae). M. (h.), I. (perfume, h), Sp. (h.) P
Idesia polycarpa Maxim. (Flacourtiaceae). Fr. N
Inga feuillei DC. (Leguminosae). Fr. N
Inula helenium L. (Compositae). M. (r.) P? Mentioned as a medicinal plant by Petrus de Crescentiis [12].
Ipomoea batatas (L.) Lam. (Convolvulaceae). St. (r.) N Seemingly very old in the area,but it is a neophyte and of American origin [6].
Iris germanica L. (Iridaceae). M. (r.), I. (perfume, r.) E A medicinal and aromatic plant since classical times [11].
Iris pallida Lam. (Iridaceae). M. (r.), I. (r., perfume) P
Isatis tinctoria L. (Cruciferae). M. (r.), I. (r., dye, perfume) P
Jasminum officinale L. (Oleaceae). I. (fl., perfume), Sp. (fl.), M. (fl.) A
Jasminum sambac (L.) Ait. (Oleaceae). I. (fl., perfume) P
Juglans hindsii Jeps. ex Smith (Juglandaceae). Grafting stock N
Juglans nigra L. (Juglandaceae). Grafting stock N
Juglans regia L. (Juglandaceae). N., M. (fr.) A Introduced into the area in classical times [6].
Lablab purpureus (L.) Sweet (Leguminosae). Pu. P Today a rare garden plant. By some authors interpreted as the "fasiolum" of classical times [11].
Lactuca sativa L. (Compositae). V. (l.) A lactuca. Theophrastus and Columella describe various races. Pliny mentiones different races from Greece.
Lagenaria siceraria (Molina) Standl. (Cucurbitaceae). I. (fr., bottles), V. (fr.) P cucurbita. This is the fruit vegetable of classical times described under this name. Theophrastus mentiones several Cucurbitaceae and their correct interpretation is still under discussion. Columella describes *Lagenaria siceraria* together with *Cucumis sativus.* Pliny reports about vessels and flasks for vine [22]. Also an important fruit vegetable [42].
Lagoecia cuminoides L. (Umbelliferae). Sp. (s.) P The seeds are a substitute of cumin, the interpretation of Dioscorides' "wild fennel" is doubtful [9]. An early introduction to Greece was mentioned by Columella [9]. Possibly also cultivated in southern Italy in classical times.
? Lapsana communis L. (Compositae). E Characterized as "…ruderal but also cultivated as vegetable, often escaped cultivation…"in Pompeian context [27] but, so far, no other indication as cultivated plant was found. Eventually a misinterpretation with respect to horticultural use has to be stated.
Lathyrus cicera L. (Leguminosae). Fo. (s., h.) E An old crop according to De Candolle [22].
Lathyrus clymenum L. (Leguminosae). Fo. (h.) E
Lathyrus ochrus (L.) DC. (Leguminosae) Fo. (s., h.) E Cultivated in the area since late classical times [6].
Lathyrus odoratus L. (Leguminosae). I. (fl.) E
Lathyrus sativus L. (Leguminosae). Pu. A cicercula. Columella saw no difference between this species and *Cicer arietinum* and Pliny mistook *Lathyrus* for a little *Cicer*.
Laurus nobilis L. (Lauraceae). Sp. (l.), M. (fr.) E?, P? laurus. Cultivated since classical times [6, 11].
Lavandula angustifolia Mill. (Labiatae). I. (h., perfume), M. (h.) E
Lavandula dentata L. (Labiatae). I (h., perfume) P
Lavandula x intermedia Emeric ex Loisel. (Labiatae). I. (h., perfume), M. (h.) N
Lavandula latifolia Medik. (Labiatae). I (h., perfume) E
Lavatera arborea L. (Malvaceae). Fo. (l.) E
Lens culinaris Medik. (Leguminosae). Pu. A lens. Traditional crop in the area [22], mostly with small seeds (ssp. *microsperma* (Baumg.) Barulina).
Lens nigricans (M. Bieb.) Godr. (Leguminosae). Pu. E Material from South Italy shows domestication characters [53].
Lepidium latifolium L. (Cruciferae). V. (l.), Sp. (l.) P A cultivated vegetable and spice plant of classical times [41].
Lepidium sativum L. (Cruciferae). V. (l.) P nasturcium, cardamom. Theophrastus reports about the cultivation of this species which was used as a salad. After Pliny also a medicinal plant [9].

Leymus arenarius (L.) Hochst. (Gramineae). Sand stabilization. N After Pignatti [14] often confused with *Ammophila littoralis* (Beauv.) Rothm.
Ligustrum lucidum Ait. (Oleaceae). Hedge plant N
Ligustrum ovalifolium Hassk. (Oleaceae). Hedge pant N
Ligustrum vulgare L. (Oleaceae). Hedge plant E
Lilium candidum L. (Liliaceae). I. (fl., perfume), Sp. (fl.) P A garden plant since classical times [11].
Linum usitatissimum L. (Linaceae). Fi. (st.), Oi. (s.) A linum. Pliny cites this crop for Italy. The main reason for cultivation was the fibre production [9].
Lippia triphylla (L'Hér.) Kuntze (Verbenaceae). M. (l.), aromatic plant N
Lolium x hybridum Hausskn. (Gramineae). Fo. N
Lolium multiflorum Lam. (Gramineae).Fo. E N subsp. *multiflorum* and ssp. *italicum (*A. Br.) Schinz et Thell. are both cultivated.
Lolium perenne L. (Gramineae). Fo. E
Lolium rigidum Gaud. (Gramineae). Fo. E
Lolium temulentum L. (Gramineae). C P Possibly introduced together with the cereals from the Near East.
Lotus corniculatus L. (Leguminosae). Fo., M. (h.) E
Lotus edulis L. (Leguminosae). V. (fr.) E occasionally in semi-cultivation.
Lotus tenuis Waldst. et Kit. ex Willd.(Leguminosae). Fo. E
Luffa aegyptiaca Mill. (Cucurbitaceae). V. (young fr.) P At one time also *L. acutangula* (L.) Roxb. and *L. operculata* (L.) Cogn. were cultivated [37].
Lupinus albus L. (Leguminosae). Pu., Fo. A lupinum. This was the most important *Lupinus* spp. of classical times. It was used for green manure and also for the seeds, also for human consumption [9]. *Lupinus termis* Forssk. is included under this species. This primitive race has been reported from Sicily [22].
Lupinus angustifolius L. (Leguminosae). Fo. E
Lupinus cosentinii Guss. (Leguminosae). I. (s., substitute for coffee) E
Lupinus luteus L. (Leguminosae). Fo. E N (races with sweet seeds)
Lycium afrum L. (Solanaceae). Hedge plant N
Lycium europaeum L. (Solanaceae). Hedge plant E
Lycopersicum esculentum Mill. (Solanaceae). V. (fr.) N
Maclura pomifera (Raf.) C.K. Schneider (Moraceae). Hedge plant N
Malope malacoides L. (Malvaceae). M. (l.) P Possibly a relic of an old medicinal crop [14].
Malpighia glabra L. (Malpighiaceae). Fr. N
Malus baccata (L.) Borkh. (Rosaceae). Grafting stock N
Malus coronaria (L.) Mill. (Rosaceae). Fr. N
Malus pumila Mill. (Malus domestica Borkh.) (Rosaceae). Fr. A malum. Traditional fruit tree in the area. Pliny describes several methods for grafting [9].
Malus sylvestris (L.) Mill. (Rosaceae). Grafting stock E
Malva sylvestris L. (Malvaceae). M. (fl.) V. (l.) E Medicinal and vegetable plant since classical times. Cultivated since Mediaeval times [11].
Manilkara zapota (L.) van Royen (Sapotaceae). Fr. N
Matricaria recutita L. (Compositae). M. (fl.) E A medicinal plant since antiquity.
Medicago arborea L.(Leguminosae). Fo. E cytisum. Formerly an important fodder crop [9].
Medicago falcata L. (Leguminosae). Fo. E
Medicago lupulina L. (Leguminosae). Fo. E
Medicago minima (L.) Bartal. (Leguminosae). Fo. E
Medicago nigra (L.) Krock. (Leguminosae). Fo. E
Medicago orbicularis (L.) Bartal. (Leguminosae). Fo. E
Medicago sativa L. (Leguminosae). Fo. A medica. In the area since the first millennium BCE [9].
Medicago x varia Martyn (Leguminosae). Fo. E
Melia azedarach L. (Meliaceae). M. (l., fr.), I. (insecticide) P
Melilotus alba Medik. (Leguminosae). Fo. E
Melilotus officinalis (L.) Pall. (Leguminosae). Fo. P

