Burton Dassett Southend

Part 2 Section 8.21

Plant Economy

by
Lisa Moffett

The results of the excavations conducted at Burton Dassett Southend 1986-88, together with subsequent fieldwork (fieldwalking, and recording of the Chapel and Priest's House) are disseminated in two parts.

Part 1 is the printed volume *Burton Dassett Southend, Warwickshire: A Medieval Market Village* by Nicholas Palmer and Jonathan Parkhouse, Society-for Medieval Archaeology Monograph 44 (2022). The printed volume contains the following sections:

1. Introduction and background (aims and origin of the project, key issues, archaeological and historical contexts, fieldwork scope and methodology, summaries of earthwork survey and fieldwalking)
2. The archaeological sequence (summary of the structural evidence, ordered by phase)
3 Spatial organisation and the buildings at Southend
4 Daily life and economy at Southend
5 Conclusion
Bibliography

Part 2 consists of a series of digital files in .pdf and .xlsx format, available via the Archaeological Data Service at https://doi.org/10.5284/1083492. Whilst Part 1 is a free-standing narrative, Part 2 includes the detailed descriptions and specialist analyses underpinning the printed volume. It consists of the following sections:

6.1 Geology by John Crossling
6.2 Soils by Magdalen Snape
6.3 Earthwork survey by Nicholas Palmer
6.4 Excavation methods by Nicholas Palmer
6.5 Dovehouse Close fieldwalking 1987 & Chapel Ground fieldwalking 1991 by Nicholas Palmer
7. Fieldwork (detailed description of the structural evidence at individual context level, ordered by area/tenement and phase) by Nicholas Palmer
8.1 Medieval pottery by Stephanie Rátkai
8.2 Coins and jettons by Wilfred Seaby
8.3 Copper alloy objects by Alison R Goodall with contribution by Dr John Blair
8.4 Analyses of copper alloy objects by Dr Roger Brownsword and E E H Pitt
8.5 Pewter objects by Brian Spencer and Nicholas Palmer, with analyses of pewter spoons by Dr Roger Brownsword and E E H Pitt
8.6 Lead objects by Nicholas Palmer
8.7 Ironwork by Dr Ian H Goodall, with spurs by Blanche Ellis
8.8 Bone, jet, glass and miscellaneous by Iain Soden and Nicholas Palmer
8.9 Domestic stonework by Iain Soden, John Crossling and Nicholas Palmer
8.10 Architectural stonework by Iain Soden
8.11 Stone roofing material by Nicholas Palmer
8.12 Roof tiles and ceramic artefacts by Susan Lisk
8.13 Archaeometallurgical investigation of the smithy and other evidence by Dr J G McDonnell and Alison Mills
8.14 Coal by Dr A H V Smith
8.15 Human remains by Ann Stirland
8.16 Clay tobacco pipe by Nicholas Palmer
8.17 Flint by Dr L H Barfield
8.18 Late Bronze Age pottery by Alistair Barclay
8.19 Roman and Saxon pottery by Paul Booth
8.20 Faunal remains by Julie Hamilton
8.21 Plant economy by Lisa Moffett
8.22 Radiocarbon dating of spelt wheat by Rupert Housley
8.23 Archaeomagnetic dating of hearths by Paul Linford
9. Miscellaneous data tables

The bibliography, incorporating all the works cited in Part 1 and Part 2, is also available digitally.
(Excel spreadsheets for all tables in this section are in BD_Plant_remains_data_tables)

