Crop production and plant consumption on coastal Languedoc (France) in the Second Iron Age: new data from Pech Maho (Aude), Lattara (Hérault) and Le Cailar (Gard)

Núria Rovira and Natàlia Alonso

Núria Rovira: ASM, Archéologie des Sociétés Méditerranéennes, UMR5140, Univ. Paul-Valéry Montpellier, CNRS, MCC, F-34000 Montpellier, France, e-mail: nuria.rovira-buendia@univ-montp3.fr

Natàlia Alonso: Grup d'Investigació Prehistòrica, Departament d'Història, Universitat de Lleida, Pl. Víctor Siurana, 1, 25430 Lleida, Catalonia (Spain), e-mail: nalonso@historia.udl.cat

Abstract

Archaeological and archaeobotanical research in coastal Languedoc (southern France) has been strongly developed for the last 30 years and concerns several major sites to understand not only the role of local crop productions but also exchanges with many Mediterranean societies. As regards to the Iron Age period, recent excavations and studies have provided new information to the knowledge of the agricultural systems and plant consumption practices during the 6th–4th centuries BC. They highlight a well-structured crop production based on cereals and pulses together with an increasing development of fruit growing, especially grapevine. During the 3rd and 2nd centuries BC one can observe the appearance of changes announcing the new Roman trends. The main aim of this article is therefore to discuss about these Second Iron Age periods focusing on both economic and cultural aspects through their comparison. For this, we present new archaeobotanical data (seed and fruit analysis) concerning three archaeological sites (Pech Maho, Lattara and Le Cailar) sharing many environmental, economical and cultural characteristics.

Keywords

Archaeobotany; Seed and fruit remains; Agriculture; Plant food; Second Iron Age; Southern France

Acknowledgments

This study was supported by LabEx ARCHIMEDE (“Investissement d’avenir” ANR-11-LABX-0032-01 program). Natàlia Alonso’s participation was also supported by projects HAR2016-78277-R (Ministerio de Economía y Competitividad, Spain) and SGR2014-273 (Generalitat de Catalunya, Catalonia). We are grateful to the archaeological teams of Lattara, Le Cailar and Pech Maho for their work and support, in particular Michel Py (CNRS, ASM), Réjane Roure (University Paul Valéry-Montpellier 3, ASM) and Eric Gailledrat (CNRS, ASM). We also thank the anonymous reviewers for their comments and suggestions to improve this paper.

Introduction

Iron Age archaeobotanical studies based on seeds and fruit remains have been developed in Languedoc (southern France) since the second half of the 20th century (e.g. Erroux 1966, 1980 and 1984; Erroux and Courtin 1974; Marinval 1988a and b, 2000 and 2004; Ruas 1989; Ruas and Marinval 1991; Buxó 1992, 1997 and 1999; Bouby et al. 1999; Bouby 2000 and 2014; Alonso et al. 2007 and 2008; Alonso and Rovira 2010 and 2016; Rovira and Alonso 2010; Pinaud-Querrac’h 2016) following a very dynamic and significant archaeological research conducted especially from the 80’s onwards. Iron Age is one of the best-explored and known period as shown not only by the numerous sites revealed, but also by the abundant literature concerning particularly the multiple interactions between the indigenous people, the Gauls, and several Mediterranean people such as Greeks, Etruscans and Iberians (e.g. Gasco 1999; Guilaine and Py 2000; Bats 2000; Carozza 2000; Garcia 2002 and 2004; Py 2012; Janin and Py 2012; Gailledrat 2014). Indeed, the Languedoc, in particular the coastal areas, is a land of contact and mixing where economic and cultural trends are constantly evolving. So, it is not surprising that this region, together with Provence and particularly Marseille, gives some of the oldest evidences of socioeconomic change during the Iron Age.

For instance we can thus observe, if we focus on crop production and plant consumption, the early development of viticulture from the 6th c. BC, probably supported by Etruscan merchants, in the region where one century later the city of Lattara would be founded (Py and Buxó 2001; Py 2009; McGovern et al. 2013; Rovira and Alonso 2014; Bouby 2014; Alonso and Rovira 2016). In this city, the presence of exotic fruits/legumes such as garlic (Allium sativum) (Alonso and Rovira 2016), melon or cucumber (Cucumis sp.) and bottle gourd (Lagenaria siceraria) is also certified in early 5th c. BC archaeological contexts, but their local growing is not certain whether these were grown locally or not.
With the exception of this latter aspect, which seems to concern so far only this particular site, indigenous crop production in Iron Age Languedoc is based on cereals, pulses, oil plants and fruits. However, there are differences during this vast period concerning all these productions (Table 1). A diversified agriculture, probably adapted to the climatic cooling that would have occurred during this period (Berger 2003), characterises the First Iron Age (675-525 BC). Cereals are mainly represented by hulled barley (Hordeum vulgare), emmer (Triticum dicoccum) and free-threshing wheat (T. aestivum/durum/turgidum), together with naked barley (H. vulgare var. nudum), millets (Panicum miliaceum and Setaria italica) and einkorn (T. monococcum). Among pulses, usually less abundant than cereals, lentils (Lens culinaris), peas (Pisum sativum) and grass/red peas (Lathyrus sativus/cicera) tend to be predominant, followed by broad beans (Vicia faba) and bitter vetch (Vicia ervilia). Few findings of chickpea (Cicer arietinum) and common vetch (Vicia sativa) show the quite great variety of this group. Oil species are not well recorded everywhere, but opium poppy (Papaver somniferum), flax (Linum usitatissimum) and gold-of-pleasure (Camelina sativa) are cultivated. Finally, fruit growing seems limited to grapes (Vitis vinifera), figs (Ficus carica) and possibly olives (Olea europaea), being the gathering of wild fruit an activity still in use and important. We can note the common presence of acorns (Quercus sp.), blackberries (Rubus fruticosus), blackthorns (Prunus spinosa) and hazelnuts (Corylus avellana), as well as fruits from the Strawberry tree (Arbutus unedo) and the Mastic tree (Pistacia lentiscus) (Marinval 1988a and b; Bouby et al. 1999; Bouby 2000 and 2014; Bouby and Marinval 2000; Alonso et al. 2007).

During the transition period between the First and Second Iron Age (525-425 BC) and in the early Second Iron Age (425-300 BC) agriculture seems progressively to intensify due to the increasing adoption of iron tools and a better crop rotation system consisting on a shorter summer fallow (Garcia 2004; Py 2012), even if this last point still needs to be confirmed (Bouby 2014). The number of species cultivated will also somehow decrease, in particular among cereals, attesting the gradual disappearance of naked barley and the progressive increase of free-threshing wheat at the expense of hulled wheat (Marinval 1988a; Buxó 1997; Alonso and Rovira 2010; Bouby 2014). Finally, this period will see the development of arboriculture, mostly centred in grapevines for the Languedoc (Buxó 1996 and 1997; Py and Buxó 2001; Alonso and Rovira 2010; Bouby 2014).

All these changes would progressively result in the establishment of a market economy based on surplus exchanges for trade, notably of cereals in exchange of wine, encouraged by Mediterranean merchants (Dietler 2007; Py 2012). This new agricultural system set up at the end of the 6th-5th c. BC would culminate from the 3rd century onwards and would lay the foundations of the Mediterranean model that would rise during the next century. The 3rd and 2nd centuries BC may therefore represent another transition period between two forms of economic and cultural practices, where we can still find Bronze and Iron Age heritages but where we can already perceive the new characteristics of Roman agricultural and consumption practices. The difficulty in Languedoc is that archaeobotanical studies for these last periods are not abundant. We are thus going to present in this work new data concerning especially the major crops of three coastal sites in order to discuss crop production and plant consumption during the Second Iron Age by comparing these two different periods.

The archaeological sites

The three archaeological sites presented here, Pech Maho, Lattara and Le Caillar, share many environmental, economic and cultural characteristics (Fig. 1).

Pech Maho (Sigean, Aude)

Pech Maho is a small-fortified littoral habitat (1.5 ha), located at the end of a limestone plateau culminating at 29 m altitude and dominating two rivers (Berre and Aude) and an ancient lagoon probably opened to the sea. It was occupied from 560 BC to about 200 BC (Gailledrat and Solier 2004). The fortification is quite singular because of its complexity and great dimensions, and the habitat is characterized by multi-room houses, often associated with open or semi-covered spaces, the morphology of which is quite similar to the one known in the Iberian world, and more specifically in Catalonia (Gailledrat and Beylier 2009). Iberian influences are by the way very abundant not only from an architectural point of view, but also concerning pottery and written lead sheets of commercial contracts. Greek and Punic elements are also well recorded. During the 4th and 3rd c. BC, numerous grain storage pits were built in the plateau outside the city walls and warehouses with dolia (large pottery containers) and amphorae inside, which suggest an intense activity related to trade in plant products around the Mediterranean.