Melissa officinalis L. (Labiatae). I. (h., perfume), Sp. (l.), M. (h.) A apiastrum. The variation of this old aromatic plant, which was also useful for bee keeping, was low [9]. But it was not included into the species containing only one race by Pliny: *Ocimum basilicum, Rumex patientia, Amaranthus lividus (blitum), Lepidium sativum, Eruca sativa, Atriplex hortensis*, *Coriandrum sativum* and *Anethum graveolens.*

Mentha aquatica L. (Labiatae). Sp. (h.), M. (h.) E

Mentha x piperita L. (Labiatae). M. (l.), Sp. (l.) N

Mentha pulegium L. (Labiatae). Sp. (l.) E

Mentha spicata L. (Labiatae). M. (h.) E menta. Several races of this taxonomically complicated genus are cultivated in the area. Hammer et al. [6] list ten species and hybrids for Italy. *Mentha spicata* is quite common but also *M. pulegium* L., M. *aquatica* L. and *M. longifolia* (L.) L. have been indicated in the classical sources. Other aromatic plants of the Labiatae have been discusssed as candidates when interpreting classical texts, e.g. *Nepeta cataria* L.

Mentha x villosa Huds. (Labiatae). M. (h.) E

Mentha x villoso-nervata Opiz (Labiatae). M. (h.) E

Meriandra bengalensis (Koenig ex Roxb.) Benth. (Labiatae). M. (l.) N

Mesembryanthemum crystallinum L. (Aizoaceae). V. (l.) N

Mespilus germanica L. (Rosaceae). Fr. P mespilus. Reported in the area since about 200 BCE [6].

Miscanthus sinensis Anders. (Gramineae). I. (cellulose) N

Momordica charantia L. (Cucurbitaceae). V. (r.) N

Monstera deliciosa Liebm. (Araceae). Fr. N

Montia perfoliata (Donn ex Willd.) Howell (Portulacaceae). V. (l.) N

Morus alba L. (Moraceae). Fr., Fo. N

Morus nigra L. (Moraceae). Fr. A morus. This tree has been mentioned already by Greek and Latin authors.Though the seeds cannot be distinguished from those of *M. alba* [27], *Morus nigra* is surely from classical times. At the beginning of silk manufacture in Sicily in 1148 this species was the fodder plant for silk worms [22]. Later on it was replaced by *Morus alba* L. This species was introduced to Tuscany in 1340.

Morus rubra L. (Moraceae). Fr. N

Musa acuminata Colla (Musaceae). Fr. N

Musa x paradisiaca L. (Musaceae). Fr. N.

Muscari comosum (L.) Mill. (Hyacinthaceae). V. (bu.) E A traditional crop in the area since Roman times [27], occasionally cultivated [6].

Myoporum tenuifolium Forster (Myoporaceae). Hedge plant N

Myrtus communis L. (Myrtaceae). Sp. (fr., l.), M. (l., fl.) E Mentioned as cultivated since classical times, predominantly medicinal plant (fruits, leaves) by Petrus de Crescentiis [12].

Narcissus poeticus L. (Amaryllidaceae). I. (fl., perfume) E

Nasturtium officinale R. Br. (Cruciferae). V. (h.) E Mediaeval medicinal plant [11]. Today rare vegetable in the area [6].

Nepeta cataria L. (Labiatae). M. (h.), Sp. (h.) P In the area since classical times [6]. Important Mediaeval medicinal plant [11].

Nerium oleander L. (Apocynaceae). Hedge plant E?

Nicotiana rustica L. (Solanaceae). I. (l.) N

Nicotiana tabacum L. (Solanaceae). I. (l.) N

Nigella damascena L. (Ranunculaceae). M. (s.) E

Nigella sativa L. (Ranunculaceae). Sp. (s.) P gith. In the area since classical times [6].

Ocimum americanum L. (Labiatae). Sp. (l.) N

Ocimum basilicum L. (Labiatae). Sp. (l.), M. (l.) A ocimum. Only one race is described of this aromatic and medicinal plant by Theophrastus [9]. Ssp. *minimum* (L.) Danert (*O. minimum* L.) is also frequently cultivated.

Ocimum x citriodorum Vis. (Labiatae). Sp. (l.) N

Oenothera biennis L. (Onagraceae). V. (r.) N

Olea europaea L. (Oleaceae). Oi. (fr.), Fr. A olea. The tree had a great importance since classical antiquity. Columella compares the olive tree with the grape and reports many different races [9]. The Romans knew the olive tree later than the Greeks [22].