Cover illustration by Gavin Lines

PLANT ECONOMY *by Lisa Moffett*

Introduction

Peasant villages, the mainstay of the medieval agrarian economy, have rarely been investigated for the primary evidence of agriculture, the remains of the crops themselves and their associated weeds. Although a large number of medieval villages have been excavated over the years, very few have been systematically sampled for charred plant remains. When this report was first written (Moffett 1991b) most of the archaeobotanical data from the medieval period in Britain came from urban sites such as Anglo-Scandinavian York (Hall *et al* 1983; Kenward *et al* 1978), Winchester (Green 1979), Bristol (Jones and Watson 1987), Lincoln (Straker 1979), Norwich (Murphy 1985; 1988), Newcastle (Nicholson and Hall 1989), and London (Jones *et al* 1991), many of which have rich waterlogged deposits near rivers where organic preservation is extremely good. Much material had also come from cesspits and latrines, which are almost invariably urban or high status (Greig 1981; 1988b; 1988c). A lesser amount of data had come from other contexts from high status sites such as Reading Abbey (Carruthers 1997) and the Bishop's Palace at Winchester (Green 1979). Rural sites investigated had tended to be almost anything except villages, such as the moated sites at Birmingham, Cowick and Shackerley (Greig 1978-9; 1986; 1987a), the moated sites and single farmstead at Stanstead (Murphy 1990), the castle at Nantwich (Colledge 1981), a grange farm near Oxford (Moffett 1994b), the priory barn at Taunton (Greig 1984), and a single farmstead at Cefn Graenog (Hillman 1982). A few 'one off' samples from medieval villages such as Seacourt (Biddle 1961-2, 195-6), West Whelpington (Greig 1987b) and Thrislington (Donaldson 1989), showed that charred material was present on village sites but left little scope for more general interpretation. Although some information about the rural economy can be derived from examination of urban material (Greig 1988a) there are many difficulties associated with this, not least of which is the problem of interpreting complex urban environmental deposits (Green 1982; Hall 1988).

In the west midlands this picture has changed surprisingly little in the intervening years. Excavations at medieval rural settlements have produced charred plant remains at Goldicote (Pearson 2012) and Bascote (Monckton 2008). The important assemblage from West Cotton, Northants has been published (Campbell 2010) although most of this material is earlier than Burton Dassett, as is the material from Oversley (Moffett 1997) just 32 kilometres away. The need for further information and synthesis of existing data, especially about the rural economy, has been highlighted by Hunt (2011, 189).

Methods

The samples were processed at the time of excavation, in the later 1980s, and analysed shortly thereafter. Decisions were made in the light of knowledge current at the time, thus the outcomes and this report should be regarded as a product of its time.

The aim of the sampling programme was to collect samples from a range of different types of contexts distributed across the site both spatially and temporally. In other words, different types of contexts (ie pits, beam slots) were sampled, and similar types of contexts were sampled from different parts of the site and from different phases. There was a particular emphasis on contexts considered to be most likely to contain significant amounts of charred material such as hearths and kilns. Within this framework selection of which particular contexts should be sampled was left to the excavator's judgement. A total of 302 samples were taken, 257 from the areas north of the road (A-G), and 45 from those from south of

the road (Areas H - W) where the excavation had to be carried out in greater haste. Sample sizes in general were between 20 and 25 litres of soil (about 1 ½ buckets) but some small contexts necessarily produced smaller samples.

Processing the soil samples was extremely difficult. The soil was very heavy, sticky clay and almost impermeable. Simple flotation was out of the question. The sample was wet sieved through a 1mm mesh to get rid of as much of the clay as possible, then the material remaining in the sieve was dried and floated to recover the charred material on a 0.5mm sieve. This method was in frequent use at the time to process the very heavy clay soils so typical of many parts of central England. It is likely to involve loss of some charred material, especially material less than 1mm in diameter. However, items smaller than 1mm were retrieved in the flot so it is evident that the loss was not total. Even this wet sieving technique was only just barely workable. Samples had to be soaked, often for several days, before they disaggregated sufficiently to be sieved, and even then it was usually necessary to break up lumps of clay by hand despite the potential damage to the charred material.

Other methods were tried. The environmental assistants experimented with soaking the samples in salt and detergent without discernable effect. Even hydrogen peroxide, long used by archaeobotanists to break down clay samples in the lab, was only partly effective. Hydrogen peroxide cannot be used to process large quantities of soil in the field but part of one soil sample was processed as an experiment in the lab. Many clay samples will disaggregate in a 10-20% solution of hydrogen peroxide after an hour or two with occasional stirring. A 10% solution made little impression on the sample even after 24 hours, but the author found that a 50% solution was reasonably effective after 48 hours in disaggregating most of the sample although there were some remaining large clay lumps. It was wholly impractical and prohibitively expensive to attempt to process all of the soil samples in this way. An account given in a paper presented by Andrea Bullock at the spring conference of the Association for Environmental Archaeology in 1987 described how a small cement mixer was used by A Jones, formerly of the York Environmental Unit, to mix clay soil and water to a slurry which can be easily processed in large quantities, reputedly without damaging the environmental remains. This was tried at Burton Dassett. The clay, however, would not mix with the water in the cement mixer but merely rolled into balls. Ultrasound was effective at disaggregating the clay (S Payne pers comm), but the excavation did not have the resources to buy the equipment or the time to develop this method to be practical for processing large quantities of soil in the field.

