

KEPEIA: THE MARKET GARDENS OF CLASSICAL ATTICA

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by

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ABSTRACT

This thesis concerns market gardening in classical Attica (5th and 4th centuries BCE), investigating the socioeconomic and environmental dimensions of small-scale intensive cultivation. Blurring the boundary between city and countryside, gardens provided an important economic outlet to city dwellers and essential variety to urban diets, but Greek gardens have been little studied by historians or archaeologists. Neglecting them not only misses a key component of food production and distribution, but also overlooks a meaningful feature of the cultivated landscape. I will examine the literary and epigraphic evidence for market gardens, framing them in explicitly economic terms, before suggesting some archaeological approaches based on two case studies.

BIOGRAPHICAL SKETCH

Jane graduated from The University of the South in 2014 with a BA in Anthropology (*summa cum laude*) and received her MA in Classical Languages from the University of Texas at Austin in 2018. She comes to Cornell on leave from a PhD in Classical Archaeology at the same institution. Jane has participated in archaeological surveys and excavations in Italy, Belize, and the southeastern United States. She spent 2019-20 at the American School of Classical Studies at Athens, returning in 2021-22 as a Fulbright Fellow in Greece.

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Introduction

There is no evidence of a meaningful distinction between utilitarian and ornamental gardens in Greek antiquity.¹ Nevertheless, most garden scholarship has focused on themes of luxury, privilege, and symbolic value at the expense of their economic aspects.² This is beginning to change. Recent and growing appreciation for the economic importance of Greek and (especially) Roman gardens can be seen in the updates to their *OCD* entry made earlier this year (April 2021).³ But more work is needed in the eastern Mediterranean, even the well-ploughed field of classical Attica, where gardens and gardeners remain seriously understudied.⁴ From the framework of historical political ecology, economic histories and market opportunities shape local conceptions of natural resources, their uses and perceived value.⁵ This is especially true of so-called marginal landscapes, like the dry hills, narrow streams, and marshland that surrounded classical Athens. With this thesis, I want to position Athenian market gardens in the agricultural economy and unique environment of fifth- and fourth-century Attica. Rather than attempting to tease out environmental aspects from economic factors, I organize this discussion according to the temporal and spatial dimensions of gardens. The following case studies, Mounychia in Piraeus and the deme center of Halai Aixionides, offer a combination of literary, epigraphic, and archaeological evidence. From here, we can begin to ask what gardens meant to

¹ Gros de Beler et al. 2008, 11, date this distinction to the northern European Renaissance.

² e.g., von Stackelberg 2009; Coleman 2014; Hilditch 2015; Pagán 2016. On Homeric gardens, see Ferriolo 1989; Giesecke 2007; Bouvier 2010. On gardens and power more generally, Stronach 1990; Giesecke 2015.

³ von Stackelburg 2021, previously Purcell 2015.

⁴ Carroll-Spillecke 1989 is the only monograph on Greek gardens, with an English summary published as Carroll 1992, partly reprised in her 2003 book. See also Osborne 1992; Karakoli-Moskofidou 1997; Reber 2010; and most recently the unpublished DPhil thesis by Hilditch 2015.

⁵ Offen 2004, 35.

the diverse populations living in democratic and climatically marginal Athens, how meanings varied along the lines of status and gender, and whether those meanings changed over time.⁶

Background: Gardens without markets, markets without gardens

Like the English “garden,” *kepos* (pl. *kepoi*) is a word with a wide semantic range, encompassing market gardens along with temple groves, private parks, and kitchen plots.⁷ Rather than size, structures, or characteristic plants, gardens are best defined by the intensive labor involved in their establishment and maintenance, as “places that are carefully set apart from their surrounding environment and where a highly specialized ecology is maintained through constant human monitoring... according to a specific cultural view.”⁸ In all their shapes and sizes, the common denominators are boundedness, intensive cultivation, and cultural specificity, to which I would add a degree of liminality. Robin Osborne situated the classical Greek garden “between farm and paradise,” and it also fills in spaces between *polis* and *chora*, private and public, luxury and utility.⁹

Recent writings on ancient Greek economies and agriculture contain only a few brief references to market gardening.¹⁰ If mentioned at all, *kepoi* usually appear as home gardens

⁶ Osborne 1992, 377 set out with these questions of classical Greek gardens but did not cover market gardening.

⁷ Nielsen 2013, 41-74; Hardy and Totelin 2015, 163-166.

⁸ Malek 2013, 15.

⁹ Osborne 1992, 373. On Pompeiian gardens as liminal spaces see Barrett 2019, 20, n. 50.

¹⁰ Kron 2015, 169-72; Bresson 2016, 129-31, which also covers honey production. On Greek agriculture generally, the basic texts are Amouretti 1986 (on the Mediterranean triad); Isager and Skydsgard 1992 (on tools, buildings, economic aspects); Burford 1993 (on land and labor). Conference proceedings published as Wells 1992 add archaeological evidence to these primarily text-based accounts. Contributions in Hollander and Howe 2021, not yet available at the time of writing, promise some much-needed updates.

attached to rural dwellings and cultivated for family subsistence.¹¹ Such an emphasis on self-sufficiency is symptomatic of the preference for autarchy and primitivism that continues to loom large over studies of the ancient Greek economy, but publications in the last twenty years are also highlighting the importance of markets and labor specialization.¹² Small urban and peri-urban gardens could be a vital food source for poor families (in Roman contexts see Columella, *Rust.* 10. pref. 1-3; Pliny, *HN* 19.52) but also offered opportunities to participate in the local economy through the sale of fresh or preserved produce, garlands, and medicinal herbs.¹³ In recent history, market gardens have been studied a key feature in rural to urban population movements,¹⁴ analogous to demographic growth in the late sixth and into the fifth century BCE. From a development perspective, they represent a form of urban agriculture, defined by their close association with the economic, social, and cultural life of the city.¹⁵

Temporal dimensions: risk, opportunity, seasonality

Different types of gardens were cultivated on vastly different temporal scales, which affected the amounts of investment required. Ten-year leases for the temple estates on Hellenistic Delos record elite *kepoi* containing the same number of olive and fig trees over decades.¹⁶ At the other end of the spectrum, with potsherds and a little soil, Athenian women sprouted lettuce,

¹¹ e.g., Burford 1993, 135-7; Krasilnikoff 2000, 178-9; on Greek farmsteads see McHugh 2017.