Onobrychis viciifolia Scop. (Leguminosae) N? polygala. Possibly traditional crop in the area after introduction in the 16th from France (see Ambrosoli [10]).
Opuntia amyclaea Tenore (Cactaceae). Fr., hedge plant N
Opuntia dillenii (Ker-Gawler) Haw. (Cactaceae). Hedge plant N
Opuntia ficus-indica (L.) Mill.(Cactaceae). Fr., Fo., hedge plant N
Opuntia imbricata (Haw.) DC. (Cactaceae). Hedge plant N
Opuntia monacantha Haw. (Cactaceae). Hedge plant N
Opuntia subulata (Mühlenpf.) Engelm. (Cactaceae). Hedge plant N
Origanum dictamnus L. (Labiatae). M. (h.) N
Origanum majorana L. (Labiatae). Sp. (h.), M. (h.) A amaracus. Pliny describes several provenances of this traditional aromatic plant, which is usually cultivated as an annual [9].
Origanum x majoricum Cambess. (Labiatae). Sp. (l.) E
Origanum onites L. (Labiatae). Sp. (l.) P
Origanum vulgare L. (Labiatae). Sp. (l.), M. (l.) E origanum. A polymorphous species. Pliny describes several provenances. His "heraclinum" is possibly *O. heracleoticum* auct. non L. (*O. vulgare ssp. hirtum* Ietswaart). Hondelmann [9] discusses also about *Origanum onites* L., a spice plant introduced from the Eastern Mediterranean areas.
Ornithopus sativus Brot./O. perpusillus L. (Leguminosae) Fo. P?, N? A rare crop in the area and of relatively late introduction as a fodder crop [6] but mentioned from Pompeii as a fodder plant (cultivated?) by Ciaraldi [27].
Oryza sativa L. (Gramineae). C. P oryca. Mentioned by Theophrastus and Pliny from India. Introduced into the area in the Middle Ages.
Paliurus spina-christi Mill. (Rhamnaceae). Hedge plant E
Panicum maximum Jacq. (Gramineae). Fo. N
Panicum miliaceum L. (Gramineae). C. A milium. A crop plant of classical times, "nearly wild" in Italy [22].
Papaver rhoeas L. (Papaveraceae). Sp. (h.), V. (h.) E
Papaver somniferum L. (Papaveraceae). M. (fr., h.), Oi. (s.) A papaver. This plant is known since classical antiquity. The seeds and the latex have been used [9].
Paspalum dilatatum Poir. (Gramineae). Fo. N
Passiflora edulis Sims (Passifloraceae). Fr. N
Passiflora incarnata L. (Passifloraceae). M. (h.) N
Pastinaca sativa L. (Umbelliferae) V. (r.) P pastinaca. Seems to be a traditional crop in the area, today rare. The folk name of this plant is always "pastinaca" or similar to it. Hondelmann [9] believes in a great importance of *Pastinaca sativa* in classical times. But the interpretation of classical texts is still under discussion (see under *Daucus carota*).
Pelargonium capitatum (L.) Ait. (Geraniaceae). I. (substitute for attar of roses) N
Pelargonium odoratissimum (L.) Aiton (Geraniaceae). I. (substitute for attar of roses) N
Pelargonium radula (Cav.) L'Hér. (Geraniaceae). I. (substitute for attar of roses) N
Pennisetum glaucum (L.) R. Br. (Gramineae). C. N
Perilla frutescens (L.) Britt. (Labiatae). Sp. (h.) N
Persea americana Mi8ll. (Lauraceae). Fr. N
Petroselinum crispum (Mill.) Nym. (Umbelliferae) V. (l.), M. (l.), Sp. (l.) A ? P? oreoselinum, petroselinum. The "oreoselinum" of Theophrastus is interpreted as this species [9] which is in the area since more than 2000 years [6], as a wild plant? Reported under cultivation by Charlemagne [22].
Phalaris canariensis L. (Gramineae). Fo. (s.) A
Phalaris tuberosa L. (Gramineae). Fo. E
Phaseolus coccineus L. (Leguminosae). Pu. N
Phaseolus lunatus L. (Leguminosae). Pu. N
Phaseolus vulgaris L. (Leguminosae). Pu. N
Phleum pratense L. (Gramineae). Fo. E
Phoenix dactylifera L. (Palmae). Fr. P palma. In the warmer parts of the area since classical times. *Chamaerops humilis* L. is used in Sicily for basketry according to Pliny [9].
Phormium tenax J.R. et G. Forster (Phormiaceae). Fi.(l.) N

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Physalis alkekengi L. (Solanaceae). M. (fr.), Fr. E
Physalis peruviana L. (Solanaceae). Fr. N
Physalis pruinosa L. (Solanaceae). Fr. N
Phytolacca americana L. (Phytolaccaceae). I. (dye, fr.) N
Pimpinella anisoides B. Brig. (Umbelliferae). Sp. (fr.) E
Pimpinella anisum L. (Umbelliferae). M. (s.), Sp. (s.) P anesum. Known since classical antiquity as a cultivated spice and condiment [9].
Pinus pinea L. (Pinaceae). N. (s.) A Cultivated since classical times [54].
Pistacia atlantica Desf. (Anacardiaceae). Grafting stock N
Pistacia terebinthus L. (Anacardiaceae). Grafting stock E
Pistacia vera L.(Anacardiaceae). N. P Mentioned by Pliny who reported the introduction of the plant to Italy [22].
Pisum sativum L. (Leguminosae) Pu. P?A? pisum. It was less important in classical times than other Leguminosae [9]. This species today includes *Pisum arvense* L., the field pea, also reported by classical authors [22].
Pittosporum tobira (Murr.) Ait. f. (Pittosporaceae). Hedge plant N
Plantago afra L. (Plantaginaceae). M. (s.) E
Plantago coronopus L. (Plantaginaceae). V. (l.) E
Plantago lanceolata L. (Plantaginaceae). M. (l.) E
Poa nemoralis L. (Gramineae). Fo. E
Poa pratensis L. (Gramineae). Fo. E
Polianthes tuberosa L. (Agavaceae). I. (fl., perfume) N
Polygonum bistorta L. (Polygonaceae). M. (r.), I. (r., tanning) E Mentioned by Dioscorides as a medicinal plant. Occasionally cultivated in Mediaeval gardens [11].
Poncirus trifoliata (L.) Raf. (Rutaceae). Hedge plant, grafting stock P
Populus x canadensis Moench (Salicaceae). Fo. (l.) N
Populus deltoides Marsh. (Salicaceae). Fo. (l.) N
Populus nigra L. (Salicaceae). Fo. (l.), M. (l.) E
Portulaca oleracea L. (Portulacaceae). V. (l.) P
Primula vulgaris Huds. (Primulaceae). Sp. (fl.), V. (l.) E
Proboscidea louisianica (Mill.) Thell. (Martyniaceae). V. (fr.) N
Prunus armeniaca L. (Rosaceae). Fr. A praecocium. Already in the area since classical times [6, 83]
Prunus avium (L.) L. (Rosaceae). Fr. A cerasus. The sweet cherry is very old in the area. The legend that Lucullus (117 – 56 BCE) has introduced the cherry from Asia Minor has to be rejected. Probably Lucullus introduced a special cultivar of this species. But this legend sheds a new light on the fact, that there was a continuing transfer of cultivated plants through the times. Pliny lists a number of cultivars. The often quoted passages of Theophrastus belong to this species [22].
Prunus besseyi Bailey (Rosaceae). Grafting stock. N
Prunus cerasifera Ehrh. (Rosaceae). Fr. P prunus. Introduced in Roman times [14].
Prunus cerasus L. (Rosaceae). Fr. P cerasus. An old fruit tree in the area. Mural paintings of Pompeii are interpreted as this species. *Prunus laurocerasus* L., which is now a common hedge plant, may have been mentioned already by the classical writers [9].
Prunus cocomilia Tenore (Rosaceae). Fr. E
Prunus dasycarpa Ehrh. (Rosaceae). Fr. N
Prunus domestica L. (Rosaceae). Fr. A prunus. Cato reports about "ingens turba prunorum" and describes different sizes, colours etc. Pliny repeats this characterization [9]. Also *P. domestica* ssp. *insititia* (Jusl.) Schneider and *P. spinosa* L. are probably mentioned.
Prunus dulcis (Mill.) D.A. Webb (Rosaceae). N. A amygdala. A large variation exists in this traditional fruit crop. The var. *sativa* Ludw. has sweet seeds whereas those of var. *amara* DC. are bitter. These and other variations have been already described by the classical authors.
Prunus laurocerasus L. (Rosaceae).Hedge plant P? N?
Prunus mahaleb L. (Rosaceae). Grafting stock E
Prunus persica (L.) Batsch (Rosaceae). Fr. A
Prunus pumila L. (Rosaceae). Grafting stock N