Pech Maho also has several cult spaces at least from the 4th c. BC and especially important during the 3rd c. BC. They are organised around the main gate and street where several public spaces and buildings presented ritual deposits of cut heads, weapons and animal bones (Gailledrat et al. 2011). The site is burnt at the end of the 3rd c. BC but a later occupation is attested mainly through the installation of another ritual deposit comprising Equidae in the corridor that leads to the courtyard of one of the previous cult buildings. Archaeobotanical data presented here come from unpublished analyses done by N. Alonso and N. Rovira.
The data presented here takes into account the total number of remains (NR) per taxon. These absolute values, as well as ubiquity values (the number of samples in which a given taxon appears), have been converted into percentages of all crops in Figs. 3, 4 and 5 in order to compare samples of different sizes, but which show

Materials and methods

The general recovery techniques applied to Lattara, Pech Maho and Le Cailar can be consulted in detail in several publications from the 90s (Buxó 1991; Py 1997). From a methodological standpoint, stratigraphic units sampled are chosen from the most homogeneous and most likely to provide data about plant and animal resources. These layers may have a short and well-established date range (ideally 25 years). These sampling protocols are common to most of zoarchaeological and archaeobotanical disciplines. The samples are so the same, except for concentrations of specific remains, but using a suitable processing method for recovery of plant and animal remains.

Sample processing has consisted on water-sieving the sediment on a sieve column (meshes of 4, 2 or 1 and 0.5 mm) or using a flotation machine (with an inner 4 mm sieve and an outer column of 5, 1, 0.5 mm meshes and optionally 0.25 mm). The choice of the sieving technique has been based on the type of remains to be collected, but also on the volume of sediment. Data for each sample has been recorded using the software Syslat Terminal (Michel Py, CNRS).

Henceforth, the use of the term Lattara includes the three sites mentioned above except in special cases that will be referred appropriately.

Lattara (Saint Sauveur site, LSS) was a port city founded toward 500 BC and abandoned around the 2nd c. AD (Py 2009). It was established directly on the edge of a lagoon, between two branches of the river Lez. It is noteworthy that Mediterranean merchants (Etruscan and later Greek) and local authorities and people (probably coming from the nearby Bronze and First Iron Age village of La Cougourlule and depending on the Sextantio Oppidum, located 7 km to the north-east) founded this commercial enclave in order to protect and regulate exchanges between the Mediterranean maritime space and the inland hinterland (Daveau and Py 2015). The space inside the fortification built on the lagoon shore and covering around 3.5 ha is quite dense, at least from the 4th c. BC onwards, and it is composed of small (1 or 2 rooms) and big houses (3, 4 or more rooms), sometimes with courtyards. Two main streets, as well as several alleys and squares, organise the circulation. The earliest occupation levels of Lattara (5th c. BC) show the presence of Etruscans, but from 475 BC Greek elements will quickly prevail in a strong indigenous context (Py 2009). Since the 3rd c. BC, some small granaries or cellars are located along and at the edges of the main streets. Large storage structures or places (such as warehouses) are not found until the 1st c. BC, when a port area was built against the city walls. Storage pits are not used because of the soil moisture conditions. Archaeobotanical data used here is partially published (Buxó 1992, 1999 and 2003; Alonso and Rovira 2010 and 2016).

As an extension to the south of the older village of La Cougourlule (unpublished archaeobotanical analyses done by L. Boubry and I. Figueiral are not used here) and close to Lattara we also find ritual and living areas on the place called “Mas de Causse” (LMC) globally dated from the 7th c. BC to the Roman times (Newman and Silvéreano 2010; Daveau and Py 2015). Among the most relevant evidences from the Iron Age we can note a ditch and several pits (7th-6th c. BC), a deposit of Etruscan small bronze discs with pearl patterns around the rim and an “L-shaped” probably ritual building (4th c. BC). Archaeobotanical data is unpublished (Rovira in Newman and Silvéreano 2010)

Finally, the third site presented here is Port Ariane (LPA), located less than one kilometre to the north and presenting archaeological levels dating from the Middle Neolithic to the Late Medieval period (Daveau 2007). The Iron Age levels are dated from the 7th to the 4th c. BC and concern some ditches and many pits. A vineyard of at least 2.4 ha is going to settle at this place from the 3rd-2nd c. BC but archaeobotanical remains are not found in the planting pits. Archaeobotanical data is published (Alonso et al. 2007). Henceforth, the use of the term Lattara includes the three sites mentioned above except in special cases that will be referred appropriately.

Place de la Saint-Jean (Le Cailar, Gard)

The site “Place de la Saint-Jean” only covers a very small surface of the ancient city (around 150 m²) and consists mainly on a public square against the city wall containing a ritual deposit of particularly weapons and cut heads dated to the 3rd c. BC (Py and Roure 2002; Roure et al. 2009; Roure and Girard 2011). The fortified city was built at the convergence of two rivers (Vistre and Rhôny), near an ancient lagoon, at the end of the 6th c. BC and it was abandoned about the 2nd c. AD. Exchanges with Greek populations, probably merchants coming from Massalia, are well recorded through the numerous Massaliote amphorae found in the older contexts of the 6th-5th c. BC. Archaeobotanical data presented here come from unpublished analyses done by N. Alonso and N. Rovira.
similar tendencies of taxa predominance Ecological units proposed in ESM Table 1 have been taken from Flora europaea (Tutin et al. 1968-1980). The “varia” group includes taxa not identified to the species, uncertain identifications or those having unspecific habitat requirements.

Concerning other methodological aspects, the term of “concentration” is used when one taxon presents more than 1,000 individuals, representing at least 80% of the individuals of the sample. These individuals consist either of whole or fragmented remains that retain a unique morphological feature permitting their identification, for instance the area of the embryo for cereals caryopses (Jones 1990).

In the three sites most of the seeds and fruit remains are charred and only a small number mineralized. Lattara (LSS and LPA) also presents waterlogged material in some levels of the 7th-5th c. BC (see ESM Table 1). The archaeological contexts are quite varied for each site, especially for Lattara during the older periods (Table 2). Concerning the 3rd-2nd c. BC, a diversity of habitat structures and layers have been studied for Lattara, some habitat layers but particularly a ritual pyre and deposit for Pech Maho and a ritual deposit and several pits for Le Cailar.

**Results: general distribution and changes in crops**

In general, the number of stratigraphic units, the volume of sediment and the quantity of plant remains are not equivalent in all the sites (ESM Table 2). In the case of Pech Maho, 23 stratigraphic units (SU) giving 1115 items (for 455 litres of sediment) have been studied for the 6th-4th c. BC, while 33 SU giving 17457 items (1596 litres) are available for the 3rd-2nd BC period. Cereals are the predominant group among crops, with only a few pulses and fruit remains, especially during the last period (Fig. 2a; ESM Table 1). Cereal grain is predominant over weeds and chaff during both periods (Fig. 2b; ESM Table 1).

The case of Lattara is sensibly different (Fig. 2; ESM Table 1, 2). A total of 277 SU provides 238832 items (for 12203 litres of sediment) for the Transition period and the early Second Iron Age, while 78 SU only give 3242 items (4515 litres) for the 3rd-2nd BC period. While cereals are the predominant group of crops during the older period, fruit remains subsequently become predominant. Pulses are in general scarce. Cereal grain is also more abundant than weeds and chaff, being the latest absent of the 3rd-2nd BC contexts.

Le Cailar only had 3 SU (90 l) for the 5th century bc, but they provided 6,614 plant remains (Fig. 2; ESM Tables 1,2). The 3rd century bc had 12 SU and 835 l sediment giving 2,668 items. The last period at this site showed a situation similar to that of Pech Maho in which cereals were predominant over fruit remains. The difference with the two other sites is that pulses were much more important at Le Cailar. Cereal grain was also predominant over weeds and chaff, which were also absent from the middle and late Second Iron Age samples. The figures showing the numbers of remains (NR) and ubiquitous (Ub) demonstrate the importance and the changes with time for each taxon; the total numbers of remains are shown as percentages of all crops (Figs. 3, 4, 5). The cereal results, shown as percent NR of crops in the graph bars (Fig. 3; ESM Table 1), show that in Pech Maho hulled Hordeum vulgare is the most abundant taxon during the first period and decreases in the next period in favor of free-threshing wheat. However, the importance of both cereals is in fact quite similar during the two periods when looking at the ubiquity values shown by symbols (100 and 60–70%), since these correct for a concentration of Triticum aestivum/durum/turgidum. The results from Lattara show higher proportions of hulled Hordeum vulgare during the first period compared to free-threshing Triticum, but this is also a consequence of the presence of several concentrations of Hordeum. Ubiquity values are in fact similar for both taxa (90%). During the 3rd–2nd century bc, Hordeum and free threshing Triticum both decrease according to the NR and ubiquity, especially the last. The results from Le Cailar show a reversal of the quantities of both cereals with more Triticum and less Hordeum, but once again this is a consequence of a concentration of free-threshing wheat in the oldest period. However, ubiquity values show a similar status for both cereals during the two periods. It is interesting to note the ubiquity values of a more compact type of free-threshing wheat during the last period.