¹² Garnsey et al. 1983, xi-iv on New Orthodoxy; Horden and Purcell 2000, 112-5, 146; critiquing Finley 1982. On markets, see especially Bresson 2016; Harris et al. 2016; Manning 2018.

¹³ Linderski 2001, 305-308; Henderson 2004, 110-133.

¹⁴ For modern comparanda see, e.g., Friesen 1998; Andres and Lebally 2011.

¹⁵ Lohrberg et al. 2016, 21.

¹⁶ Kent 1948.

fennel, wheat, and barley as “gardens of Adonis” that quickly wilted in the summer sun.¹⁷ Such rites and associated values made *kepoi* proverbial in literary sources for ephemeral things and vanities (Thuc. 2.62). But neither of these are what we would call market gardens, and usual turnover rates would usually have lain somewhere between sacred fig trees and ritual microgreens, with significant labor inputs along the way. Celery (σέλινον), for example, took six or seven weeks to germinate, and rather than freely sowing, Theophrastus (ca. 371-287) recommends an elaborate form of dibbling (*Hist. pl.* 7.1.3, 7.3.5). At the long end of the temporal scale, olives might take decades to produce a good crop, but established trees could significantly raise the value of land over time.¹⁸ When trees were cultivated in gardens, it might only be as young shoots or propagates prior to transplanting (*Hist. pl.* 2.4.1, 6.6.6, 6.7.4, 7.3.5, 7.4.8; *Caus. pl.* 2.16.5, 5.7.1). Athenian gardeners cultivated a mix of long-lived fruit trees and fast-growing annuals in vegetable beds, some of which were expected to be left fallow at the conclusion of a lease (*IG II²* 2494).¹⁹

The Greek agricultural calendar typically follows winter sowing through the fall olive harvest, but garden tasks were interspersed throughout.²⁰ In contrast with grain cultivation and arboriculture, which require cooperative labor and shared capital (draft animals, storage, infrastructure) for sowing, harvesting, and processing, gardens require continuous inputs of relatively low-impact interventions (hoeing, manuring, weeding, hand-watering, as opposed to plowing and large-scale irrigation).²¹ Theophrastus (*Hist. pl.* 7.1) lists garden crops (λάχανα)

¹⁷ Detienne 1972; Oakley and Reitzammer 2005. See also depictions on an Attic red-figure lekythos (Badisches Landesmuseum Inv. B 39) and a more recently published terracotta from Myrina (Louvre Inv. Myr. 233).

¹⁸ Burford 1993, 79-80, n. 82, 130; Krasilnikoff 2000; id. 2008.

¹⁹ For other temple leases, see *IG II²* 2492; Jameson 1982, 60-74; Walbank 1983, 100-35, 177-231.

²⁰ Isager and Skydsgaard 1992, 19-43.

²¹ See Grey 2018, reviewing Halstead 2014 and other recent works on agricultural labor and its cooperative aspects.

sown in September for winter harvest, spring gardens sown in January, and summer crops sown in April, as well as a cornucopia of “secondary crops” which might be sown throughout the year in addition to the main seasonal crop (Table 1). Because some of these could be seeded and sold in a matter of weeks, they offered flexible opportunities outside the longer cycles of large-scale grain crops.²² In addition to Theophrastus, Aristophanes and his contemporaries mention a wide variety of produce in the Athenian agora: vegetables, aromatic herbs, and flowers for garlands, wreaths, and medicinal ingredients.²³ Because so many familiar flowers and aromatic herbs are among the native flora of Greece, their waxy leaves well-adapted to arid climates, many of these are as likely to have come from the maquis as the garden plot.²⁴

On the consumer end, it is not known whether there was a difference between gathered and grown varieties, whether they were indistinguishable, or one more desirable than the other, but important qualities appear to have been their freshness and place of origin. That many garden products could also be gathered wild creates opportunities for opportunistic gathering alongside routine tasks with little to no (capital) investment. Some varieties deteriorated under cultivation and had to be gathered: Theophrastus mentions capers and lupine (Theophr. *Hist. pl.* 1.4.1). Gathering required almost no investment beyond knowledge and attention, while growing required renting or otherwise accessing land, investing in seeds, irrigation, and if references to theft are not greatly exaggerated, some form of security. There is in fact very little evidence for privately owned gardens, mostly known from *horos* inscriptions, but leases of temple property in the fifth and fourth century BCE attest to a healthy rental market for garden plots. Attic

²² For a more flexible and forward-looking conception of rural time, and its economic implications, see Van Oyen 2019.

²³ Lewis 2016, 382-4.

²⁴ On Mediterranean biodiversity see Grove and Rackham 2001; Blondel et al. 2010.

sanctuaries like the one in *IG II² 2494* rented out gardens at anywhere from 20 to 250 drachmae a year.²⁵ Figuring one drachma as a good daily wage for a skilled laborer at the end of the fifth century, the cost of leasing a small garden plot would have been within the reach of many. The greatest investment, for gardens, was labor.

Intensification—relatively high labor inputs per unit area—and crop diversification are well-studied risk management strategies which developed in the unique spatial and temporal landscape of the Mediterranean, with its combination of diverse microregions and interannual variability in rainfall.²⁶ Risk management strategies are usually framed in opposition to market-oriented behavior, but in the case of market gardens, that need not be the case. At least as depicted in Old Comedy, Athenian vegetable sellers diversified ambitiously, in combinations that did not always follow the rules of the seasons. Aristophanes satirizes the profession in a surviving fragment of *Seasons* (frag. 581, Ath. 9.372B):

(A.) ὄψει δὲ χειμῶνος μέσου σικυούς, βότρυς, ὀπώραν,
στεφάνους ἴων, < (B) οἴμαι δὲ καὶ > κονιορτὸν ἐκτυφλοῦντα.
(A) αὐτὸς δ' ἀνήρ πλωλεῖ κίχλας, ἀπίους, σχαδόνας, ἐλάας,
πύον, χόρια, χελιδόνας, τέττιγας, ἐμβρύεια.
ύρίσους δ' ἴδοις ἂν νειφομένους σύκων ὁμοῦ τε μύρτων·
(B) ἔπειτα κολοκύντας ὁμοῦ ταῖς γογγυλίσιν ἀροῦσιν.
ὥστ' οὐκετ' οὐδεῖς οἶδ' ὀπηγίκ' ἐστι τοῦνιαυτοῦ.

²⁵ Osborne 1992.