Prunus serotina Ehrh. (Rosaceae). Fr. N
Prunus simonii Carriere (Rosaceae). Fr. N
Prunus spinosa L. (Rosaceae). Grafting stock E
Psidium guajava L. (Myrtaceae). Fr. N
Psidium guineense Swartz (Myrtaceae). Fr. N
Psidium littorale Raddi (Myrtaceae). N
Punica granatum L.(Punicaceae). Fr. A punica, malum punicum. Traditional fruit tree of the area. Sometimes different cultivars have been grafted on one rootstock according to Pliny [9].
Pyracantha coccinea Roemer (Rosaceae). Hedge plant. N?
Pyrus bretschneideri Rehder (Rosaceae). Fr. N
Pyrus communis L. (Rosaceae). Fr. A. pirus. This fruit tree came to Rome about 1000 BCE Pliny lists more than 20 cultivars [9].
Pyrus spinosa Forssk. (Rosaceae). Grafting stock E Also *Pyrus pyraster* (L.) Burgsd. Is used in the same way.
Quercus ballota Desf. (Fagaceae). N. N This and other *Quercus* spp.(e.g. *Q. ithaburensis* ssp. *macrolepis*) with sweet acorns are still planted/protected in the area and also propagated by grafting (see under *Castanea*). This is a traditional method [6].
Quercus frainetto Ten. (Fagaceae). Fo. (s.) E
Quercus ilex L. (Fagaceae). N., Fo. (s.) E
Quercus ithaburensis Decne. ssp. macrolepis (Kotschy) Hedge et Yult.(Fagaceae). N. E
Quercus suber L. (Fagaceae). I. (ba., cork) E
Raphanus sativus L. (Cruciferae). V. (r.), Fo. (l., r.) P raphanus. var. *niger* (Mill.) Kerner is known since classical times (De Candolle 1883), var. *sativus* since the 16th century in Italy [55].
Reichhardia picroides (L.) Roth (Compositae). V. (l.) E
Reseda luteola L. (Resedaceae). I. (h., dye) E
Rheum rhabarbarum L. (Polygonaceae). V. (l, stalks) N
Rheum rhaponticum L. (Polygonaceae). M. (r.), V. (l., stalks) N
Rhus coriaria L. (Anacardiaceae). I. (l., tanning), Sp. (s.) A? E? rous, rhus. Cultivated in the area since classical times and often escaped from cultivation [14].
Ribes aureum Pursh (Grossulariaceae). Grafting stock N
Ribes nigrum L. (Grossulariaceae). Fr. N
Ribes rubrum L. (Grossulariaceae). Fr. N
Ribes uva-crispa L. (Grossulariaceae). Fr. N
Ricinus communis L. (Euphorbiaceae). M. (s.), Oi. (s.) A sibi, ricinus. Mentioned by Pliny, the purgative seed oil is used medicinally and for technical purposes [9].
Ridolfia segetum (L.) Moris (Umbelliferae). Soil erosion control E A tradional aromatic plant.
Robinia pseudo-acacia L. (Leguminosae). Soil erosion control N
Rosa x centifolia L. (Rosaceae). M. (fl.), I. (fl., perfume) A
Rosa gallica L. (Rosaceae). M. (fl.), I. (fl., perfume), Sp. (fl.) E
Rosa moschata Herrm. (Rosaceae). I. (fl., perfume) A
Rosmarinus officinalis L. (Labiatae). M. (h.), Sp. (l.), I. (fl., perfume) E Cultivated in the area since classical times [6, 11].
Rubia tinctorum L. (Rubiaceae). I. (r., dye) E Known as a dye-plant since classical times in the area [6, 56].
Rubus armeniacus Focke (Rosaceae). Fr. N
Rubus idaeus L. (Rosaceae). Fr. N
Rubus laciniatus Willd. (Rosaceae). Fr. N
Rubus phoeniculasius Maxim. (Rosaceae). Fr. N
Rubus ulmifolius Schott (Rosaceae) Fr. E An old fruit-shrub in the area, often collected from the wild. The beginning of cultivation in the area is still under discussion.
Rumex patientia L. (Polygonaceae). V. (l.), M. (l.) P rumex, lapathus. According to Theophrastus there was also a cultivated race of this cooking vegetable. Introduced into the area in classical times. Pliny describes several species which have been used mainly as medicinal plants [9]. As the progenitor for our species a wild *Rumex* sp. from Greece is under discussion.