*T. dicoccum* is only really abundant in Le Cailar during the earliest period but clearly regresses afterwards, even if the ubiquity values are still quite high (70%). The same is true for Lattara, especially if we observe the ubiquity rates. Pech Maho is the only site where this tendency seems inversed even if values are very low. Millets, especially common millet, have few remains all time and tend to regress everywhere in the last period. The high ubiquity rates that they have at Le Cailar during the 5th-4th c. BC (70%) may be an anomaly due to the small number of samples. Naked barley and einkorn are occasionally present at Lattara during the earlier period, where we can also note the low presence of oat (Avena cf. sativa) and rye (Secale cereale). Few caryopses of this last cereal have been identified in three different samples together with a rachis node in one of them (Alonso and Rovira 2010). However, we can suggest that they are not crops at this time but probably a minor admixture of other cereals, maybe wheat.

Pulses do not have a high NR but they are quite diversified (Fig. 7; ESM Table 1). The ratios obtained by most of them do not exceed 1% of the total number of crop remains, with the exception of Le Cailar where some of them, such as broad beans or peas, can reach 1.5% and 2.2% respectively. If we observe the ubiquity values, Le
Cailar and Lattara have the highest: between 10% and 35% with a peak up to 42% for broad beans at the first site. Lentils seem especially important at Lattara, where we also find quite good proportions of grass/red peas and bitter vetch. Few remains of common vetch are found in Le Cailar and Lattara, and alfalfa (*Medicago cf. sativa*) has been maybe identified at the last site. In short, the role of pulses at Le Cailar seems different if we look in particular to the ubiquity values during the two periods.

Regarding the fruits, we can see that grapevine is predominant during the two periods everywhere according to both the NR and the ubiquity values (Fig. 8; ESM Table 1). It is noteworthy to emphasize the enormous difference between the NR values of Lattara during the 3rd-2nd c. BC (around 70%) and those of the two other sites. We must not forget that during this period fruits, in particular grapes are the most abundant remains in the site and that they have been mainly identified as winemaking waste (Buxó 1992; Py and Buxó 2001). We can also see, regarding the ubiquity values, that *Vitis vinifera* reaches around 80-90% in Pech Maho and Le Cailar (even if NR rates are still quite low) and that they are stable at Lattara.

Olives are found in very few quantities everywhere but not always, while almonds (*Prunus dulcis*) are occasionally present during the 5th-4th c. BC at Lattara and Le Cailar. Fig pips are especially found at Lattara during the first period, mostly waterlogged. This taxon does not have high NR values but ubiquity percentages reach around 20%, what seems quite significant and place it as the second fruit resource of this city. Figs are also occasionally present at Le Cailar during the second period. Other cultivated fruits are very rare during the whole sequence; we can mention, for instance, cherries (*Prunus avium/cerasus*) and maybe cultivated plums (*Prunus cf. domestica*) at Lattara during the first period. Many other edible fruits would have been gathered from the wild, such as acorns, blackberries, blackthorns or hazelnuts, but they are only attested in low quantities at Lattara for the 5th-4th c. BC period (ESM Table 1).

**Discussion: plant production, trade, processing practices and consumption trends**

The results presented reflect general trends that can help us better understand socioeconomic characteristics of the Second Iron Age societies of the three coastal Languedoc sites. It is noteworthy that plant remains attesting agricultural and consumption practices do not come from the same archaeological contexts and number of samples, they do not hold the same NR and they are not all preserved in the same way (even if waterlogged material has been omitted in the graphics). However, we must note that the majority of the samples studied here have a household origin and represent essentially waste from various activities, mainly consumption or processing of plant products. Even the remains that come from the great ritual deposits of Pech Maho and Le Cailar are not offerings or have been used in ceremonies, but were scattered in the sediment that was used to seal these deposits once their uses or functions were finished.

Concerning agricultural practices, we have attested during the 3rd-2nd centuries a reduction of the diversity of cereal crops compared to the previous period. Hulled barley and free-threshing wheat become the predominant taxa, naked barley disappears and emmer regresses. The place of millets is still difficult to know even if they seem less abundant than in the previous period.

According to wild taxa (Fig. 9), winter cereals seem to be preferred to spring cereals during the whole chronological sequence, as traditionally done in Mediterranean agriculture to better manage irregular rainfall and summer drought (Marinval 1988a; Buxó 1997; Bouby 2014). Even if we can admit the possibility that a part of the ruderal/wastelands species could also be spring weeds, with the exception of Lattara both groups of taxa never exceed that of the winter cereals weeds. It is also interesting to note that grasslands/meadows taxa are not very abundant during the second period. Is it a consequence of changes in animal husbandry and/or crop production? Are animals leaving these urban areas? Are the nearby fields being cultivated more intensely by abandoning fallow practices? It is difficult to be affirmative on these issues because of the low number of wild plant remains collected in the sites and the general quite high rates of the “varia” group. The only exception concerns again the oldest phases of Lattara. The number of samples and remains is significant enough to obtain a reliable image of the main local ecological groups that are dominated by wetlands taxa together with ruderal/wastelands species and winter cereals weeds. It is noteworthy to mention that wetlands seeds, as well as those of coastal plants adapted to saline soils, are found charred and mixed to cereal grains in many samples, while other sets rather represent drylands. Therefore we can deduce that farmers cultivate fields (maybe permanent) at least in two different ecosystems with the conceivable intent to intensify agriculture by exploiting their immediate environment. Recent studies based on stable isotopes (δ13C and δ15N) analysis of bone collagen from domestic and wild animals as well as charred grains and pulses also confirm this hypothesis (Alagich 2015). Free-threshing wheat and emmer were grown under similar moisture conditions, maybe on the same fields, while barley were likely grown on dryer fields. Cattle and ovicaprids consumed in turn plants growing in wetlands or salt marshes, directly grazing them or indirectly being fed with crop by-products originating in these areas.

Several different pulse taxa were found but, with the exception of Le Cailar, they were usually found in small quantities probably because they were processed and cooked using other methods than those used for cereals,
which require a much more direct contact with fire and hence a greater chance of being charred. However, these pulse taxa are found in larger amounts and contexts in accidental fire levels, showing their regular growing and consumption. Lens, Pismum, Vicia faba and Lathyrus sativus/cicera seem to have been the main pulse crops during all the Iron Age periods. We know that in Lattara pulses were grown under wet conditions (Alagich 2015), but we cannot say whether they were cultivated in extensive fields or in orchards.

Fruit is the last important crop production reflected by our results. Viticulture is progressively developing in coastal Languedoc from the 6th-5th c. BC to the 3rd-2nd c. BC, probably turned to winemaking. This activity is already documented in Lattara from mid-late 5th c. BC (Alonso and Rovira 2010; McGovern et al. 2013) and we have seen that *Vitis vinifera* is the major taxon of the site during the last period, when the vineyard of Port Ariane is planted (Daveau 2007). The importance of local wine production is also perceived in the decrease of the arrival of Massaliote or Italic amphorae and the increase of dolia especially from -225 to -125 (Py and Buxó 2001). The difficulty lies in determining the destination of that wine, since the production of local Gauloise amphorae destined for wine export does not seem to begin until the 1st c. BC (Py 2009). Before this, is it reasonable to think that the wine produced in Lattara is for own consumption responding maybe to supply problems? Or perhaps the Greek merchants of *Massalia* installed in the city develop an on-site wine production and export this product in Massaliote amphorae? Whatever it is, this process or situation seems so far to have only a local scope and to be circumscribed to the single city of Lattara.

Trade organisation is another issue we must take into account in order to better understand crop production not only in relation to a local small-scale but also to a regional or supra-regional economic system. It is well established in our region that Mediterranean merchants encourage exchanges of specific goods among which are plant products such as cereals and wine (Bats 2000; Garcia 2004; Dietler 2007; Py 2012; Gaillédrat 2014). From the Second Iron Age, especially at the end, a certain specialisation of Mediterranean France is already in progress and can be detected through the decline of annual oil plants, hulled wheat and millets, and indigenous fruits (such as acorns), together with the particular development of cereal growing (based on hulled barley and free-threshing wheat) and viticulture (Bouby 2014). This author proposes to identify this specialization on the basis of the increase in the volumes of stored goods as well as an orientation of agriculture towards trade and not only subsistence.