²⁶ Halstead 1987 and passim; Horden and Purcell 2000; on risk see especially Gallant 1991; Hanson 1995; Scheidel, Morris, and Saller 2007, also referring to fragmented landholdings and trading or storing surpluses.

(A) In midwinter you'll see cucumbers and the fruit of the vine
and crowns of violets.

(B) And blinding clouds of dust I think.

(A) One and the same man sells thrushes, pears, honeycombs, olives,
beestings, haggis, swallows, crickets, fetal meat;
and you'd see baskets with figs and myrtle-sprays even when it snows.

(B) Then they sow the pumpkins together with the turnips,
so that no one knows what time of year it is.

The speaker describes what seems like a reckless disregard of the seasons on the part of the growers and sellers, who spend winter hawking spring (violets), summer (cucumbers, myrtle), and fall (figs, grapes) produce, sowing cool-season brassicas alongside summer melons or gourds.²⁷ In the context of a play which satirized immigrant gods and their cults, the gardeners in question may be foreigners—the first speaker goes on to decry the unnatural variety as luxury, turning Athens into Egypt (Αἴγυπτον αὐτῶν τὴν πόλιν πεποίηκας ντ' Ἀθηνῶν, Ath. 9.372B). The critique is a familiar one, based in the ideals of traditional self-sufficient farming and mistrust of luxuries (Theophr. *Char.* 20.9, Isae. 5.11), but this is more likely moralistic discourse than the realistic assessment of the market for garden products. In the context of the Athenian democracy, simple fare was more ideologically desirable. Fruits and even vegetables could be a sign of luxury, classed as relish (ὄψον) and a source of overindulgence (Pl. *Rep.* 2.372a-e; Xen. *Mem.*

²⁷ In the above translation by Henderson (2008, 379) κολοκύνθη is familiarly translated “pumpkin,” but obviously does not refer to winter squashes domesticated in North America (*Cucurbita maxima*, *C. pepo*). There are several gourds native to North Africa and the eastern Mediterranean, including the bitter watermelon lookalike *Citrullus colocynthis* (Chomicki et al. 2020).

3.14.2-6).²⁸ Rhetoric aside, there is good reason to believe that figs, for example, were more important in the Attic economy than generally credited (Ath. 14.652b-653b), growing and producing much more quickly than the iconic olive.²⁹

Another element of garden cultivation that can be appreciated from this passage was experimentation, which Theophrastus discusses as a facet of garden cultivation, listing several wild plants that have been coaxed out of garden soil (Theophr. *Hist. pl.* 7.7.2).³⁰ A market gardener might allow profitable weed species to self-seed in part of a plot or supplement their wares with gathered herbs.³¹ It made sense to plant certain high-value taxa for access and convenience, so that like the chorus in Aristophanes' *Birds*, one could “enjoy in the garden the white sesame and myrtle berries, the poppy and bergamot mint” (159-60). Most garden products add more to taste than calories, and the economy of seasonings and senses in Greek (sub)urban life remains to be explored.³² Plant foods, especially the inexpensive calories from cereals and legumes, formed the daily subsistence base of the non-elite majority in classical Athens, but seasonings would have been essential components in turning raw ingredients into food.³³ Diversification is a valid risk management strategy,³⁴ and experimentation with different crops in a single plot could have captured high demand on the market.

²⁸ Davidson 1997, 20-26; Hilditch 2015, 118.

²⁹ Studies of the ancient agricultural economy overwhelmingly focus on the “Mediterranean triad” of grain, grapes, and olives, though exceptions prove the rule, e.g. Sarpaki 1992, arguing for a quartet to include legumes, and Amouretti 1999, focused on other overlooked plant resources. See also brief articles by Andrews 1949, id. 1956, id. 1958.

³⁰ For gardens as venues for experimentation with reference to medieval Arabic horticulture, see Watson 1983.

³¹ Halstead 2014.

³² cf. in Herculaneum, Rowan 2017 on the contents on a sewer in a non-elite neighborhood, which indicated a relatively wider access to so-called exotic spices (e.g., *Piper nigrum*) than previously believed.

³³ Foxhall and Forbes 1982, 44-6 estimate that cereals made up ca. 65–70% of the ancient diet; but cf. Gallant 1991, 60–92; Kron 2015, 161.

³⁴ e.g., Marston 2011.

The temporal dimensions of market gardens—short-term, low-investment—appears to have made their cultivation available to economically marginal populations including women and foreigners. There is no direct evidence of a gendered division of labor in classical Greece gardens, nor between enslaved and free laborers, but most epigraphic mentions refer to freed slaves.³⁵ The female vegetable seller appears not infrequently in Old Comedy, including the mother of Euripides (λαχανοπωλήτρια, Arist. *Them.* 387), but usually in the context of misogynistic mockery (Arist. *Wasps*, 497, *Lysis*. 457, 564, *Achar.* 478, *Thesmo.* 446-58).³⁶ In the long passage above, Aristophanes mentions selling and sowing in the same breath, and though most scholars tend to accept the distinction made by Plato (*Rep.* 371 c-d), that vendors (κάπηλοι) remained in the agora, where farmers could sell to them and more quickly return to their fields, it seems likely that female vendors sold produce grown or gathered in plots around the city, engaging in the low-value transactions to which women were legally restricted.³⁷ Epigraphic evidence supports the mentions in Old Comedy which cannot be taken at face value: among the roughly 200 epigraphically attested professions in classical Athens (ca. 500-250 BCE) are sellers of garlic (γεργοπώλης), onions (κρομμυπώλης), sesame seeds (σησαμοπώλης), and cumin (κυμινοπώλης), while roots (ρίζοπώλης, presumably medicinal) and laurels (δαφνοπώλης) could have been gathered wild or cultivated to meet urban demand.³⁸ Several are women, named in Attic manumissions: Onesime and Soteris sold sesame seeds, Atta pulses, and Mania was a

³⁵ Osborne 1992, n. 32, 384; on agricultural labor see Scheidel 1995-1996.

³⁶ For better or worse, the most popular image is a Hellenistic statue nicknamed (probably not appropriately) the Old Market Woman (MMA 09.39), on which see Stewart 2014, 233-5, fig. 140. Images of gardens themselves, like all natural features in classical Greek art, are relatively few and far between (Burn 1987, 18-21, 29-30, 83-4; Hilditch 2015, 22-67.)

³⁷ Saller in Scheidel, Morris, and Saller 2007, 102; Hilditch 2015, 158.