Rumex rugosus Campd. (Polygonaceae). V. (l.) N?
Rumex scutatus L. (Polygonaceae). V. (l.), M. (l.) E
Rumex vesicarius L. (Polygonaceae). V. (l.) P
Ruscus aculeatus L. (Ruscaceae). V. (young sprouts) E
Ruta chalepensis L. (Rutaceae). M. (l.), Sp. (l.) E
Ruta graveolens L. (Rutaceae). Sp. (h.), M. (h.) E ruta. This aromatic plant was also cultivated for medical treatments in classical times. Hondelmann [9] discusses also about *Ruta chalepensis* L. and *Ruta montana* L. as possible candidates for use in classical times (see also [6]).
Saccharum officinarum L. (Gramineae). I. (sugar) P Introduced to Sicily in the 8th or 9th century CE [6].
Saccharum ravennae (L.) Murray (Gramineae). Living fences E
Salix alba L. (Salicaceae). I. (basketry), Fo. (l.) E
Salix purpurea L. (Salicaceae). I. (basketry) E
Salix viminalis L. (Salicaceae). I. (basketry) E
Salpichroa oganifolia (Lam.) Thell. (Solanaceae). Hedge plant N
Salsola kali L. (Chenopodiaceae). V. (l.), I. E
Salsola soda L. (Chenopodiaceae). V. (l.), I. E
Salvia fruticosa Mill. (Labiatae). M. (h.) E
Salvia officinalis L. (Labiatae). Sp. (l.), M. (l.) P Mentioned as a garden plant by Theophrastus [11].
Salvia sclarea L. (Labiatae). M. (h.) E Obviously used as a medicinal plant since classical times [11].
Salvia verbenaca L. (Labiatae). M. (h.) E
Salvia viridis L. (Labiatae). M. (h.) E
Sambucus nigra L. (Sambucaceae). Fr. E
Sanguisorba minor Scop. (Rosaceae). Sp. (h.) E
Sanguisorba officinalis L. (Rosaceae). V. (l.) E
Santolina chamaecyparissus L. (Compositae). Sp. (h.) E Obviously only one selected clone under cultivation.
Saponaria officinalis L. (Caryophyllaceae). I. (r., soap) A
Satureja hortensis L. (Labiatae).Sp. (h.), M. (h.) A satureia, thymbra. Hondelmann [9] mentiones also *Satureja montana* L. as possible candidate for classical indications. He also refers to problems with the interpretation of the closely related genus *Thymus* and cannot exclude confusion of the classical sources. Both *Satureja* spp. are today cultivated in the area [6]. *Satureja thymbra* L. from the Balkans is also mentioned by Hondelmann [9].
Satureja montana L. (Labiatae). Sp. (h.), M. (h.) E
Schinus molle L. (Anacardiaceae). M. (fr., l., ba.), Sp. (fr.) N Also the similar *Sch. terebinthifolius* Raddi and *Sch. dependens* Ortega are cultivated [6].
Scolymus hispanicus L. (Compositae). E Often used as a wild vegetable. In the area several folk names are known [16]. Occasionally cultivated [57].
Scorpiurus muricatus L. (Leguminosae). Fo. E
Scorzonera deliciosa Guss. ex DC. (Compositae). V. (r.) P Introduced from Africa [6].
Scorzonera hispanica L. (Compositae). V. (r.), M. (l., r.) P Cultivated in the area [6]. *Malabaila secacul* (Mill) Boiss., a root vegetable from the Middle East, is also mentioned in the above discussions [9].
Secale cereale L. (Gramineae). C. P secale. Mentioned by Galen (129 – 199 CE) from Greece. Pliny referred this cereal to northern areas of the Roman empire [22]. The time of introduction into the area is unclear. Though the wild progenitor (*S. strictum* (Presl) Presl) is present in the area, this region is no center of domestication of the crop.
Sechium edule (Jacq.) Swartz (Cucurbitaceae). V. (fr.) N
Sedum album L. (Crassulaceae). Sp. (l.) E
Sempervivum tectorum L. (Crassulaceae). Roof protection E
Sesamum indicum L. (Pedaliaceae). Oi. (s.), Sp. (s.) P sesima, sesama (-on). An important crop of the Graeco-Roman world [58].
Setaria italica (L.) Pal. Beauv. (Gramineae). C A panicum. As can be seen from the mural paintings of Pompeii, the old races of this cereal belong to convar. *moharia* (Alef.) Körn. [6]. A traditional crop of the area.
Silene vulgaris (Moench) Garcke (Caryophyllaceae). V. (l.) E
Silybum marianum (L.) Gaertn. (Compositae). M. (h.), V. (l.) E
Simmondsia chinensis (Link) C.K. Schneider (Buxaceae). I. (s, wax) N experimental plantings.

Sinapis alba L. (Cruciferae). M. (s.), V. (l.)A sinapi. A spice plant known to the classical writers, but also a traditional vegetable.
Sium sisarum L. (Umbelliferae). V. (r.) A siser. The "sisaron" of Dioscorides is attributed to this species, and additionally "siser" used by Columella and Pliny. But there are doubts about the cultivation of this species in classical times [22].
Smyrnium olusatrum L. (Umbelliferae). V. (l., r.), Sp. (l.) E olusatrum. Known since classical times as a cultivated vegetable. In Italy it was used under the name of "macerone" [22].
Solanum aethiopicum L. (Solanaceae). V. (fr.) N Possibly introduced from Ethiopia (in recent times) or formerly from South America (*S. gilo* Raddi) [6].
Solanum linnaeanum Hepper et Jaeger (*S. sodomaeum* auct. non L.) (Solanaceae). Grafting stock for *S. melongena* N
Solanum melongena L. (Solanaceae). V. (fr.) N Seemingly of old tradition in the area but not described by the classical writers. Probably not in Europe before the beginning of the 17th century [22].
Solanum muricatum Ait. (Solanaceae). Fr. N
Solanum torvum Swartz (Solanaceae). Grafting stock for *S. melongena* N
Solanum tuberosum L. (Solanaceae). St. (r.), V. (r.) N
Sorbus aria (L.) Crantz (Rosaceae). E Mentioned as cultivated fruit tree by Petrus de Crecentiis [12].
Sorbus aucuparia L. (Rosaceae). Fr. E
Sorbus domestica L. (Rosaceae). Fr. E Cultivated since classical times [6]. A "fig" discussed by Theophrastus may represent this species [9].
Sorbus torminalis (L.) Crantz (Rosaceae). Fr. E
Sorghum bicolor L. s.l. (Gramineae) C., I., Fo. P milium, milica? After Pliny a new introduction from India. In a narrow species delimitation the introduced species could have belonged to *S. cernuum* (Arduino) Host. Also *S. saccharatum* (L. em. L.) Moench convar. *technicum* (Körn.) Tzvel. for making brooms has a long tradition in the area.
Sorghum halepense (L.) Pers. (Gramineae). Fo. E?
Spartium junceum L. (Leguminosae). Fi., I. (dye) E
Spergula arvensis L. (Caryophyllaceae). Fo. E? The old Italian name "spergola" and other indications led De Candolle [22] to the conclusion that this crop probably arose in the South of Europe during the Roman occupation.
Spinacia oleracea L. (Chenopodiaceae). V. (l.) P Introduced by the Arabs into the area in the 13th century [6]. Spinach, originating from Persia, had reached Southern Spain by that time. Ebn Baithar of Malaga, living there in 1235, gave a first report [22]. From there it reached the area via Sicily.
Stachys affinis Bunge (Labiatae). V. (r.) N
Stachys officinalis (L.) Trev. (Labiatae). M. (h.) E
Stellaria media (L.) Vill. (Caryophyllaceae). Sp. (h.), V. (h.) E Occasionally cultivated [6].
Tagetes erecta L. (Compositae). I. , M. (h.) N
Tagetes minuta L. (Compositae). M. (h.), anti-nemotode plant N
Tagetes patula L. (Compositae). M. (h.), green manure N
Tamarix africana Poiret (Tamaricaceae). Hedges. E
Tamarix gallica L. (Tamaricaceae). Hedges E
Tamarix parviflora DC. (Tamaricaceae). Hedges E?
Tanacetum balsamita L. (Compositae). Sp. (l.), M. (l.) P costum. Garden plant included into the register of Charlemagne [11].
Tanacetum parthenium (L.) Schultz-Bip. (Compositae). M. (h.) P Important medicinal plant in classical and Mediaeval times [11]. Locally still cultivated in the area.
Tanacetum vulgare L. (Compositae). M. (h.), Sp. (l.), V. (l.) E Important Mediaeval medicinal plant [11], reaching the northern parts of the area [6].
Taraxacum officinale sensu auct. non Weber in Wiggers (Compositae). M. (r., l.), V. (l.) E The correct scientific name for this species is still under discussion [59].
Tetragonia tetragoniodes (Pall.) Kuntze (Aizoaceae). V. (l.) N
Tetragonolobus purpureus Moench (Leguminosae). V. (fr., s.), Pu. E
Teucrium marum L. (Labiatae). M. (h.) P?