Long term soaking of samples, aided by manual breaking up of lumps, followed by wet sieving, drying and flotation was therefore the method used, laborious and partly unsatisfactory though it was. An attempt was made to compare recovery by this method with recovery using hydrogen peroxide and recovery using ultrasound to see what the loss was likely to be, but the sample selected for comparison proved to have few charred remains and the comparison had no significance. There was no time or resources for further experimentation. It is not known, therefore, what the limitations of recovery were and whether there was a significant loss of charred material. No signs of significant loss at any rate were observed by eye. If there is a bias resulting from the somewhat rough method of processing at least that bias is consistent and applies to every sample from the site.

After the charred material had been recovered from the soil sample it was dried slowly and bagged. The flots were sorted by environmental assistants under specialist supervision to save specialist time. Identifications were made using a low power binocular microscope and modern reference material was used for comparison. About half of the samples (168 out of

the total of 302 taken by the criteria described) were analysed. Most of the unanalysed samples contained very little charred material. The samples analysed were chosen first on the basis that those with the most material were the most likely to produce assemblages which could be interpretable. These relatively rich samples were defined as samples which had more than 100 items in the sample and more than 10 items per litre of soil. This eliminated large samples which produced more than 100 items but with a relatively low concentration of material. It was felt that a sparse distribution in the soil might indicate a greater degree of reworking than a relatively rich concentration which might stand a better chance of having been deposited in a single episode. A lower limit of 100 identifiable items was chosen because percentages on small numbers of items can be misleading. Both of these limits were decided on the basis of the author's personal judgement and are admittedly somewhat arbitrary. These samples containing relatively abundant material were supplemented by others chosen in consultation with the archaeologist to give a reasonably representative spread of feature types within each phase. All hearth samples were also analysed. Although in many cases the samples produced only small numbers of remains, they were analysed because the differences in concentration of remains over different parts of the site at different phases was considered to be of potential interest. The reasons for such intensive analysis were discussed above.

The samples were mainly considered in two ways. One was the composition of the assemblage of material in individual samples, the other was the spatial and temporal distribution of material in the samples across the site (Figures 8.21.1 – 8.21.3A). For the purposes of analysing the distribution of material on the site, the relative abundance of material in the samples was important. Abundance was calculated by the number of items per litre of soil. The composition of the samples was calculated simply by the percentage that each component in the sample (ie wheat, barley, oat, unidentified cereal, cereal chaff, legumes, weeds, other items) represented. There were 14 samples defined as rich and these are presented in Figures 8.21.3B and 8.21.4. Most of the discussion in this report, however, is based on a consideration of all the samples analysed. These are given in Figure 8.21.5, along with the numbers of items in each category. The composition of particular samples and the distribution of material is discussed further below. The total list of species found on the site is given in Figure 8.21.6. Detailed species data from all of the samples analysed is given in Figure 8.21.7.

Preservation was only moderate, especially of the large legumes and cereals. Although many cereal grains could not be identified even to genus, there were a sufficient number which were identifiable to give a fairly clear picture of the relative abundance of different cereal species.