If we return to the three Languedoc sites and analyse the storage practices, we can observe everywhere, especially in Lattara and Pech Maho, that extra-domestic storage structures, using for keeping collective stocks and/or exchangeable goods particularly of cereals and wine, are increasing from the 3rd c. BC onwards. Some of these structures are found inside the cities and concern warehouses (with ceramics containers such as dolia and amphorae, as well as granaries or cellars. During this period storage pits or silos began also to develop outside the city walls, in particular around Pech Maho (Gaillédrat and Solier 2004). If we can have doubts about the contents of the dolia, silos are certainly reserved to cereals (Sigaut 1981), and their presence would confirm the increase of cereal farming at least in the last site.

Archaeobotanical remains can also give direct and indirect information about processing and culinary activities related to plants and plant products. Cereal processing and consumption waste represent the majority of the assemblages in the three sites. During the old phases, we have found at Lattara crushed emmer grains and chaff remains showing activities of dehusking and cleaning. Weeds are in general quite abundant. During the 3rd-2nd c. BC, however, we have seen that chaff remains and weeds are not abundant or not present (Fig. 5b). One reason can be the regression of emmer (which supplied almost 90% of chaff remains for the previous periods), but we can also suppose the development of new strategies for acquiring foodstuffs prepared outside the urban spaces.

With reference to the last question, we know that at least milling was regularly done inside the cities and still had a household nature (Gaillédrat and Solier 2004; Py 2009). Individual querns, mostly rotary querns, are indeed frequently found in domestic spaces such as houses and courtyards. We cannot provide data about pulses processing and cooking practices, but at least we can suppose that they are rarely in direct contact with fire. That seems also true for fruits, although the common presence of grape remains in the 3rd-2nd c. BC levels may suggest the use of winemaking waste as fuel in domestic hearths, or at least its burning for hygienic reasons.

Regarding plant consumption, we want to highlight again the progressive decrease of the diversity of food plants, especially the wild ones, a sign of, as we have seen, a progressive tendency towards agricultural specialization in obtaining surpluses for trade. Can it also be related to the emergence of new culinary practices? The making of beer (with hulled barley) is confirmed in at least one site of southern France (Bouby et al. 2011), but we do not have any proof in the three sites analysed here. Free-threshing wheat is also supposed to increase because of the developing of leavened bread (Marinval 2008).

Fruits also become less diversified: grapes are predominant, and we found few evidences of the consumption of figs (probably because of the different preservation conditions) and olives are very rare. In fact, we must point out not only the absence of evidences of olive tree cultivation in coastal Languedoc during the Iron Age or even the Roman times (Chabal 1997; Puertas 1998; Azuara et al. 2015; Dolez et al. 2015), but also of the consumption of (imported?) fruits (Alonso et al. 2008). Finally, it is interesting to note that “exotic” species such as bottle gourd, cucumber/melon or almonds are rare in Languedoc during the Iron Age and do not become more...
frequent until the Roman period (Tillier 2013; Bouby 2014). At least for the first two, their presence is strongly determined by the existence of anaerobic preservation conditions in the archaeological sites.

Concerning pulses, they are generally diversified and present few items. But since these plant products can easily be consumed green, it is reasonable to suppose that this situation rather reflects different consumption practices and/or taphonomy. The only exception is Le Cailar, where the consumption of these species seems to be more important and it is closer to what has been identified in Provence (Bouby 2014), perhaps because of greater Greek influences?

Finally, as we have noticed regarding storage, there is no evidence of public spaces dedicated to consumption (like taverns or bakeries) until the 1st c. BC (Luley and Piqûès 2016). Cooking structures such as hearths and ovens are usually of small dimensions and they are located in household contexts in houses, courtyards, streets/alleys.

**Conclusions**

The new archaeobotanical data provided by Pech Maho, Lattara and Le Cailar has contributed to increase the knowledge on crop production and plant consumption in coastal Languedoc in relation to several aspects of crop growing and plant consumption in coastal Languedoc. First, these new results reinforce the idea of the Second Iron Age as a pivotal period between two agrarian and socioeconomic systems, with a former phase (6th-4th c. BC) attached to the diversity of crops characteristic of the Bronze and First Iron Ages, and a second one (3rd-2nd c. BC) based on an initial specialisation that could suggest the establishment of the basis for a regional and/or supra-regional trade of agricultural surpluses (Marinval 1988a; Alonso et al. 2007; Bouby 2014; Alonso and Bouby 2017). Farming in coastal Languedoc seems indeed to be focused on cereals (especially hulled barley and free-threshing wheat), pulses and grape growing. Even if these general trends seem widespread, we must not forget the fact that this last period is worse known than the first one with relation to the number of sites, samples and remains available, as well as to the diversity of archaeological contexts analysed.

Secondly, although the three sites present comparable general results, some specificities have been highlighted. On the one hand, western Languedoc (region of Pech Maho) is clearly turned towards the north-east of Iberia (Catalonia), sharing many socioeconomic and cultural characteristics with this civilization (see for instance, Gaillédrat 2014). Northeastern Iberia shows a quite similar development of cereals, pulses and fruits (Pérez et al. 2007; López et al. 2011; Alonso and Pérez in press). The only difference is that viticulture seems early developed in Languedoc, even if this hypothesis needs a more detailed analysis of the results obtained in the archaeological sites of both regions to be confirmed. On the other hand, eastern Languedoc (region of Lattara and Le Cailar) is thought to present similar dynamics to those of Marseille and Provence. We have seen the particular importance of pulses at Le Cailar, which corresponds well with the general trends observed in Provence (Bouby 2014). The only site standing out is Lattara, which presents particularly the singularity of a great development of grape growing during the 3rd-2nd c. BC. The importance of this city in the regional frame of economic and cultural influences and exchanges between the indigenous Celt communities and the Mediterranean people has been already reported in the literature (see for instance, Py 2012). The comparison of the archaeobotanical results of Lattara and those of the two other Languedoc sites confirms this specificity. However, this question about an early development of viticulture also needs further research to be clarified, especially when comparing it to two close big colonies such as Massalia and Emporion.

**Legends**

Fig. 1. Location of the three archaeological sites in southern France
Fig. 2. A Proportions of the major crops per site in percent NR total crops (cereals, pulses and fruit); B Percentages of total grain, weeds and chaff. Lattara values for the 6th–4th bc period include data from Saint Sauveur (LSS), Port Ariane (LPA) and Mas de Causse (LMC)
Fig. 3. On the left; proportions of cereals as percentages of the absolute numbers of remains (NR) of all crops (cereals, pulses and cultivated fruits) per site and period, shown as graph bars. On the right, proportions of cereals in percent ubiquity (Ub) of all crop remains per site and period, shown as symbols on the graph. Only charred material has been taken into account for Lattara
Fig. 4. On the left; proportions of pulses as percentages of the absolute numbers of remains (NR) of all crops (cereals, pulses and cultivated fruits) per site and period, shown as graph bars. On the right, proportions of pulses in percent ubiquity (Ub) of all crop remains per site and period, shown as symbols on the graph. Only charred material has been taken into account for Lattara
Fig. 5. On the left; proportions of fruit as percentages of the absolute numbers of remains (NR) of all crops (cereals, pulses and cultivated fruits) per site and period, shown as graph bars. On the right, proportions of fruit in percent ubiquity (Ub) of all crop remains per site and period, shown as symbols on the graph. Only charred material has been taken into account for Lattara
Fig. 6 Pie diagrams showing the proportions of the seven plant communities identified from the remains of wild plants, for the various sites and time periods; “varia” represents taxa not identified to species level as well as those having a wide habitat range. Only charred material has been taken into account for Lattara.

Table 1. Chronology used in Languedoc for the Iron Age (Py 2012)

Table 2. Number of stratigraphic units (SU) analysed according to the archaeological contexts per period and per site

ESM Table 1. Taxa identified at Pech Maho (Sigean, Aude), Lattara (Lattes, Hérault) - Port Ariane (LPA), Saint Sauveur (LSS) and Mas de Causse (LMC)- and Le Cailar (Gard) for the 6th-4th and 3rd-2nd c. BC from the absolute number of remains (NR). Data concerning the 7th c. BC of Port Ariane is given in order to compare the results discussed to the First Iron Age trends but it is not used for graphics. * It contains waterlogged remains. # It contains mineralized remains

ESM Table 2 General archaeobotanical results per site (LPA, Port Ariane; LSS, Saint Sauveur; LMC, Mas de Causse) and century with the number of stratigraphic units (SU) studied, the absolute number of remains (NR) and taxa identified, the volume of sediment sieved and the general density of remains/litre (DOC 48 KB)

References


Alonso N, Rovira N (2016) Plant uses and storage in the 5th century bc Etruscan quarter of the city of Lattara, France. *Vegetation History and Archaeobotany* 25: 323-337


Bouby L (2014) *Agriculture dans le bassin du Rhône du Bronze final à l’Antiquité. Agrobatiediversité, économie, cultures*. Archives d’Écologie Préhistorique, Toulouse


Bouby L, Leroy F, Carozza L (1999) Food plants from late Bronze Age lagoon sites in Languedoc, southern France: reconstruction of farming economy and environment. *Vegetation History and Archaeobotany* 8: 53-69