³⁸ Harris et al. 2016, 24, n. 123; Lewis 2016, 382-4.

female grocer living near a spring (*IG II*² 1561, 22-23, 26-27; *IG III*³ 87, 8).³⁹ Of course, not all the retail professions need to have been mutually exclusive, and they were likely interchangeable with the seasons as different produce became available. This brings us to the spatial dimensions of Athenian market gardens, starting with the agora and moving out to the city margins for the gardens themselves.

Spatial dimensions: margins, scale, extent

We should probably imagine garden produce in a particular area of the Athenian agora, large enough to contain several specialized sections. The Old Comedy playwright Eupolis describes a character going “round to the garlic and the onions and the incense and straight to the perfume” (fr. 327). In Pherecrates (fr. 2), there are stalls for bergamot, mint, larkspur, and wreaths; Aristophanes notes a particular area of the agora for vegetables and pots (*Lys.* 557). Specialists in marketing specific products probably accepted produce from several market-gardeners, rather than the gardeners remaining in the agora to sell their own miscellaneous harvests, though this could certainly have been the case in smaller markets outside Athens. There is epigraphic evidence for markets all over Attica, from secondary centers at Sounion and Piraeus to temporary and periodic markets all over the peninsula, such that most Attic farmers and gardeners would have had somewhere to sell within three or four hours’ walk.⁴⁰ This would have been particularly important for gardeners, since unlike products amenable to long-term storage like grain, wine, olive oil, and honey, fresh vegetables and fruit had to be sold quickly

³⁹ Lewis 1959: 214, 223; Hilditch 2015, 158.

⁴⁰ Harris et al. 2016, 13-22.

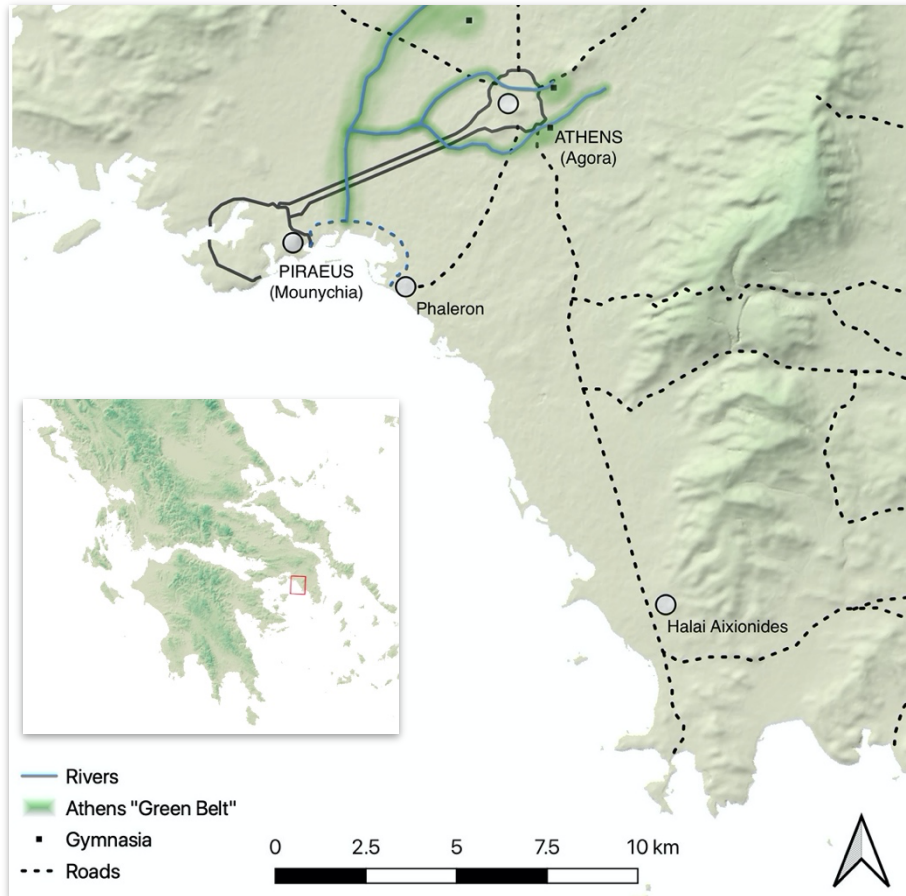


Figure 1: Places mentioned in text, with gardens and groves along rivers in the Athenian suburbs after Carroll-Spillecke 1992, 93, fig. 13, and attested roads after McHugh 2019. Map by the author.

and close to the place of production.⁴¹ The city also drew in an unusually dense population not engaged in farming, particularly during the Peloponnesian War, a condition which allowed “the market [to replace] the usual function of storage,” making way for a shift to specialized gardeners and gatherers while putting pressure on the production of a ready supply.⁴²

Epigraphic evidence suggests that market gardens existed on the margins of classical Athens, creating a valuable suburban “green belt” (Fig. 1) not unlike the better-studied Roman

⁴¹ There is also some evidence of gardeners maintaining their own shop. One *horos* (no. 92A) lists a house, a shop and a garden on the property it marks, suggesting that the owner grew produce in his garden and sold it there (Harris in Cartledge et al. 2002, 69, n. 2).

⁴² Horden and Purcell 2000, 205. On the rural/urban dynamic in earlier periods see Manning and Fisher 2018; García et al. 2019.

suburbium.⁴³ I have said that market gardens occupy marginal land, which I use in its spatial sense – on the physical margins of the city, between densely inhabited urban space and the *chora* proper– and in terms of productivity and desirability. Attica is usually portrayed as on the margins of agricultural sustainability, part of a low-precipitation zone that encircles the Saronic Gulf and Cyclades which is arid even for the Aegean.⁴⁴ Only a fraction of Attic soil lay in flat valleys well suited to extensive grain agriculture, so the landscape is often characterized in terms of poverty but, through elite investment and intensive labor inputs, supported a variety of cultivation strategies including gardens.⁴⁵ Still, the productivity of the Attic hinterland and its reliance on imports is still hotly debated.⁴⁶

Looking more closely at the margins, there is an assumption in need of revision that garden space only existed outside the walls of crowded Greek cities.⁴⁷ It is hard to estimate the value of urban land, but limited sources suggest it was at least relatively high in large cities like Athens (Xen. *Ways* 4.50). Of course, the agora itself was planted with shade and fruit trees, and groves stood around sanctuaries and gymnasia, and though public works and sacred space are usually considered separately from food production there is no direct evidence to contradict the sale of produce from sanctuary land. Planting pits and pots around the Hephaestion, dated to the 3rd to 1st centuries BCE, have been restored with pomegranate and myrtle trees, both of which, appropriately, also have economic functions.⁴⁸ I am not ready to dismiss the possibility of

⁴³ Carroll 1992, 86-89; Kron 2015, 169-72. On the *suburbium* see Morley 1996; Frass 2006, 163-73; Purcell 2007.