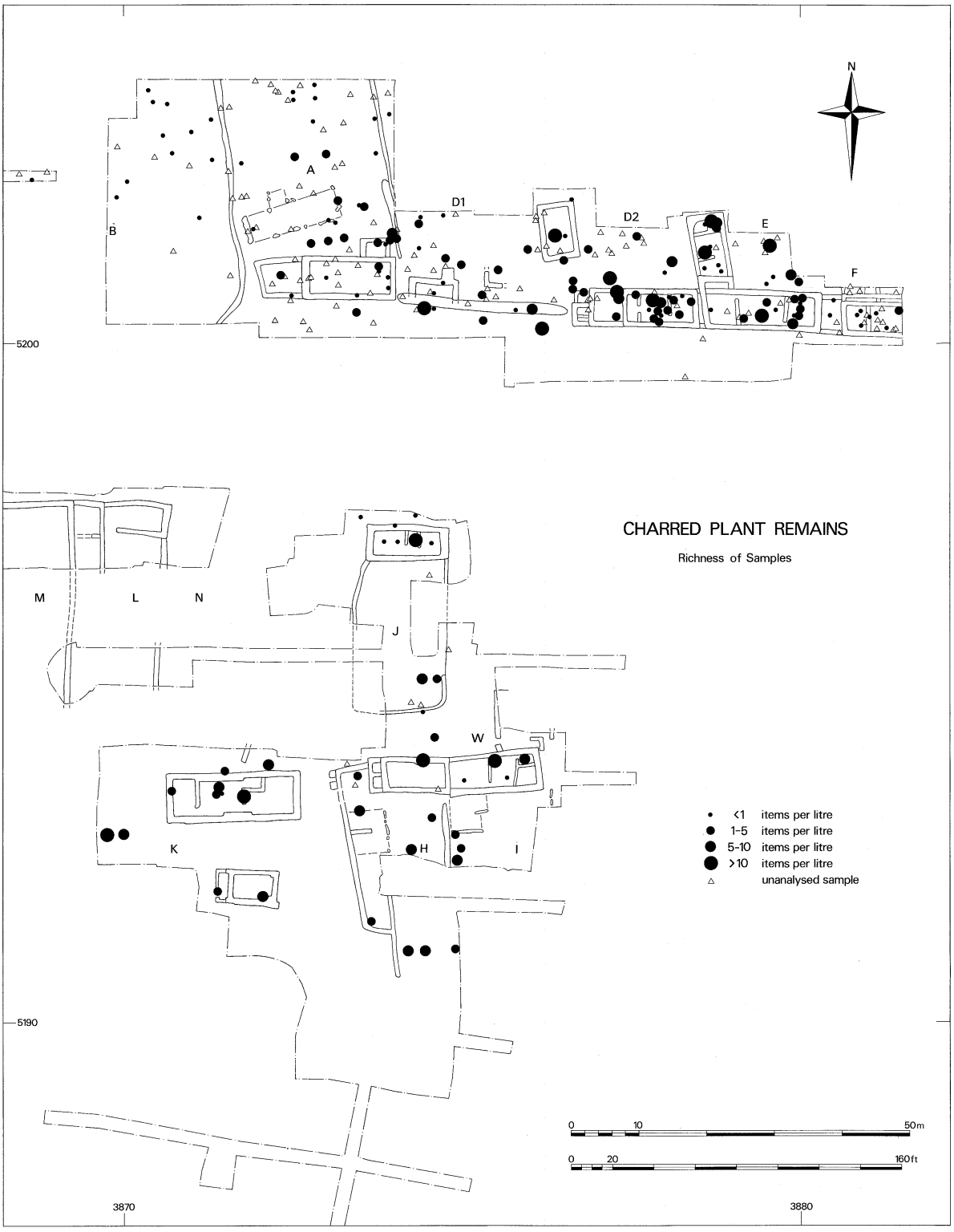

Figure 8.21.1: Plant Economy: sample location and richness

Crop plants

The cereals found at the site were rivet/macaroni wheat (*Triticum turgidum*/*durum*), bread/club wheat (*Triticum aestivum* s l), hulled barley (*Hordeum vulgare* L), oats (*Avena* sp), and, somewhat surprisingly, spelt (*Triticum spelta*). The spelt was later shown by radiocarbon dating to be residual from Roman activity (Housley below). Wheat was by far the most abundant cereal, with the other cereals being sparsely represented. Rye (cf *Secale cereale*) was only doubtfully present in extremely small quantities and there is not sufficient evidence to suggest that it was actually a crop at Burton Dassett. Oats did not occur in a pure sample and may have been present only as a component of dredge (a mixture of barley and oats). Peas (*Pisum sativum*), beans (*Vicia faba*) and vetch (*Vicia sativa* ssp *sativa*) were also found. These crops are partly reflected in the documentary record of nearby estates. John Reve, a peasant at Gaydon, had nine and a half acres of wheat, ten and a quarter acres of dredge and six acres of peas when he died in 1403 (SCLA DR10/2601, information from C Dyer). At Lighthorne the demesne harvested sixty acres of wheat, thirty- seven and a half acres of peas, forty-one acres of barley and six acres of oats in 1390-91, while in 1395-6 it harvested fifty-eight acres of wheat, thirty-two acres of peas, forty acres of barley and six acres of oats (SCLA DR98/672b, DR98/674; information from C Dyer). Wheat and peas are mentioned in Roger Heritage's probate inventory of the late 15th century from Burton Dassett itself (TNA:PRO PROB 2/457; Dyer and Alcock above). Vegetable and garden crops such as leeks, cabbages, herbs and flax, were not found among the plant remains at Burton Dassett. Seeds of turnip or wild turnip (*Brassica rapa*) were found, but wild turnip is a common arable weed and it is not possible to distinguish wild from cultivated turnip by the seeds. The absence of evidence for vegetable crops is more likely to be due to factors of preservation than a complete absence from the settlement of these smaller-scale but important crops.