Hordeum vulgare
H. vulgare var. nudum
Triticum aestivum/durum/turgidum
Triticum a/d/t type compactum
Triticum dicoccum
Triticum monococcum
Panicum miliaceum
Setaria italica
Secale cereale
Avena cf. sativa

Figure 3

Pech Maho (SU: 23 and 33; NR: 841 and 16184)

Lattara (SU: 277 and 78; NR: 163400 and 933)

Le Cailar (SU: 3 and 12; NR: 6347 and 2261)
Figure 4

Pech Maho (SU: 23 and 33; NR: 4 and 20)

Lattara (SU: 277 and 78; NR: 2184 and 39)

Le Cailar (SU: 3 and 12; NR: 154 and 164)
Figure 5

Pech Maho (SU: 23 and 33; NR: 1 and 1018)

![Graph showing plant types and percentages at Pech Maho]

Lattara (SU: 277 and 78; NR: 19962 and 2032)

![Graph showing plant types and percentages at Lattara]

Le Cailar (SU: 3 and 12; NR: 3 and 141)

![Graph showing plant types and percentages at Le Cailar]

Legend:
- **6th-4th (%NR)**
- **3rd-2nd BC (%NR)**
- **6th-4th (%Ub)**
- **3rd-2nd BC (%Ub)**

Plants shown include: *Vitis vinifera*, *Ficus carica*, *Olea europaea*, *Prunus dulcis*, and *Other cultivated*.
<table>
<thead>
<tr>
<th>Time Period</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Iron Age</td>
<td>675-525 BC</td>
</tr>
<tr>
<td>Transition First/Second Iron Age</td>
<td>525-425 BC</td>
</tr>
<tr>
<td>Early Second Iron Age</td>
<td>425-300 BC</td>
</tr>
<tr>
<td>Middle Second Iron Age</td>
<td>300-125 BC</td>
</tr>
<tr>
<td>Late Second Iron Age</td>
<td>125-25 BC</td>
</tr>
<tr>
<td>Activity</td>
<td>Pech Maho</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>-----------</td>
</tr>
<tr>
<td>Hearth</td>
<td>3</td>
</tr>
<tr>
<td>Hearth cleaning</td>
<td>1</td>
</tr>
<tr>
<td>Oven</td>
<td></td>
</tr>
<tr>
<td>Container filling</td>
<td></td>
</tr>
<tr>
<td>Basketry</td>
<td></td>
</tr>
<tr>
<td>Ritual deposit</td>
<td></td>
</tr>
<tr>
<td>Ritual pyre</td>
<td></td>
</tr>
<tr>
<td>Pit filling</td>
<td>3</td>
</tr>
<tr>
<td>Posthole filling</td>
<td></td>
</tr>
<tr>
<td>Trench filling</td>
<td></td>
</tr>
<tr>
<td>Dump layer</td>
<td>1</td>
</tr>
<tr>
<td>Backfill layer</td>
<td>2</td>
</tr>
<tr>
<td>Ditch</td>
<td></td>
</tr>
<tr>
<td>Concentration organic remains</td>
<td></td>
</tr>
<tr>
<td>Occupation layer (habitat)</td>
<td>3</td>
</tr>
<tr>
<td>Occupation layer (street)</td>
<td>11</td>
</tr>
<tr>
<td>Occupation layer (square)</td>
<td></td>
</tr>
<tr>
<td>Destruction layer (habitat)</td>
<td>1</td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
<tr>
<td><strong>Total layers (SU)</strong></td>
<td>23</td>
</tr>
</tbody>
</table>
**ESM Table 1** Taxa identified at Pech Maho (Sigean, Aude), *Lattara* (Lattes, Hérault) - Port Ariane (LPA), Saint Sauveur (LSS) and Mas de Causse (LMC)- and Le Cailar (Gard) for the 6th-4th and 3rd-2nd c. BC from the absolute number of remains (NR). Data concerning the 7th c. BC of Port Ariane is given in order to compare the results discussed to the First Iron Age trends but it is not used for graphics. * It contains waterlogged remains. # It contains mineralized remains