⁴⁴ Bintliff 2012, fig. 1.3. Under this precipitation regime wheat would have failed often, but barley was a reasonably safe choice, the odds of failure two years in a row at only a fraction of a percent (Garnsey 1988, 10-17).

⁴⁵ Krasilnikoff 2000; id. 2008; Foxhall 2007.

⁴⁶ Garnsey 1988, 89-106; Davies 2007, 343; O'Halloran 2018, 59-60.

⁴⁷ Carroll-Spillecke 1989, 82; echoed by Farrar 1998, 6-8; Reber 2010.

⁴⁸ Thompson 1937, also mentioning planting pots in the agora excavations; Delorme 1960, 33-51; Carroll 1992, 86-90; id. 2003, 22-23. Planting pots were also noted at Olynthus, on which see Robinson 1950.

household or even profitable garden cultivation in the city, if not alongside houses (as in Dem. 47.53), in their courtyards. Greek domestic archaeologists tend to dismiss the courtyard as too small for the cultivation of a garden, and argue that plantings would block valuable light, though they might also play a screening role in the interest of female seclusion.⁴⁹ An often quoted Hellenistic law from Pergamon (*SEG* 13.521.158-161) forbids plantings near houses to prevent root damage to the walls, but this need not preclude container gardening, and possible flowerpots (*ollae perforatae*) have been widely identified in both Greek and Roman contexts.⁵⁰ A useful ethnographic comparison can be found in the gardens (usually in recycled containers) of traditional Mexican-American barrio houses, which faced around an interior court like the Greek *oikos*, and have been studied as arenas of female expression and agency.⁵¹

The seemingly harsh and unnatural conditions of an urban courtyard actually mirror the rocky outcrops that characterize much of the Attic landscape, where plants have adapted to long droughts, intense sunlight, and small pockets of soil. But conditions on the urban periphery would have been more amendable to irrigated gardens, especially the well-watered areas around the Kephissos, Eridanos, and Ilissos, the shady setting of Plato's *Phaedrus* and where Pausanias observed a garden zone centuries later (1.19.2). The Academy too was still known for its plantings by the Romans (Plin. *HN*, 12.5, Plut. *Sull.* 12.3), but in the fifth century included not only planes but reeds, smilax, poplar, and elms and olives (Ar. *Clouds*, 1005-1008), evoking the kind of resilient edible landscaping popular in current permaculture design rather than a rigorously formal garden. For the other inputs of nutrients and labor, gardens in or near the city

⁴⁹ Carroll 1992, 86.

⁵⁰ Farrar 1998, 5-8; Macaulay-Lewis 2006. For images of excavated pots see Foxhall 2007, fig. 7.16.

⁵¹ Waldenberger 2000, 233-6; for Athens cf. Nevett 2011.

would have been enriched by a ready supply of human manure (*kopros*), whose collection and distribution were overseen by *koprologoi*.⁵²

Case Study: Piraeus

Epigraphic evidence from fourth-century Piraeus extends the Athenian green belt towards the sea. Planned in the mid- fifth century BCE and the only surviving project of Hippodamus of Miletus (Arist. *Pol.* 2.5.1267b22-1268a14), classical Piraeus was surrounded by a marshy zone which limited opportunities for settlement and agriculture in the immediate suburbs (Fig. 2).⁵³ This may have encouraged creative exploitation of higher ground. The urban grid petered out on the slopes of Mounychia Hill, but an eclectic variety of wells, cisterns, and channels attest to



Figure 2: Late 19th-c. Piraeus and the surrounding marshy landscape prior to modern drainage works (Curtius and Kaupert 1882).

⁵² Burford 1993, 123, n. 137; Owens 1983.

⁵³ Hoepfner and Schwandner 1985; Chiotis 2019, 337.

dense occupation, puncturing the rocky hill with such frequency that an early traveler remarked that they made it “dangerous to walk about the ruins.”⁵⁴ Irrigation was an important prerequisite to successful garden cultivation (Theophr. *Caus. pl.* 2.5.6; Diog. Laert. 7.168-9; Arist. fr. 679; Pl. *Leg.* 845c), and Mounychia features the most favorable hydrological conditions at Piraeus. The peninsula is generally described as one of the “least hospitable regions in all Attica,”⁵⁵ but here, the thickly bedded limestone sits atop impermeable marl, sloping off to the south, creating perfect conditions for springs around the 40 m contour line.⁵⁶ Porous limestone would have had the capacity to absorb winter rains rather than causing runoff and erosion, good news for ancient gardeners. Though often overlooked in a city that handled so much imported grain, agricultural production was among the many occupations of demesmen, metics, visitors, and slaves who lived and worked in the Piraeus.⁵⁷ A lease record for property dedicated to an unknown deity in the third quarter of the fourth century (338-326 BCE) records nine gardens along the road to Mounychia, with renters from Piraeus and Kerameikos (*SEG* 33.168b).⁵⁸ The records use the diminutive κηπεῖον, suggestive of “small, tightly packed patches to be intensively exploited for vegetable production, aimed at the voracious Athenian market.”⁵⁹ Piraeus had its own agora, of course, marked by several surviving *horoi* (*IG* I² 896; *SEG* x, 383; *IG* I³ 1115) near the

⁵⁴ Dodwell 1819, 426.

⁵⁵ Garland 2001, 7.

⁵⁶ Lepsius 1893, 6; Chiotis 2019, 334-335, 346-347. The waterholding capacity of the Mounychia bedrock was preserved to stunning effect in the so-called Cave of Arethousa, a stepped gallery tunnelling into the hill as a stepped gallery explored to a depth of 65 m.

⁵⁷ Garland (2001, 74) interpreted attestations to the celebration of the plowing festival Plerosia (*IG* II² 1177) and references to pasture (*IG* II² 2498) as evidence of arable land within the boundaries of Piraeus.

⁵⁸ Walbank 1983, 179, 185.