Remains of spelt wheat (*Triticum spelta*) or unidentifiable glume wheat remains (*Triticum dicoccum*/*spelta*) were present in 24% of the samples, mostly from Areas A, B, D1 and D2. These remains were primarily glume bases, with a few rachises, spikelet forks and grains, and were mainly present in the samples in very low numbers. Many of the samples containing glume wheat remains were pre-medieval but glume wheat remains persisted in the later samples. One mid/late 15th century sample from D1 (455/3/1) produced over 200 glume bases - more than half the chaff remains recovered from the whole site.

Spelt was cultivated in the late Bronze Age and Iron Age, becoming particularly prominent during the Roman period. It appears to have gone out of cultivation in much of Britain, or become a very local crop, shortly after the Saxon colonization. It is known from a few places such as Gloucester (Green 1979) and West Stow (Murphy 1985) where it may have continued in cultivation in the Saxon period, at least for a while. Spelt continued to be grown on the Continent. It is mentioned in Carolingian documents (Loyn and Percival 1975; Slicher van Bath 1963, 66) and was still grown in parts of Europe in the 20th century (Percival 1921). There is no particular reason why spelt should not have been grown in Britain during the medieval period, but so far we have no clear evidence that it was. Spelt was found in medieval contexts at Bierton (Jones, M. 1986), but the problems of residuality from Iron Age and Roman occupation which affected the animal bones (Jones, G 1986) presumably apply to the plant remains as well. Occasional traces of spelt occur on other medieval sites (Hillman 1982; Moffett 1990) but not in convincing circumstances or in any quantity. None of these spelt remains have been radiocarbon dated. Whether the apparent British abandonment of spelt was due to national culinary preferences, or for some other reason it is not possible to say. Since it was possible that the spelt found at Burton Dassett could have been medieval and this would have been an important discovery if it

were, a sample was sent to the accelerator radiocarbon laboratory at Oxford for dating (see Housley below). The dating sample was sent off before the sample containing a large amount of spelt chaff came to light and it was thus necessary to combine chaff remains from several samples to obtain a sufficient sample for dating. Although it is possible the spelt chaff remains may not have all been the same age, it seems unlikely that there would have been a great difference. The resulting date (OxA-2226) suggests that the spelt could not have been contemporary with the medieval settlement at Burton Dassett. If the spelt remains can be assumed to be roughly all the same age then the date (AD 395-650 at 95% confidence), is still interesting in that it represents the period in Britain when spelt was probably declining in importance (Housley below; Hedges et al 1990; Bayliss et al 2013, 46-7, although this ignores the combination of samples).

The free-threshing wheat is mostly represented by grains which cannot be identified to species, but a few reasonably well-preserved rachis nodes were present which could be identified to species. This made it possible to identify two species of wheat, a free-threshing tetraploid (i.e. rivet or macaroni wheat type) and a free-threshing hexaploid (ie a bread wheat type), on the basis of their rachis morphology. Bread/club wheat has been cultivated in Britain since the Neolithic period, although it became relatively more common in the Saxon period when free-threshing wheat replaced the hulled wheats, emmer and spelt. Bread wheat and club wheat cannot be distinguished without the rachis internodes, preferably from a whole ear, and there were none present. The free-threshing tetraploid wheat found at Burton Dassett could be either rivet or macaroni wheat. These two wheats are the same biological species, although they have different ecological requirements and produce grain with different qualities. They cannot be distinguished without the entire rachis length from an ear or whole spikelets, neither of which was found. It is perhaps more likely to be rivet wheat (*T turgidum*) than macaroni wheat (*T durum*), since there is documentary evidence of rivet wheat (Tusser 1580) from the 16th century and later but apparently no record of macaroni wheat. Free-threshing tetraploid wheat is now known to have been grown in Britain at least since the late Saxon period. It was radiocarbon dated to the late Saxon period at Higham Ferrers (Moffett 2007), and is known from the late Saxon at West Cotton (Campbell 2010). Both of these wheats were found at Bascote (Monckton 2008).