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Avena cf. sativa</em></td>
<td>seed</td>
<td>2</td>
<td>9</td>
<td>841</td>
<td>1618</td>
<td>298</td>
<td>163036</td>
<td>933</td>
<td>52</td>
<td>6347</td>
<td>2261</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Hordeum vulgare</em></td>
<td>seed</td>
<td>335</td>
<td>2889</td>
<td>81</td>
<td>8</td>
<td>97730</td>
<td>539</td>
<td>17</td>
<td>1639</td>
<td>526</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Hordeum vulgare var nudum</em></td>
<td>seed</td>
<td>3</td>
<td>80</td>
<td>96</td>
<td>2</td>
<td>9</td>
<td>208</td>
<td>3</td>
<td>4</td>
<td>8</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Hordeum sp.</em></td>
<td>seed</td>
<td>1</td>
<td>14</td>
<td>9</td>
<td>2</td>
<td>3</td>
<td>18</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Hordeum/Triticum</em></td>
<td>seed</td>
<td>447</td>
<td>2722</td>
<td>269</td>
<td>194</td>
<td>25659</td>
<td>165</td>
<td>21</td>
<td>1368</td>
<td>1413</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Panicum miliaceum</em></td>
<td>seed</td>
<td>1</td>
<td>367</td>
<td>21</td>
<td>84</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Setaria</em></td>
<td>seed</td>
<td>5</td>
<td>506</td>
<td>18</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Triticum aestivum/durum/turgidum</em></td>
<td>seed</td>
<td>35</td>
<td>10537</td>
<td>31</td>
<td>33</td>
<td>12851</td>
<td>194</td>
<td>4</td>
<td>2326</td>
<td>188</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Triticum a/d/t type compactum</em></td>
<td>seed</td>
<td>4</td>
<td>843</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>57</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Triticum dicoccum</em></td>
<td>seed</td>
<td>6</td>
<td>16</td>
<td>113</td>
<td>5</td>
<td>4546</td>
<td>3</td>
<td>3</td>
<td>730</td>
<td>49</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Triticum monococcum</em></td>
<td>seed</td>
<td>12</td>
<td>43</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Triticum sp.</em></td>
<td>seed</td>
<td>18</td>
<td>14</td>
<td>65</td>
<td>41</td>
<td>1271</td>
<td>2</td>
<td>275</td>
<td>15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cereals (chaff)</td>
<td>1</td>
<td>10</td>
<td>7139</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Hordeum vulgare</em></td>
<td>lemma base</td>
<td>1</td>
<td>296</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Hordeum vulgare</em></td>
<td>lemma frag.</td>
<td>1</td>
<td>159</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Hordeum vulgare</em></td>
<td>rachis node</td>
<td>1</td>
<td>27</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Hordeum vulgare</em></td>
<td>rachis segment</td>
<td>1</td>
<td>505</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Hordeum vulgare</em></td>
<td>rachis frag.</td>
<td>1</td>
<td>21</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Hordeum sp.</em></td>
<td>lemma base</td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Hordeum sp.</em></td>
<td>rachis segment</td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Hordeum/Triticum</em></td>
<td>rachis frag.</td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Hordeum/Triticum</em></td>
<td>lemma base</td>
<td>1</td>
<td>17</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Hordeum/Triticum</em></td>
<td>lemma frag.</td>
<td>1</td>
<td>84</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Hordeum/Triticum</em></td>
<td>rachis node</td>
<td>1</td>
<td>15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Hordeum/Triticum</em></td>
<td>culm node</td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Hordeum/Triticum</em></td>
<td>rachis segment</td>
<td>1</td>
<td>1011</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Secale cereale</em></td>
<td>rachis node</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Secale cereale</em></td>
<td>rachis segment</td>
<td>1</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Triticum a/d type compactum</em></td>
<td>rachis segment</td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Triticum aestivum</em></td>
<td>rachis segment</td>
<td>1</td>
<td>21</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Triticum aestivum/durum/turgidum</em></td>
<td>glume base</td>
<td>1</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Triticum aestivum/durum/turgidum</em></td>
<td>rachis node</td>
<td>1</td>
<td>940</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Triticum aestivum/durum/turgidum</em></td>
<td>rachis segment</td>
<td>1</td>
<td>24</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Triticum durum</em></td>
<td>rachis segment</td>
<td>1</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Triticum dicoccum</em></td>
<td>spikelet fork</td>
<td>15</td>
<td>8</td>
<td>1647</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Triticum dicoccum</em></td>
<td>glume base</td>
<td>14</td>
<td>1189</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Triticum dicoccum</em></td>
<td>internode</td>
<td>1</td>
<td>37</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Triticum dicoccum</em></td>
<td>rachis node</td>
<td>1</td>
<td>27</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Triticum dicoccum</em></td>
<td>rachis segment</td>
<td>1</td>
<td>14</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Triticum sp.</em></td>
<td>spikelet fork</td>
<td>2</td>
<td>254</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Triticum sp.</em></td>
<td>glume base</td>
<td>1</td>
<td>154</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Triticum sp.</em></td>
<td>internode</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Triticum sp.</em></td>
<td>rachis node</td>
<td>1</td>
<td>90</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Triticum sp.</em></td>
<td>glume</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Triticum sp.</em></td>
<td>rachis node</td>
<td>1</td>
<td>138</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Triticum sp.</em></td>
<td>rachis segment</td>
<td>1</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Cereal</em></td>
<td>chaff undetermined</td>
<td>28</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Cereal</em></td>
<td>spikelet fork</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Cereal</em></td>
<td>glume base</td>
<td>26</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Cereal</em></td>
<td>glume</td>
<td>105</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Cereal</em></td>
<td>rachis node</td>
<td>2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Cereal</em></td>
<td>culm node</td>
<td>9</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Cereal</em></td>
<td>rachis segment</td>
<td>19</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Cereal</em></td>
<td>culm</td>
<td>26</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Pulses</strong></td>
<td>4</td>
<td>20</td>
<td>3</td>
<td>56</td>
<td>2124</td>
<td>39</td>
<td>4</td>
<td>154</td>
<td>164</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Lathyrus cicera</em></td>
<td>seed</td>
<td>1</td>
<td>24</td>
<td>2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Lathyrus sativus</em></td>
<td>seed</td>
<td>1</td>
<td>2</td>
<td>153</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Lathyrus sp.</em></td>
<td>seed</td>
<td>2</td>
<td>17</td>
<td>34</td>
<td>2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Lens culinaris</em></td>
<td>seed</td>
<td>2</td>
<td>3</td>
<td>7</td>
<td>440</td>
<td>17</td>
<td>6</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Medicago cf. sativa</em></td>
<td>seed</td>
<td>3</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Pisum sativum</em></td>
<td>seed</td>
<td>2</td>
<td>820</td>
<td>5</td>
<td>37</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Pisum/Lathyrus</em></td>
<td>seed</td>
<td>1</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**Note:** The table includes data for various cereal and pulse species identified at different sites across the 6th-4th and 3rd-2nd centuries BC. The data is organized by site and includes absolute numbers of remains. Some sites are noted for containing waterlogged or mineralized remains.
<table>
<thead>
<tr>
<th>Plant Family</th>
<th>Species</th>
<th>Count</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pisum/Lens</td>
<td>seed</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vicia ervilia</td>
<td>seed</td>
<td>9</td>
<td>41</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>Vicia faba</td>
<td>seed</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>103</td>
<td>6</td>
<td>1</td>
<td>137</td>
<td>56</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vicia sativa</td>
<td>seed</td>
<td>24</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Vicia/Lathyrus</td>
<td>seed</td>
<td>33</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Vicia/Pisum</td>
<td>seed</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Undetermined pulses</td>
<td>seed</td>
<td>3</td>
<td>8</td>
<td>17</td>
<td>419</td>
<td>1</td>
<td>8</td>
<td>52</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oil plants, spices, vegetables</td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>37</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Allium sativum</td>
<td>seed</td>
<td>18</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coriandrum sativum</td>
<td>seed</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Linum usitatissimum</td>
<td>seed</td>
<td>18</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Edible fruits (wild &amp; cultivated)</td>
<td></td>
<td>250</td>
<td>1019</td>
<td>521</td>
<td>33</td>
<td>20276</td>
<td>2053</td>
<td>55</td>
<td>3</td>
<td>142</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arbutus unedo</td>
<td>fruit</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cornus mas</td>
<td>stone</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corylus avellana</td>
<td>nut</td>
<td>69</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Crataegus monogyna</td>
<td>seed</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crataegus sp.</td>
<td>seed</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ficus carica</td>
<td>pip</td>
<td>1465</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Olea europea</td>
<td>stone</td>
<td>4</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Physalis sp.</td>
<td>seed</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pistacia lentiscus</td>
<td>seed</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prunus avium/cerasus</td>
<td>stone</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prunus cf. domestica</td>
<td>stone</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prunus dulcis</td>
<td>nut</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Prunus spinosa</td>
<td>fruit stone</td>
<td>43</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Prunus sp.</td>
<td>stone</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pyrus communis/pyraster</td>
<td>pip</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quercus sp.</td>
<td>cupula</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quercus sp.</td>
<td>acorn</td>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Rubus caesius</td>
<td>seed</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rubus fruticosus</td>
<td>seed</td>
<td>311</td>
<td>2</td>
<td></td>
<td></td>
<td>218</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rubus idaeus</td>
<td>seed</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rubus sp.</td>
<td>seed</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sambucus nigra</td>
<td>seed</td>
<td>33</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>41</td>
<td></td>
<td>26</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sorbus sp.</td>
<td>seed</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sorbus/Malus</td>
<td>seed</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vitis sp.</td>
<td>pedicel</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vitis sp.</td>
<td>pip</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vitis vinifera</td>
<td>fruit</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vitis vinifera</td>
<td>pedicel</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Woodlands, edges</td>
<td></td>
<td>0</td>
<td>104</td>
<td>0</td>
<td>24</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bryonia dioica</td>
<td>seed</td>
<td>45</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cornus sanguinea</td>
<td>stone</td>
<td>59</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fagus sylvatica</td>
<td>bract</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Juniperus/Tamarix</td>
<td>branch</td>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pistacia terebinthina</td>
<td>seed</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rosa sp.</td>
<td>thorn</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rosaceae</td>
<td>seed</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rumex sanguineus</td>
<td>seed</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Silene dioica</td>
<td>seed</td>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spartium junceum</td>
<td>seed</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Winter cereals weeds</td>
<td></td>
<td>4</td>
<td>20</td>
<td>3</td>
<td>12</td>
<td>4335</td>
<td>10</td>
<td>2</td>
<td>23</td>
<td>36</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adonis annua</td>
<td>seed</td>
<td>3</td>
<td>1</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aegilops sp.</td>
<td>seed</td>
<td>27</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agrostemma githago</td>
<td>seed</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ajuga chamaepitys</td>
<td>seed</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Ajuga sp.</td>
<td>seed</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ammi sp.</td>
<td>seed</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asperula arvensis</td>
<td>seed</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Avena fatua</td>
<td>awn</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avena fatua</td>
<td>flower base</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avena fatua</td>
<td>lemma frag.</td>
<td>11</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avena fatua</td>
<td>seed</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bromus arvensis</td>
<td>seed</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bromus secalinus</td>
<td>seed</td>
<td>19</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bupleurum sp.</td>
<td>seed</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Galium aparine</td>
<td>seed</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td>41</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Galium spurium</td>
<td>seed</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td>15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lathyrus arvensis</td>
<td>seed</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lithospermum arvense</td>
<td>seed</td>
<td>92</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lolium temulentum</td>
<td>seed</td>
<td>4</td>
<td>16</td>
<td>4</td>
<td>3769</td>
<td>23</td>
<td>3</td>
<td>33</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plant Name</td>
<td>Category</td>
<td>Quantity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------------------------</td>
<td>--------------</td>
<td>----------</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medicago lupulina</td>
<td>fruit</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medicago lupulina</td>
<td>seed</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neslia paniculata</td>
<td>seed</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Papaver dubium/rhoeas</td>
<td>seed</td>
<td>10*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Papaver somniferum (setigerum?)</td>
<td>seed</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phalaris paradoxus</td>
<td>seed</td>
<td>15 4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reseda phyleuma</td>
<td>seed</td>
<td>13*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rumex acetosella</td>
<td>seed</td>
<td>145* 1 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sherardia arvensis</td>
<td>seed</td>
<td>78</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vaccaria hispanica</td>
<td>seed</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Valerianella dentata</td>
<td>seed</td>
<td>3 35</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Veronica hederifolia</td>
<td>seed</td>
<td>9 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Spring weeds</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anagallis sp.</td>
<td>seed</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Atriplex hastata/patula</td>
<td>seed</td>
<td>4*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brassica nigra</td>
<td>seed</td>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brassica sp.</td>
<td>seed</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chenopodium album</td>
<td>seed</td>
<td>2 1* 1* 235* 2 1 1 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chenopodium polyspermum</td>
<td>seed</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chimchica crus/gallii</td>
<td>seed</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Echinochloa sp.</td>
<td>seed</td>
<td>12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eragrostis minor</td>
<td>seed</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Euphorbia helioscopia</td>
<td>seed</td>
<td>13* 16*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fumaria officinalis</td>
<td>seed</td>
<td>26*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medicago arabica</td>
<td>fruit</td>
<td>3*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medicago arabica</td>
<td>seed</td>
<td>2*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mercurialis annua</td>
<td>seed</td>
<td>1*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Polygonum persicaria</td>
<td>seed</td>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Portulaca oleracea</td>
<td>seed</td>
<td>107* 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Raphanus raphanistrum</td>
<td>seed</td>
<td>2 6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Raphanus/Rapistrum</td>
<td>seed</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Setaria viridis/verticillata</td>
<td>seed</td>
<td>1 12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solanum nigrum</td>
<td>seed</td>
<td>1# 1 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stellaria media</td>
<td>seed</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Ruderals, wasteland</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anthemis cotula</td>
<td>seed</td>
<td>308</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anthemis sp.</td>
<td>seed</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asphodelus fistulosus</td>
<td>seed</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bromus mollis</td>
<td>seed</td>
<td>9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bromus sterilis</td>
<td>seed</td>
<td>271</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chenopodium murale</td>
<td>seed</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Daucus carota</td>
<td>seed</td>
<td>1*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glaucium corniculatum</td>
<td>seed</td>
<td>3*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heliotropium europaeum</td>
<td>seed</td>
<td>1 23* 130*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hordeum murinum</td>
<td>seed</td>
<td>26</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hyoscyamus niger</td>
<td>seed</td>
<td>29*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Isatis tinctoria</td>
<td>seed</td>
<td>632</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Malva nicaeensis</td>
<td>seed</td>
<td>11</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Malva sylvestris</td>
<td>seed</td>
<td>28* 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medicago littoralis</td>
<td>fruit</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medicago littoralis</td>
<td>seed</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medicago radiata</td>
<td>seed</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Melandrium album</td>
<td>seed</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nepeta cataria</td>
<td>seed</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poa annua</td>
<td>seed</td>
<td>9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Polygonon aviculare</td>
<td>seed</td>
<td>30* 92*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Polygonon convolvulus</td>
<td>seed</td>
<td>1 124* 1 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Polygonum minus</td>
<td>seed</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reseda lutea</td>
<td>seed</td>
<td>1# 47*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reseda luteola</td>
<td>seed</td>
<td>4*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rosmarinus officinalis</td>
<td>leaf</td>
<td>4706* 10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rumex pulcher</td>
<td>seed</td>
<td>2*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sambucus ebulus</td>
<td>seed</td>
<td>67* 2 249* 10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Saponaria officinalis</td>
<td>seed</td>
<td>1* 12*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Saponaria sp.</td>
<td>seed</td>
<td>5*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Silene alba</td>
<td>seed</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Silene gallica</td>
<td>seed</td>
<td>43*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Silene vulgaris</td>
<td>seed</td>
<td>130*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urtica dioica</td>
<td>seed</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urtica urens</td>
<td>seed</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Verbena officinalis</td>
<td>seed</td>
<td>2* 55* 25</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Xanthium cl. strumarium</td>
<td>fruit</td>
<td>4*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Grasslands, meadows</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anagallis sp.</td>
<td>seed</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Atriplex hastata/patula</td>
<td>seed</td>
<td>4*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brassica nigra</td>
<td>seed</td>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brassica sp.</td>
<td>seed</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chenopodium album</td>
<td>seed</td>
<td>2 1* 1* 235* 2 1 1 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chenopodium polyspermum</td>
<td>seed</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Echinochloa sp.</td>
<td>seed</td>
<td>12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eragrostis minor</td>
<td>seed</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Euphorbia helioscopia</td>
<td>seed</td>
<td>13* 16*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fumaria officinalis</td>
<td>seed</td>
<td>26*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medicago arabica</td>
<td>fruit</td>
<td>3*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medicago arabica</td>
<td>seed</td>
<td>2*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mercurialis annua</td>
<td>seed</td>
<td>1*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Polygonum persicaria</td>
<td>seed</td>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Portulaca oleracea</td>
<td>seed</td>
<td>107* 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Raphanus raphanistrum</td>
<td>seed</td>
<td>2 6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Raphanus/Rapistrum</td>
<td>seed</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Setaria viridis/verticillata</td>
<td>seed</td>
<td>1 12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solanum nigrum</td>
<td>seed</td>
<td>1# 1 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stellaria media</td>
<td>seed</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Spring weeds