⁵⁹ Hilditch 2015, 224-5.

southwest slope of Mounychia hill (Xen. *Hell.* 2.4.11) and by extension, near these small gardens.⁶⁰

At first glance, intensive cultivation for local consumption and trade—market gardening—seems unlikely on the densely inhabited and inhospitable peninsula, though it is attested for nearby Phaleron, whose cabbage (ράφανος) was highly regarded.⁶¹ Today’s cabbage and the many other cultivated forms of *Brassica oleracea* (kale, kohlrabi, Brussels sprouts, etc.) are rated as moderately salt-tolerant, but wild *B. oleracea* continues to flourish on seaside limestone cliffs around the Mediterranean with few competitors,⁶² so we should probably imagine something closer to this hardy ancestor in fourth-century gardens. Cabbage was recommended by Theophrastus alongside radishes (ράφανίς) and turnips (γογγυλίς) for winter cultivation (*Hist. pl.* 7.1), when Attica receives most of its annual precipitation. The Piraeus gardens may have been winter affairs, taking advantage of winter rain with cool-season brassicas, then lying fallow when gardeners returned to other occupations when the weather turned dry and good for sailing. The lease for one plot also mentions a mulberry tree (ἡ συ[κάμινος, 1.10).⁶³ Between entries 8 and 9 in *SEG* 33.168b is a record of a marsh being rented (ἔλος, 1.19), indicating that the wetland usually portrayed as limiting opportunities around the city had its uses, potentially as pasture.⁶⁴ Local landscapes of cultivation have received little attention in Piraeus, where ancient authors describe the diversity of goods flowing in from

⁶⁰ Gill 2006, 6-7.

⁶¹ Garland 2001, 69.

⁶² Shannon and Grieve 1999, 22-24; POWO 2021.

⁶³ This would have been the black mulberry (*Morus nigra*) brought from southwest Asia by the fifth century BCE (Theophr. *Hist. pl.* 1.12.1, 5.6.1-3), and not the white mulberry (*Morus alba*) later imported from China, widely cultivated for silkworms in medieval Peloponnese and the source of its official name (Morea) from the 10th through 19th century.

⁶⁴ Krasilnikoff 2000, 179-80; Hilditch 2015, 223-225.

everywhere (Ath. L27e-f). But there do appear to have been issues with the grain supply, especially ca. 330-327 BCE (*IG II²* 408; *IG II²* 342; Plut. *Vit. Dec.* 851B; Tod 1948, no. 196).⁶⁵ Fourth-century grain shortages could have encouraged Piraeus residents new and old to bring previously inhospitable land into cultivation as small urban gardens, and indeed, the Mounychia inscriptions date between Chaeronea in 338 and the Athenian defeats of 322 BCE, a period that saw a brief but significant growth in population. Lycurgus sponsored infrastructure and encouraged settlement in Piraeus, especially by Egyptian and Cypriot merchants, who almost certainly brought their foodways along with their gods, perhaps their garden traditions as well.⁶⁶ From a cultural rather than purely economic perspective, seeds and shoots brought from one garden to another could maintain connection with family and home, and in the case of exotic cultivars, required constant maintenance to survive, creating an iterative engagement with their current place and remembered origin.⁶⁷

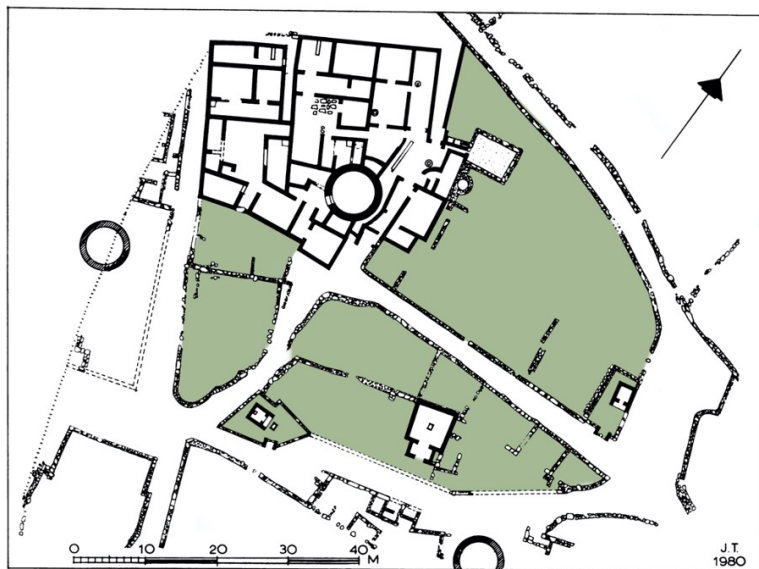


Figure 3. Halai Aixonides, plan of the settlement excavated at the Kalampokas plot in 1974-75 (Travlos 1988, Fig. 597) and view to the west (Fig. 596). Green shading indicates unpaved enclosures, possible garden space.



⁶⁵ On fourth-century grain shortages, for which there are ample sociopolitical explanations in addition to yet unproven climatic factors, see Camp 1982, 14-15; Garnsey 1988, 134-164.

⁶⁶ Garland 2001, 44-45.

⁶⁷ cf. Waldenberger 2000, 241-2.

Case Study: Halai Aixionides

Leaving Piraeus and moving farther down the western coast of Attica, just 12 km to the south, are the only (tentatively) archaeologically identified gardens in Attica. Halai Aixionides lies 15 km away from the Athenian agora, about a 3-hour walk along modern roads. It is one of the only Classical villages (κώμαι) excavated in Attica, studied in 1974/75 by P. Themelis when modern construction began in the area.⁶⁸ Rescue excavations did not include systematic sampling or soil testing, but we can make some inferences from the standing architecture. The buildings are loosely connected, with streets of varying widths (2.5 – 4 m) and extensive unbuilt areas enclosed by irregular stone walls, “apparently gardens,” totaling roughly 2050 m² (Fig. 3).⁶⁹ Like the arrangement suggested by an inscription from Tegea (Tod. No. 202.9-21), gardens appear to be interspersed among houses and cult-buildings along the road. One group of enclosures, in the southeast, contains a one-room structure tentatively identified as a banquet-hall (λέσχη) like those marked by *horoi* on the western Akte peninsula in Piraeus (*IG I² 888*). The enclosure around it is partitioned into smaller spaces of 27 m², 30 m², 50 m², 52 m², and 179 m² along its northern edge bordering the road.⁷⁰ Immediately to the north, Lohmann interpreted hydraulic fixtures around village’s tower as baths, drawing comparisons with fragments of clay bathtubs found near the tower at Atene,⁷¹ but I wonder if the arrangement might include irrigation works. The enclosed spaces are adequate for one or two trees and several rows of vegetable beds each, since just 15 cm of soil is enough to establish perennial herbaceous plants, while small trees need

⁶⁸ Travlos 1988, 467, figs. 595-7.