Thymus herba-barona Loisel. (Labiatae). Sp. (h.), M. (h.) E?
Thymus capitatus (L.) Hoffmanns. et Link (Labiatae). Sp. (h.), M. (h.) E
Thymus serpyllum L. (Labiatae). Sp. (h.) E
Thymus vulgaris L. (Labiatae). Sp. (h.), M. (h.) E serpyllum, thymum. The interpretation of classical literature is difficult for the variable genus *Thymus*. *Thymus sibthorpii* Benth. from the Balkans, mentioned by Andrews [60] and Hondelmann [9], still needs clarification.
Thymus zygis L. (Labiatae). Sp. (h.), M. (h.) N
Tragopogon porrifolius L. (Compositae). V. (r.) E? Cultivated since Roman times [59].
Trichosanthes cucumerina L. (Cucurbitaceae). V. (fr.) N Found in northern and central parts of Italy [6]. A cultivation in the South cannot be excluded.
Trifolium alexandrinum Jusl. (Leguminosae). Fo. N
Trifolium fragiferum L. (Leguminosae). Fo. E lotus An important fodder plant already in classical times [9].
Trifolium hybridum L. (Leguminosae). Fo. N (cultivated races), E
Trifolium incarnatum L. (Leguminosae). Fo. E trifolium. Mentioned by Hondelmann [9] but according to Hanelt [82] firstly cultivated in northern Italy only since the 18th century. For a longer discussion of possible candidates for the races described in classical times see Hondelmann [9].
Trifolium pratense L. (Leguminosae). Fo. E trifolium. Cultivated since the 3th /4th centuries in southern Europe.
Trifolium repens L. (Leguminosae). Fo. E Has a longer tradion as forage plant in the area [10].
Trifolium resupinatum L. (Leguminosae). Fo. P
Trifolium squarrosum L. (Leguminosae). Fo. E
Trifolium subterraneum L. (Leguminosae). Fo. E
Trifolium vesiculosum Savi (Leguminosae). Fo. E
Trigonella foenum-graecum L. (Leguminosae) Fo. Fo., Sp. (l.) A faenum graecum, silicia, siliqua (also “lotus”). A minor fodder plant of classical times [22].
Trisetum flavescens (L.) Pal. Beauv. (Gramineae). Fo. E
xTriticosecale Wittm. (Gramineae). C. N
Triticum aestivum L. (Gramineae). C. A siligo. It is difficult to give a reasonable interpretation of classical sources with respect to the present wheat classification. Jasny [61] can be still cited as one of the best sources. But it is sure that *T. aestivum* belonged to the species grown in classical times, at least *T.aestivum* ssp. *compactum* (Host) Thell.
Triticum dicoccon Schrank (Gramineae). C. A far, far adoreum, ardor, ardoreum, triticum. This is a well known crop in classical times [62]. Now disappeared in most parts of the area.
Triticum durum Desf. (Gramineae). C. A triticum. Traditional crop of the area [61].
Triticum monococcum L. (Gramineae). C. A tiphai. Not common crop in classical times [22]. In the area now probably extinct [63].
Triticum polonicum L. (Gramineae). C A A rare crop in the area and has been described perhaps only in the recent epoc [22]?
Triticum spelta L. (Gramineae). C. A siligo? Characteristic for northern parts of Italy, today not common in the area [6] but present since neolithic periods [63].
Triticum turgidum L. (Gramineae). C. A triticum. Important crop in the area (Jasny 1944). Pliny described a branched wheat which could belong here [22].
Tropaeolum majus L. (Tropaeolaceae). Sp. (fl. buds) N
Tropaeolum minus L. (Tropaeolaceae). Sp. (fl. buds) N
Ulmus glabra Huds. (Ulmaceae). Hedges E
Ulmus minor Mill. (Ulmaceae). Supporter for grapes , hedges E
Vaccinium corymbosum L. (Ericaceae). Fr. N
Vaccinium macrocarpon Ait. (Ericaceae). Fr. N
Valeriana officinalis L. (Valerianaceae). M. (r.) E
Valerianella eriocarpa Desv. (Valerianaceae). V. (l.) E
Valerianella locusta (L.) Laterrade (Valerianaceae). V. (l.) E
Verbascum densiflorum Bertol. (Scrophulariaceae). M. (fl., l.) E
Verbascum phlomoides L. (Scrophulariaceae). M. (fl.) E

Verbena officinalis L. (Verbenaceae). M. (h.), V. (h.) P? Associated with magic and sorcery in Celtic tradition, the "herba sacra" of Romans [27].
Vicia articulata Hornem. (Leguminosae). Pu. E? Plinius describes a lentil from Egypt (Nat. Hist XVIII, p. 123 - ..rotundius nigriusque..) with black, rounded seeds. This could be our species. Formerly a relatively late domestication in Spain was proposed. But this wide-spread species, known in Italy as lenticchia nera, has possibly a longer domestication history. In Calabria it has been found recently as a traditional crop in the greek-speeking parts (linguistic and cultural remains of Magna Grecia? – [64]) and also in other parts of southern Italy.
Vicia cracca L. (Leguminosae). Fo. E gralega. A fodder plant, also useful for green manure, as mentioned by Petrus de Crescentiis [12].
Vicia ervilia L. (Leguminosae). Pu. A ervum. In classical times a minor crop [9]. Frequently cultivated in classical times [9, 28].
Vicia faba L. (Leguminosae). Pu. A faba. A classical bean of the area, cultivated by the Greeks and Romans [22].
Vicia narbonensis L. (Leguminosae). Pu. A A traditional crop [6].
Vicia sativa L. (Leguminosae). Fo. A vicia, aphaca. A plant grown for fodder and seed in classical times as reported by Cato and Pliny [22].
Vicia villosa Roth (Leguminosae). Fo. E
Vigna angularis (Willd.) Ohwi et Ohashi (Leguminosae). Pu. N
Vigna radiata (L.) Wilczek (Leguminosae). Pu. N
Vigna unguiculata (L.) Walp. (Leguminosae). Pu. A phaseolus, phaselus, faselus. This is the classical bean (phaseolus) and not the neophytic *Phaseolus vulgaris* L. [65].
Viola odorata L. (Violaceae). Sp. (fl.) E
Vitex agnus-castus L. (Verbenaceae). Sp. (fr.) E?
Vitis aestivalis Michx. (Vitaceae). Fr., grafting stock N
Vitis labrusca L. (Vitaceae). Fr. N
Vitis riparia Michx. (Vitaceae). Fr., grafting stock N
Vitis rotundifolia Michx. (Vitaceae). Fr., grafting stock N
Vitis rupestris Scheele (Vitaceae). Fr., grafting stock N
Vitis vinifera L. (Vitaceae). Fr. A. vitis. A classical fruit of the area. Pliny reports about the leading role of Italy in the production of grapes [9].
Zea mays L. (Gramineae). C. N . There are legends about the introduction of this crop before Columbus [66]. The "zea" of classical writers was a species of Triticum.
Ziziphus jujuba Mill. (Rhamnaceae). Fr. P ziziphus. This species is a fruit tree in the area since classical times. The same is true for *Ziziphus lotus* (L.) Lam. (Lat. lotus) with smaller fruits [9], probably escaped from cultivation in the area [22].
Ziziphus lotus (L.) Lam. (Rhamnaceae). Fr. P