Bread wheat and rivet wheat have different qualities which make them suitable for different purposes. Bread wheat flour is most suitable for making bread, while rivet wheat flour is more suited to products like biscuits (Percival 1921) They may both, however, have been used for bread. Rivet wheat was regarded as being best suited to heavy soils and may therefore often have been planted on clayey soil. It may be that growing rivet wheat was viewed as one way of increasing the area of wheat cultivated, even if the flour obtained was of poorer quality. The actual success of a crop of rivet wheat versus a crop of bread wheat on a very heavy soil probably depends as much on the suitability of a particular variety as on the species. Rivet wheat also has long, strong awns which discourage birds (Plot 1705) and this may have been a significant factor in the decision to cultivate rivet wheat since bird damage to crops can be severe.

Hulled barley was present in many samples but usually in low quantities. Barley was only abundant in the early 15th century phase of the Area E malting kiln. It may have been a component of dredge since there are also a substantial number of oat grains.
It does, however, appear to have been a crop in its own right also, since barley grains are not necessarily associated with oat grains elsewhere on the site. In addition to malting, barley was often used as fodder when people could afford to grain-feed animals. Since grain used for fodder is less likely to be exposed to fire than grain prepared for human consumption

it may be that the lower numbers of barley grains is reflecting a difference in use rather than a lesser abundance at the site. It may also have been consumed by people but if this was the case, then, assuming it was prepared in the same way as wheat and had the same risk of exposure to fire, it would appear to have been less popular.

Oats are perhaps a more typical crop of upland regions. Documentary evidence from the 14th/15th centuries suggests that oats were never more than one tenth of the crop on demesnes in the Feldon and were hardly grown by peasants except as a mixture in dredge (Dyer 1981, 13, 24). The oat grains from Burton Dassett could not be identified to species and could well be from wild oat species (*Avena fatua* or *A sterilis* ssp *ludoviciana*) which are vigorous and successful crop weeds. Only in the malting kiln were oat grains present in any quantity and here they may be part of a dredge crop, as they are associated with somewhat larger numbers of barley grains.

The identification of rye is not certain and the tenuous evidence makes it seem unlikely that it was a crop here. Rye is tolerant of light droughty soils and seems often to be found on sites near such soils, such as Stafford (Moffett 1994a) and several places in East Anglia (Murphy 1985) although it is not possible to make simplistic assumptions about the relationships between types of soils and the crops cultivated on them. Rye may not have been much cultivated on many heavier soils, such as those at Burton Dassett, which would have been well suited to wheat, but this may have been as much to do with the relative value of wheat versus rye. Rye has poorer bread-making qualities than wheat and may have been generally regarded as a less desirable crop.

Three other field crops also found at Burton Dassett were field bean (*Vicia faba*), pea (*Pisum sativum*) and cultivated vetch (*Vicia sativa* ssp *sativa*). Legumes are present in 61% of the samples and comprise 4% of the total number of botanical items from the site. This percentage of the total material may sound small, but legumes are often considered to be under-represented on archaeological sites relative to cereal grains (Green 1981). The relative frequency in the samples seems high and suggests that legumes were common, even if infrequently exposed to fire.

Beans and peas were staple medieval foods but vetch is less palatable and usually eaten by humans only in times of famine. It was cultivated in medieval Britain exclusively as a fodder crop. The cultivation of vetch seems to have varied regionally. Vetch was cultivated in the 13th to 14th centuries mainly in the south-east of England according to documentary sources although there were occurrences in the north-west midlands (Campbell 1988). The only documentary record of vetch from Warwickshire is from Knowle in the north of the county (C Dyer, pers comm). The adoption of vetch generally seems to have been hesitant and experimental, though great quantities were grown in Kent (Campbell 1988). Peasants, however, may have grown vetch more frequently than wealthy landowners because it was a cheap alternative to oats as fodder for horses, which were being more widely used as traction animals by the peasantry (Langdon 1986). Vetch occurs from the 13th century through the late 15th century at Burton Dassett. Like many other legumes, it can be nitrogen-fixing in the presence of *Rhizobium* soil bacteria, and may have been cultivated in a system of crop rotation to improve the soil.