⁶⁹ Lohmann 1992, 35-9.

⁷⁰ Approximate measurements from the plan by Travlos. Salviat and Vatin 1971, 22, record one *kepos* in Thessaly measuring over five *plethra*, enough for a small farm. But we should probably imagine the gardens around Athens being considerably smaller.

⁷¹ Lohmann 1992, 35.

about four times that, given enough horizontal space.⁷² Taking a comparative view, gardens appear to have been part of the city fabric at Zelea in the Troad and Tegea in Arcadia (Tod. No. 202.9-21), where they were included in urban land allotments in 334/3 and 342 BCE respectively.⁷³ In the northern Peloponnese, the acropolis at Phleius was cultivated with grain.⁷⁴ For a deme center like Halai Aixionides, cultivation among buildings is entirely possible, and Athens was close enough that market cultivation could have been a profitable endeavor for its people. Produce could and did travel much farther to market: fourth-century documents mention gardens in several Attic demes including Myrrhinous (*IG I³ 430*, frag. a, 17), Pallene (*IG II² 1596 b, 1*) Oion (*IG II² 1579, 35-36*), and Agrai (*IG II² 1591*).⁷⁵ Without tighter dates, however, it is not possible to say whether the use or meaning of garden space at Halai Aixionides changed over time.



Figure 4. Seeds of common garden taxa—from top to bottom, fig (*Ficus carica*), cabbage (*Brassica oleracea*), and cress (*Lepidium sativum*)— alongside wheat (*Triticum aestivum*), grape (*Vitis vinifera*), and olive (*Olea europaea*) with 1 mm scale. Illustration by the author.

⁷² Rainer and West 2016.

⁷³ See Osborne 1992, 377-8, n. 15; Burford 1993, 61-2, n. 26.

⁷⁴ Burford 1993, 74. Only in later literary sources does cultivation within the city walls later becomes an example of civic deterioration and resulting desolation (Dio Chrys. 7.38-9, cf. Phot. *Bibl.* 446b 27; Lycurg. *Leoc.* 147; Isoc. *Plat.* 31 on pastoralism).

⁷⁵ Walbank 1983; Williams 2011; Hilditch 2015, 214, 223-6; cf. early modern examples in Beavington 1975.

Future directions: Archaeological approaches

So far, short-term and small-scale garden food production, with its liminal position on the margins of cities, has largely escaped the notice of archaeologists devoted either to urban excavations or rural surveys.⁷⁶ Two classes of material culture have defined archaeological approaches to agricultural activity in cities— structures for storage (individual or centralized) and processing (presses, mills, threshing floors). As relatively subtle features in the landscape, productive spaces like gardens are also difficult to identify archaeologically, and standardized methods for their excavation and interpretation have emerged only in the last few years.⁷⁷ The archaeology of Roman gardens, starting with the unique preservation conditions at Pompeii but now spanning sites across the empire, is far more advanced than their Greek counterparts.⁷⁸ While developments in Greek domestic archaeology have greatly expanded scholarly understanding of household economies, these are mostly architectural and to a lesser extent artefactual studies, limited to houses excavated prior to systematic techniques.⁷⁹ Investigating the possibility of courtyard gardens, viewing the household as a dynamic ecosystem, approaches the developing theoretical field of multispecies archaeology, studying the impact of phenomena like urbanism not solely for its impacts human society, but also on ecological networks and environmental systems.⁸⁰ It is a promising avenue, but requires new excavations with greater attention to environmental remains than is currently the norm.

⁷⁶ Some have attempted to bridge the two, see e.g., work relating to the manuring hypothesis, Morris et al. 1994; Ault 1999; Forbes 2013. In the Roman world, see e.g., Bowes et al. 2015 for the possibilities of integrating survey and excavation of nonelite houses.

⁷⁷ Miller and Gleason 1994; Malek 2013; Van Ossel and Guimier-Sorbets 2014..

⁷⁸ Malek 2013; Jashemski et al. 2018, with a digital catalog (currently Beta release) at <https://roman-gardens.github.io>. See previously Grimal 1943; Vatin 1974.

⁷⁹ Nevett 1999 and Cahill 2002 (on Olynthus) led the way; see also Ault and Nevett 2005; Ault 2007; Nevett 2010.

⁸⁰ e.g., Lucas 2018. For environmental techniques in garden archaeology see Malek 2013, 321-420.

In the coming year, I will begin the archaeobotanical analysis of the remains from Piraeus wells to shed further light on the relationship between local water supply, food choices, and the possibility of urban gardens. Carefully excavated to their full depth, the wells have yielded waterlogged leaves and branches that may indicate the presence of shade trees or small courtyard gardens as well as numerous seeds and fruits.⁸¹ Macrobotanical analysis has been practiced on prehistoric excavations for decades, but until recently limited to specialized deposits in sanctuaries for classical and later periods in Greece.⁸² Seeds of most garden cultivars are considerably smaller than members of the standard Mediterranean triad, which makes them unlikely to be spotted with unsystematic hand-collection (Fig. 4). While macroremains yield evidence of food consumption and fertilizer, for primary evidence of plants growing in a garden space, one of the most promising avenues is pollen analysis from archaeological sediments and wall plaster.⁸³

Conclusion

What did market gardens mean to the citizens of classical Athens? To the authors of preserved texts, perhaps little more than a symptom of excess, botanical curiosity, or the source of an amusing turn of phrase. But to the women, metics, and indeed some male citizens engaged in a dynamic and multilocal labor economy, market gardens meant a readily accessible and seasonally flexible livelihood, one which responded to changing tastes and fashions as well as

⁸¹ Chrysoulaki et al. 2017. On the potential of wells for garden archaeology, see Dietrich *in* Van Ossel and Guimier-Sorbets 2014, 131-138.

⁸² Megaloudi 2006; Voutsaki and Valamoti 2013; Livarda 2014; on the paleoethnobotany of garden cultivation in earlier periods, see Bogaard 2005; Jones 2005; van der Veen 2005.