Altogether 626 species of cultivated plants (in the sense of Mansfeld) have been found in South Italy and Sicily. This figure includes most of the cultivated plants of Italy (ca. 720 see Hammer et al. [6]). Most of the species could be classified as chronoelements (see Table 1).

Table 1. Crop plants from South Italy and Sicily as chronoelements (617 species included)

Allochthonous domesticates			**Autochthonous domesticates**
Archaeophytes (A)	Palaeophytes (P)	Neophytes (N)	Origin in the area (E)
60 (9.7%)	**102** (16.5%)	**226** (36.6%)	**229** (37.2%)

The general tendency observed, and reported in a former study based on 171 species [21] is confirmed especially concerning the relatively high numbers of neophytes and autochthonous domesticates. Now we could find a relatively low number of archaeophytes. Only few plants have been introduced in the period from the introduction of agriculture (ca. 5000 BCE) up to the 6th century BCE The end of this period is marked by the first Greek colonists.
The second introductory period (5th century BCE to 15th century CE) nearly doubled the number of newly introduced crop plants. Main sources for new crops have been the traditional south-eastern introductory route via the Aegaen

area, north African/south-west European connections communicated by the Romans and the Arabs and a west and central European influence during the Middle ages.

Neophytic species (16th century CE to present) were extremely important for the introduction of new agri- and horticultural species. America played a predominant role. In many cases the crop plants did not come directly into the area. They have been introduced to the Canary Island, Spain, Northern Africa, Turkey and other countries where they got adapted and often reached Italy directly or via other countries. Here the designation of geoelements becomes a problem. The cultivated plants have been often introduced from several countries of origin during a hughe time span. For our comparison the region of origin was fixed to the primary origin as defined by Zeven and De Wet [67]. Table 2 shows the percentages of geoelements of our area in comparison with Oman which is known as being situated at the cross-roads of inter-regional exchange and as a conservation center of cultivated plants [68]. Apart from differences caused by geographical and climatic conditions, the area of South Italy and Sicily shows a much higher percentage of crops domesticated in the area. As Oman (introduction of agriculture in the late 2nd millenium BCE) it is not the place where Neolithic revolution occurred but the evolutionary power of South Italy is much higher. Possibly also the early introduction of agriculture (ca. 5000 BCE) plays a role in this respect.

Table 2. Percentages (%) of selected geoelements of South Italy and Sicily (n = 524) in comparison with the cultivated plants of Oman(n = 136) (after Hammer et al. [17, 68]). The countries of origin are defined according to Zeven and De Wet [67]

Area	South Italy	Oman
Study area	36.8	6.6
Near East and East Mediterranean	16.2	20.6
Europe	7.6	0.7
Central and Middle Asia	3.4	16.3
Western Mediterranean	0.8	---
Northern and Eastern parts of Africa	3.8	10.3
South and South-East Asia	3.4	21.3
East Asia	6.3	2.2
Tropical Africa	---	2.2
South Africa	2.1	3.7
Central and South America	10.7	15.4
North America	5.0	---
Australia and New Zealand	2.1	0.7

For the chronoelements we have considered the first introduction which led to the establishment of the crop.The most interesting result of our studies is the great number of autochthonous domesticated plants, which themselves later made their way to France, England and all over the world [69]. As soon as agriculture has been established, autochthonous plants from the area went into the new agro-ecosystems and became weeds or, in some cases, new crop plants. The so-called secondary crops are a result of this evolution [70]. On the other hand, man also selected useful species from the surrounding area as new crop plants as can be seen even in modern times [38, 71, 79]. Especially with this domestication capacity, the area has qualified as belonging to a genecenter in the definition of Vavilov [72]. In addition, the cultural richness of this area plays an important role. The influence and actions of the Arberesh in the area can serve as an example [7]. In connection with the modern hot-spot-discussion these results are of great importance.

The evolution of plants under human influence is a rather dynamic one. Species become domesticated, newly introduced ones replace them from their primary areas of domestication and these successful races themselves are being replaced by other new introductions. The case of *Rubus* can serve as an example [73]. New introductions can lead to new evolutionary constellations, especially when related wild or cultivated species are present. Such introgressions have been reported for a number of species, e.g. *Secale cereale, Beta vulgaris, Triticum* spp., *Raphanus sativus, Brassica oleraceae, Pyrus communis.* Hammer et al. [17] speak about the evolutionary importance of the area.

Introduction and selection led to a considerable enlargement of the flora of cultivated plants through the millennia. A maximum was reached in the first half of the past century when the greatest number of crop plants were used. Most of them were in the typical evolutionary state of landraces, i.e. variable varieties adapted to different localities [74]. These landraces have been the source the new high bred varieties, in relatively low numbers, which became predominant in the second half of the 20th century. As a consequence the landraces disappeared at high rates. A study of selected crops showed the rate of loss between 1950 and 1980 to be more than 80% in some cases [75]. The loss of genetic diversity has been termed "genetic erosion" [76].

But extinction occurs not only at the infraspecific level. For instance, species whose cultivation has become forbidden, such as hemp or poppies, should have undergone extinction in the area. Nevertheless, even in these cases, a few samples could be still detected, e.g. as all populations escaped from cultivation, and thus having survived. Several cultivated plants have lost their importance over time and became accidental, some of them later naturalized and can be found in the botanical floras (e.g. *Eruca sativa*, *Apium graveolens*, *Arbutus unedo*, *Asparagus officinalis*, *Beta vulgaris*, *Brassica oleracea* p.p., *Brassica rapa* and many others). A list of extinct, nearly extinct and rare species of cultivated plant is given in Table 3, see also Negri and Veronesi [85].