Ruderals, wasteland

Grasslands, meadows
<table>
<thead>
<tr>
<th>Plant Name</th>
<th>Type</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agrimonia eupatoria</td>
<td>seed</td>
<td>1</td>
</tr>
<tr>
<td>Bromus racemosus</td>
<td>seed</td>
<td>49</td>
</tr>
<tr>
<td>Lolium perenne/ rigidum</td>
<td>seed</td>
<td>1469</td>
</tr>
<tr>
<td>Medicago minima</td>
<td>fruit</td>
<td>8</td>
</tr>
<tr>
<td>Medicago minima</td>
<td>seed</td>
<td>296</td>
</tr>
<tr>
<td>Medicago polymorpha</td>
<td>seed</td>
<td>2</td>
</tr>
<tr>
<td>Phleum pratense</td>
<td>seed</td>
<td>7</td>
</tr>
<tr>
<td>Phleum sp.</td>
<td>seed</td>
<td>16</td>
</tr>
<tr>
<td>Plantago lagopus/avata</td>
<td>seed</td>
<td>4</td>
</tr>
<tr>
<td>Plantago lanceolata</td>
<td>seed</td>
<td>13</td>
</tr>
<tr>
<td>Poa pratensis/trivialis</td>
<td>seed</td>
<td>32</td>
</tr>
<tr>
<td>Ranunculus repens</td>
<td>seed</td>
<td>9</td>
</tr>
<tr>
<td>Rumex acetosa</td>
<td>seed</td>
<td>29</td>
</tr>
<tr>
<td>Rumex crispus</td>
<td>seed</td>
<td>56</td>
</tr>
<tr>
<td>Sanguisorba minor</td>
<td>seed</td>
<td>3</td>
</tr>
<tr>
<td>Silene nutans</td>
<td>seed</td>
<td>41</td>
</tr>
<tr>
<td>Trifolium pratense</td>
<td>seed</td>
<td>114</td>
</tr>
<tr>
<td>Trifolium repens</td>
<td>seed</td>
<td>13</td>
</tr>
<tr>
<td>Trinia glauca</td>
<td>seed</td>
<td>2</td>
</tr>
</tbody>
</table>

| Wetlands, marshes                |          |          |
| Alisma plantago/aquatica         | seed     | 2        |
| Alismataceae                     | seed     | 1        |
| Apium graveolens                 | seed     | 5        |
| Bolboschoenus maritimus          | seed     | 94       |
| Carex divisa/divulsita-type      | seed     | 237      |
| Carex elata-type                 | seed     | 31       |
| Carex flava-type                 | seed     | 98       |
| Carex hirta/distans-type         | seed     | 49       |
| Carex leporina/ovalis-type       | seed     | 12       |
| Carex paniculata-type            | seed     | 4        |
| Carex riparia-type               | seed     | 71       |
| Carex sp.                        | seed     | 105      |
| Chara sp.                        | seed     | 64       |
| Cladium mariscus                 | seed     | 25       |
| Cyperus fuscus                   | seed     | 2        |
| Cyperus longus                   | seed     | 7        |
| Cyperus sp.                      | seed     | 33       |
| Eteocharis sp.                   | seed     | 20       |
| Galium palustre                  | seed     | 4        |
| Glyceria sp.                     | seed     | 8        |
| Juncus sp.                       | capsule  | 6731     |
| Juncus sp.                       | rhizome  | 2        |
| Juncus sp.                       | seed     | 6978     |
| Lycopus europaeus                | seed     | 133      |
| Persicaria hydropiper            | seed     | 6        |
| Phragmites sp.                   | stalk    | 417      |
| Phragmites/lunucus               | rhizome  | 5        |
| Phragmites/lunucus               | stalk    | 1        |
| Polygonum hydropiper             | seed     | 13       |
| Polygonum lapathifolium          | seed     | 9        |
| Polygonum mite                   | seed     | 1        |
| Ranunculus sardous               | seed     | 1        |
| Rumex conglomeratus              | seed     | 3        |
| Schoenopectus lacustris          | seed     | 153      |
| Schoenopectus sp.                | seed     | 8        |
| Schoenopectus/Bolboschoenus      | seed     | 93       |
| Schoenus nigricans               | seed     | 2        |
| Solanum dulcamara                | seed     | 5        |
| Sparganium erectum               | seed     | 5        |

| Coast (sandy)                    |          | 68       |
| Poa palustris                    | seed     | 52       |
| Polygonon monspeliense           | seed     | 8        |
| Rupia maritima                   | seed     | 2        |
| Salicornia sp.                   | seed     | 1        |
| Silene neglecta                  | seed     | 1        |
| Suaeda maritima                  | seed     | 4        |