⁸³ Gröger *in* Malek 2013; see most recently Langgut and Gleason 2020.

subsistence needs and cultural preferences. Gardens offer the opportunity to study Greek agriculture in microcosm, defined by diversification in labor and crops. According to Horden and Purcell, “The Mediterranean garden is a more typical image of primary production than the wheat field or grazed hillside. Diversity of labor, technique or intensity, as well as of the quality and quantity of what is tended on the small scale, are structural features of Mediterranean history.”⁸⁴ A more nuanced understanding of Attic market gardens, grounded in the archaeological investigation of previously unstudied contexts, stands to greatly illuminate our understanding of the ways in which ancient economies and landscapes were mutually constitutive.

⁸⁴ Horden and Purcell 2000, 220-224.

Table 1: Garden products sold in the Athenian agora (Lewis in Harris et al. 2016, 382-4), with approximate seasonal availability based on Theophrastus (*Hist. pl.* 7.1.1. , 7.3.4, 7.7.2, 7.9.1-3; *Caus. pl.* 4.8.1, 5.6.5-6) for cultivated taxa, field guides and species profiles for wild taxa (Papiomytoglou 2006; Gardner and Gardner 2020; greekflora.gr, powo.science.kew.org). English translations of Greek plant names can be problematic, including the original glossary in the *LSJ*, so I relied on the 1916 translation of Theophrastus by botanist Sir Arthur Hort. For binomial names, obsolete synonyms were updated to accepted names according to the International Plant Names Index (ipni.org).

Scientific name	Common nm.	Greek name (ancient)	Spring	Sum/Fa	Winter
<i>Allium cepa</i>	onion	γήθιον, κρόμμυον, σχιστόν	greens		bulb
<i>Allium porrum</i>	leek	πράσον			
<i>Allium sativum</i>	garlic	σκόρδον			
<i>Amaranthus blitum</i>	blite	βλίτον			
<i>Anemone coronaria</i>	poppy anemone	άνεμώνη ή λειμωνία			
<i>Anethum graveolens</i>	dill	ἄνηθον, ἄνητος			
<i>Apium graveolens</i>	celery	(έλειο)σέλινον			
<i>Arbutus andrachne</i>	strawberry tree	ἀνδράχλη, κόμαρος, μιμαίκυλον			
<i>Asparagus officinalis</i>	asparagus	ἀσφάραγος			
<i>Asphodelus</i> sp.	asphodel	ἀσφοδελός, ἀνθήρικος			
<i>Atriplex hortensis</i>	(garden) orache	ἀδράφαξιν			
<i>Beta vulgaris</i>	beet	τεῦτλον			
<i>Brassica oleracea</i>	cabbage	κράμβη, καυλίον, ράφανος			
<i>Brassica rapa</i>	turnip	γογγυλίσ			
<i>Cichorium intybus</i>	chicory	κιχώριον			
<i>Coriandrum sativum</i>	cilantro	κορίαννον			
<i>Crocus sativus</i>	saffron crocus	κρόκος (ό εὔοσμος)			
<i>Cucumis sativus</i>	cucumber	σίκυος			
<i>Delphinium</i> sp.	larkspur	σταφίς ἄγρια, κοσμοσάνδαλον			
<i>Eruca vesicaria</i>	arugula	εὔζωμον			
<i>Euphorbia</i> sp.	spurge	τιθύμαλλος			
<i>Ficus carica</i>	fig	σῦκον, ισχάς (dried)			
<i>Filipendula vulgaris</i>	dropwort	οἰνάνθη			
<i>Foeniculum vulgare</i>	fennel	μάραθον	greens		bulb
<i>Helichrysum italicum</i>	goldflower	ἐλίχρυσος			
<i>Helleborus</i> sp.	hellebore	ἐλλέβορος			
<i>Lactuca sativa, L. scariola</i>	lettuce	θρίδαξ, θριδακίνη			
<i>Lagenaria siceraria</i>	bottle gourd	κολόκυνθα, σικία			
<i>Laurus nobilis</i>	bay laurel	δάφνη			
<i>Lavandula stoechas</i>	lavender	στοιχάς, λεβάντα			
<i>Leopoldia comosa</i>	tassel hyacinth	βολβός			
<i>Lepidium sativum</i>	garden cress	κάρδαμον			
<i>Lilium candidum</i>	Madonna lily	κρίνον, λείριον, κρινωνία			
<i>Lilium martagon</i>	Martagon lily	ήμεροκαλλές			
<i>Malva sylvestris</i>	mallow	μαλάχη			

<i>Mentha aquatica</i>	mint, bergamot	σισύμβριον, ήδύοσμον, μίνθη (-α)			
<i>Mentha pulegium</i>	pennyroyal	βληχών, γλήχων			
<i>Myrtus communis</i>	myrtle	μυρσίνη, μυρρίνη, μύρτα (berries)	flowers	berries	
<i>Narcissus tazetta</i>	paperwhite	λείριον			
<i>Ocimum basilicum</i>	basil	ώκιμον			
<i>Origanum majorana</i>	marjoram	άμάρακος			
<i>Origanum vulgare</i>	oregano	όρίγανον			
<i>Pimpinella anisum</i>	anise	άνησον			
<i>Pistacia lentiscus*</i>	mastic, lentisk	σχίτος			
<i>Portulaca oleracea</i>	purslane	άνδράχνη			
<i>Prunus domestica</i>	common plum	κοκκυμηλέα			
<i>Punica granatum</i>	pomegranate	ρό(ι)ά			
<i>Pyrus communis</i>	pear	άπιον, άχράς			
<i>Raphanus raphanistrum</i>	radish	ράφανις			
<i>Rosa sp.</i>	rose	ρόδον			
<i>Rumex patientia</i>	monk's rhubarb	λάπαθον			
<i>Salvia pomifera</i> subsp. <i>calycina</i>	sage-apple	σφάκος			
<i>Satureja thymbra</i>	savory	θύμβρα			
<i>Scandix pecten-veneris</i>	wild chervil	σκάνδιξ			
<i>Sinapis alba</i>	white mustard	νάπυ			
<i>Smyrniolum olusatrum</i>	alexanders	ίπποσέλινον			
<i>Thymus vulgaris</i>	thyme	θύμος, έρπυλλος			
<i>Trigonella graeca</i>	honey clover	μελίλωτον			
<i>Verbascum sinuatum</i>	mullein	φλόμος (ή μέλαινα)			
<i>Viola odorata</i>	violet	ίον τó μέλαν, ιωνία ή μέλαινα			

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