Table 3. Plants which have become rare or very rare under cultivation (eventually extinct) in South Italy and Sicily

Abelmoschus moschatus (Malvaceae)	*Eragrostis tef* (Gramineae)	*Prunus brigantiaca* (Rosaceae)
Acacia dealbata (Leguminosae)	*Eugenia uniflora* (Myrtaceae)	*Prunus cocomilia* (Rosaceae)
Agave sisalana (Agavaceae)	*Fagopyrum tataricum* (Polygonaceae)	*Psidium guineense* (Myrtaceae)
Alcea rosea (Malvaceae)	*Fedia cornucopiae* (Valerianaceae)	*Pyrus x nivalis* (Rosaceae)
Allium x cornutum (Alliaceae)	*Fragaria moschata* (Rosaceaae)	*Reseda luteola* (Resedaceae)
Allium oshaninii (Alliaceae)	*Fragaria virginiana* (Rosaceaae)	*Rheum compactum* (Polygonaceae)
Amaranthus lividus (Amaranthaceae)	*Glycyrrhiza echinata* (Leguminosae)	*Rheum palmatum* (Polygonaceae)
Amaranthus cruentus (Amaranthaceae)	*Gomphocarpus fruticosus* (Apocynaceae)	*Rheum rhaponticum* (Polygonaceae)
Ammi majus (Umbelliferae)	*Gossypium herbaceum* (Malvaceae)	*Rhus coriaria* (Anacardiaceae)
Anacyclus pyrethrum (Compositae)	*Gossypium hirsutum* (Malvaceae)	*Rosa moschata* (Rosaceae)
Anthemis tinctoria (Compositae)	*Halogeton sativus* (Chenopodiaceae)	*Rubus armeniacus* (Rosaceae)
Apios americana (Leguminosae)	*Heliotropium arborescens* (Botaginacee)	*Rumex patientia* (Polygonaceae)
Arctium lappa (Compositae)	*Hesperis matronalis* (Curciferae)	*Rumex scutatus* (Polygonacee)
Aristolochia clematitis (Aristolochiaceae)	*Hylotelephium telephium* (Crassulaceae)	*Rumex vesicarius* (Polygonaceae)
Asclepias syriaca (Apocynaceae)	*Iris pallida* (Iridaceae)	*Salsola kali* (Chenopodiaceae)
Astragalus boeticus (Leguminosae)	*Isatis tinctoria* (Cruciferae)	*Salsola soda* (Chenopodiaceae)
Atropa bella-donna (Solanaceae)	*Lathyrus cicera* (Leguminosae)	*Salvia aethiops* (Labiatae)
Avena brevis (Gramineae)	*Lathyrus clymenum* (Leguminosae)	*Salvia fruticosa* (Labiatae)
Ballota pseudodictamnus (Labiatae)	*Lathyrus ochrus* (Leguminosae)	*Salvia verbenaca* (Labiatae)
Blitum capitatum (Chenopodiaceae)	*Lepidium latifolium* (Cruciferae)	*Salvia viridis* (Labiatae)
Blitum virgatum (Chenopodiaceae)	*Lepidium virginicum* (Cruciferae)	*Saponaria officinalis* (Caryophyllaceae)
Brassica oleracea var. alboglabra	*Linum usitatissimum* (Linaceae)	*Scorzonera deliciosa*

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(Cruciferae)		(Compositae)
Brassica tournefortii (Cruciferae)	*Lupinus pilosus* (Leguminosae)	*Senna italica* (Leguminosae)
Broussonetia pypyrifera (Moraceae)	*Malope malacoides* (Malvaceae)	*Setaria italica* (Gramineae)
Bunium bulbocastanum (Umbelliferae)	*Malva verticillata* (Malvaceae)	*Sium sisarum* (Umbelliferae)
Campanula rapunculus (Campanulaceae)	*Medicago arborea* (Leguminosae)	*Smyrnium olusatrum* (Umbelliferae)
Canna edulis (Cannaceae)	*Medicago nigra* (Leguminosae)	*Solanum aethiopicum* (Solanaceae)
Cannabis sativa (Cannabaceae)	*Medicago orbicularis* (Leguminosae)	*Solanum torvum* (Solanaceae)
Chenopodium botrys (Chenopodiaceae)	*Meriandra bengalensis* (Labiatae)	*Spergula arvensis* (Caryophyllaceae)
Chenopodium giganteum (Chenopodiaceae)	*Myrrhis odorata* (Umbelliferae)	*Stachys affinis* (Labiatae)
Chrozophora tinctoria (Euphorbiaceae)	*Nepeta cataria* (Labiatae)	*Stachys officinalis* (Labiatae)
Cinnamomum glanduliferum (Lauraceae)	*Nicotiana rustica* (Solanaceae)	*Tetragonolobus purpureus* (Leguminosae)
Cochlearia officinalis (Cruciferae)	*Nigella damascena* (Ranunculaceae)	*Teucrium marum* (Labiatae)
Cordia myxa (Boraginaceae)	*Nigella sativa* (Ranunculaceae)	*Tragopogon porrifolius* (Compositae)
Crataegus laciniatus (Rosaceae)	*Ocimum americanum* (Labiatae)	*Trichosanthes cucumerina* (Cucurbitaceae)
Cucurbita argyrosperma (Cucurbitaceae)	*Ocimum gratissimum* (Labiatae)	*Trigonella caerulea* (Leguminosae)
Cuminum cyminum (Cruciferae)	*Oenothera biennis* (Onagraceae)	*Triticum monococcum* (Gramineae)
Cyamopsis tetragonoloba (Leguminosae)	*Origanum onites* (Labiatae)	*Triticum dicoccon* (Gramineae)
Cyclanthera pedata (Cucurbitaceae)	*Paeonia officinalis* (Paeoniaceae)	*Triticum polonicum* (Gramineae)
Cyperus papyrus (Cyperaceae)	*Panicum maximum* (Gramineae)	*Triticum spelta* (Gramineae)
Datura metel (Solanaceae	*Panicum miliaceum* (Gramineae)	*Triticum turanicum* (Gramineae)
Delphinium staphisagria (Ranunculaceae)	*Papaver somniferum* (Papaveraceae)	*Triticum turgidum* (Gramineae)
Digitaria sanguinalis (Gramineae	*Pastinaca sativa* (Umbelliferae)	*Valerianella eriocarpa* (Valerianaceae)
Dipsacus sativus (Dipsacaceae)	*Pelargonium capitatum* (Geraniaceae)	*Vicia articulata* (Leguminosae)
Ecballium elaterium (Cucurbitaceae)	*Phormium tenax* (Phormiaceae)	*Vicia ervilia* (Leguminosae)
Eleusine coracan (Gramineae)	*Pimpinella anisoides* (Umbelliferae)	*Vicia lutea* (Leguminosae)

In the group of ornamental plants we can observe a different tendency. There is a tremendous increase in ornamentals over the last decades with many notomorpha, i.e. taxa of hybrid origin , full of taxonomical difficulties [84].

In the same way as wild plant species, the cultivated ones have to be protected to avoid loss of useful resources for future plant production and breeding. Usually genebanks store the seeds of rare material using the so-called ”ex-situ method”. But protection in traditional areas and other so-called “on-farm methods”are being developed in recent times [77].

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