<p>| Varia                           |          |          |
| Adonis sp.                       | seed     | 14       |
| Ajuga/Teucrium                   | seed     | 42       |
| Alopecurus sp.                   | seed     | 78       |
| Amaranthus sp.                   | seed     | 148      |
| Apium sp.                        | seed     | 12780    |
| Asperula sp.                     | seed     | 187      |
| Asperula maritima                | seed     | 27       |
| Asperula sp.                     | seed     | 32       |
| Asperula maritima                | seed     | 14       |
| Asperula sp.                     | seed     | 5        |
| Asperula maritima                | seed     | 1        |
| Asperula sp.                     | seed     | 1        |
| Asperula maritima                | seed     | 1        |</p>
<table>
<thead>
<tr>
<th>Family</th>
<th>Type</th>
<th>Count1</th>
<th>Count2</th>
<th>Count3</th>
<th>Count4</th>
<th>Count5</th>
<th>Count6</th>
<th>Count7</th>
<th>Count8</th>
<th>Count9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apiaceae</td>
<td>seed</td>
<td>5</td>
<td>1</td>
<td>25</td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apiaceae/Asteraceae</td>
<td>seed</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asperula</td>
<td>seed</td>
<td>29</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asperula/Galium</td>
<td>seed</td>
<td>11</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asteraceae</td>
<td>seed</td>
<td>31</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Astragalus</td>
<td>seed</td>
<td>3</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Atriplex</td>
<td>seed</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Atriplex/Chenopodium</td>
<td>seed</td>
<td>43</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avena</td>
<td>awn</td>
<td>395</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avena</td>
<td>lemma frag.</td>
<td>48</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avena</td>
<td>seed</td>
<td>940</td>
<td>1</td>
<td>9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beta</td>
<td>fruit</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beta</td>
<td>seed</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boraginaceae</td>
<td>seed</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brassicaceae</td>
<td>seed</td>
<td>15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bromus</td>
<td>seed</td>
<td>213</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caprifoliaceae</td>
<td>seed</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carduus/Cirsium</td>
<td>seed</td>
<td>120</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carthamus</td>
<td>seed</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caryophyllaceae</td>
<td>seed</td>
<td>13</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Centaurea</td>
<td>seed</td>
<td>12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cerastium</td>
<td>seed</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chenopodium</td>
<td>seed</td>
<td>177</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chenopodioceae</td>
<td>seed</td>
<td>32</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chrysanthemum</td>
<td>seed</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cirsium</td>
<td>seed</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cistus</td>
<td>leaf</td>
<td>1358</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cistus</td>
<td>seed</td>
<td>54</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coronilla</td>
<td>seed</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cyperacea</td>
<td>seed</td>
<td>133</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cyperacea/Polygonacea</td>
<td>seed</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Digitaria</td>
<td>seed</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Echium</td>
<td>vulgare</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Euphorbia</td>
<td>seed</td>
<td>4</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fabaceae</td>
<td>seed</td>
<td>74</td>
<td>23</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Festuca</td>
<td>seed</td>
<td>9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Galeopsis</td>
<td>seed</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Galium</td>
<td>seed</td>
<td>344</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gypsophila</td>
<td>seed</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Helianthemum</td>
<td>seed</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leucanthemum</td>
<td>seed</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Labiateae</td>
<td>seed</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liliateae</td>
<td>seed</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Linum</td>
<td>seed</td>
<td>14</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lithospernum</td>
<td>seed</td>
<td>22</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lolium</td>
<td>seed</td>
<td>3323</td>
<td>118</td>
<td>1</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lolium/Festuca</td>
<td>seed</td>
<td>183</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Malva</td>
<td>seed</td>
<td>123</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Malvaceae</td>
<td>seed</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medicago</td>
<td>fruit</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medicago</td>
<td>seed</td>
<td>242</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medicago/Melilotus</td>
<td>seed</td>
<td>19</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Melilotus</td>
<td>seed</td>
<td>51</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Melilotus/Trifolium</td>
<td>seed</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nigella</td>
<td>seed</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Onobrychiis</td>
<td>seed</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ornithopus</td>
<td>seed</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phalaris</td>
<td>seed</td>
<td>603</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plantago</td>
<td>seed</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poa</td>
<td>seed</td>
<td>38</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poa</td>
<td>awn</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poa</td>
<td>spikelet fork</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poa</td>
<td>glume base</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poa</td>
<td>glume</td>
<td>16</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poa</td>
<td>rachis segment</td>
<td>2478</td>
<td>15</td>
<td>7</td>
<td>12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poa</td>
<td>culm</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Polygonum</td>
<td>seed</td>
<td>29</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Polygonaceae</td>
<td>seed</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potentilla</td>
<td>seed</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ranunculus</td>
<td>seed</td>
<td>25</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ranunculaceae</td>
<td>seed</td>
<td>40</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reseda</td>
<td>seed</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Genus/Species</td>
<td>Type</td>
<td>Quantity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------------------------------</td>
<td>---------</td>
<td>----------</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rubiaceae</td>
<td>seed</td>
<td>18</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rumex crispus/conglomeratus</td>
<td>fruit</td>
<td>2*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rumex crispus/conglomeratus</td>
<td>seed</td>
<td>9*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rumex sp.</td>
<td>fruit</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rumex sp.</td>
<td>seed</td>
<td>3*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scorpiurus sp.</td>
<td>seed</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scrophularia/Verbascum</td>
<td>seed</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Setaria sp.</td>
<td>seed</td>
<td>3 72 1 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Silene sp.</td>
<td>seed</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Silene/Stellaria</td>
<td>seed</td>
<td>2*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sisymbrium sp.</td>
<td>seed</td>
<td>17</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solanum sp.</td>
<td>seed</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solanaceae</td>
<td>seed</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stachys sp.</td>
<td>seed</td>
<td>12*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stellaria sp.</td>
<td>seed</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teucrium sp.</td>
<td>seed</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thymelaea sp.</td>
<td>seed</td>
<td>146*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trifolium sp.</td>
<td>seed</td>
<td>1 400 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trifolium/Melilotus</td>
<td>seed</td>
<td>96</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urtica sp.</td>
<td>seed</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Valerianella sp.</td>
<td>seed</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vicia sp.</td>
<td>seed</td>
<td>1 1 66 7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Viola sp.</td>
<td>seed</td>
<td>4 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vulpia sp.</td>
<td>seed</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Undetermined**

<table>
<thead>
<tr>
<th>Category</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undetermined</td>
<td>2 164 29 22 2269 5 11 49 18</td>
</tr>
<tr>
<td>Undetermined fragments</td>
<td>2 22 9* 8* 1156*</td>
</tr>
</tbody>
</table>

**Total NR**

<table>
<thead>
<tr>
<th>Category</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total NR</td>
<td>1115 17457 1929 776 237911 3242 145 6614 2657</td>
</tr>
</tbody>
</table>

**Total NRD**

<table>
<thead>
<tr>
<th>Category</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total NRD</td>
<td>1113 17293 1900 754 235642 3237 134 6565 2639</td>
</tr>
</tbody>
</table>

**Total levels (SU)**

<table>
<thead>
<tr>
<th>Category</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total levels (SU)</td>
<td>23 33 14 5 253 78 19 3 12</td>
</tr>
</tbody>
</table>

**Total volume (litres)**

<table>
<thead>
<tr>
<th>Category</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total volume (litres)</td>
<td>455 1596 470 120 11703 4515 380 90 835</td>
</tr>
</tbody>
</table>
ESM Table 2 General archaeobotanical results per site (LPA, Port Ariane; LSS, Saint Sauveur; LMC, Mas de Causse) and century concerning the number of stratigraphic units (SU) studied, the absolute number of remains (NR) and taxa identified, the volume of sediment sieved and the general density of remains/litre

<table>
<thead>
<tr>
<th>SU</th>
<th>NR</th>
<th>Taxa</th>
<th>Volume (l)</th>
<th>Density (rems/l)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pech Maho</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
6th c. BC | 7 | 292 | 3 | 125 | 4 |
5th c. BC | 8 | 446 | 7 | 180 | 3 |
4th c. BC | 8 | 377 | 8 | 150 | 3 |
3rd c. BC | 5 | 4,213 | 13 | 70 | 60 |
2nd c. BC | 28 | 13,244 | 22 | 1,526 | 9 |

| Lattara (LPA) | | | | |
4th c. BC | 5 | 776 | 33 | 120 | 7 |

| Lattara (LSS) | | | | |
5th c. BC | 159 | 215,721 | 152 | 6,731 | 32 |
4th c. BC | 94 | 22,190 | 78 | 4,972 | 4 |
3rd c. BC | 48 | 2,062 | 19 | 3,499 | 1 |
2nd c. BC | 30 | 1,180 | 10 | 1,016 | 1 |

| Lattara (LMC) | | | | |
4th c. BC | 19 | 145 | 20 | 380 | 0.4 |

| Le Cailar | | | | |
5th c. BC | 3 | 6,614 | 25 | 90 | 74 |
3rd c. BC | 12 | 2,668 | 28 | 835 | 3 |