Doubt has been cast on whether the advantages of legumes in improving the soil fertility were known, since there is no mention of it in medieval treatises on husbandry such as Walter of Henley (Mate 1985). The fertilising properties of legumes were well known to the Romans, and Columella even states that the greatest enrichment is from the roots (where the nitrogen-fixing bacteria live), which should be ploughed back into the soil (Columella

1977). It seems unlikely that this knowledge would have been completely lost, especially since it could easily be rediscovered from practical experience. There is evidence that the cultivation of vetches, in addition to fertilising with manure, lime, marl and the folding of sheep, seems to have increased production by making it possible to eliminate fallow in parts of Kent and Norfolk (Campbell 1983). It seems unlikely that this could have been done without knowledge of the properties of legumes for soil improvement.

Wild plants

Most of the wild species found were probably crop weeds although many of these species also grow in disturbed habitats, such as gardens and roadsides, or in grassland. Some may have been collected and brought to the site for use as building materials, bedding or animal food. Weeds constitute about 22% of all the items found on site although they are present in some samples in considerably higher percentages. Some of the weeds, such as corn buttercup (*Ranunculus arvensis*), corn cockle (*Agrostemma githago*), yellow vetchling (cf *Lathyrus aphaca*), stinking mayweed (*Anthemis cotula*), cornflower (*Centaurea cyanus*) and darnel (*Lolium temulentum*) are rare in the British flora today and hare′s ear (*Bupleurum rotundifolium*) is regarded as extinct (Perring and Farrell 1983, 28).

Bristly ox-tongue (*Picris echioides*) is found especially on stiff calcareous soils, and its present-day distribution in Warwickshire is concentrated mainly on the Lias Group limestones and mudstones of the south-west (Cadbury *et al* 1971, 212). Yellow vetchling also seems to be found more on calcareous soils, while small-flowered buttercup (*Ranunculus parviflorus*), shepherd′s needle (*Scandix pecten-veneris*), hare′s ear and cornflower are plants found mainly on light, dry, but not necessarily calcareous, soils. Other plants such as wild radish (*Raphanus raphanistrum*) and sheep′s sorrel (*Rumex acetosella* agg) are typical of acid soils. Stinking mayweed (*Anthemis cotula*) is a plant of heavy, non-calcareous soils. It seems possible from this assemblage that both calcareous and non-calcareous soils, and light and heavy soils were being cultivated. This would seem to accord moderately well with the modern soils found in the vicinity, though perhaps not necessarily those actually worked by the inhabitants of the settlement.

Some plants now associated mainly with grassland but which still grow in crop fields and which were probably crop weeds at Burton Dassett are rattle (*Rhinanthus* sp), black medick (*Medicago lupulina*) and clover or a closely related species (*Trifolium* type). Meadow vetchling (*Lathyrus pratensis*) is recorded mainly from waste ground and grassland in modern Warwickshire, while the tares (*Vicia hirsuta*, *V tetrasperma*, and cf *V tenuissima*) seem to be found equally in grassland and cultivated ground (Cadbury *et al* 1971, 155). It is possible that fallowing, or the application of manure containing trampled uneaten hay, may have encouraged some of these plants to grow in crop fields.

Ruderal species such as wild radish, fat hen (*Chenopodium* sp), orache (*Atriplex* sp), knotgrass (*Polygonum aviculare* agg) and ivy-leaved speedwell (*Veronica hederifolia*) are common plants which could have grown in gardens, along path edges, or in any disturbed ground habitat which was not heavily trampled, as well as in the crop fields.

Henbane (*Hyoscyamus niger*) is a nitrophilous plant, now rare, of waste ground and farmyards. It was said by Gerard, the 16th century herbalist, to be frequently found on dung heaps (Gerard 1975, 355). It is not today regarded as an arable weed but perhaps manuring could have been responsible for its possible presence in a crop field. Alternatively, it may have grown somewhere else, a garden perhaps, and been burned as rubbish. Hemlock (*Conium maculatum*) could also have grown in gardens or other waste ground.

Both plants would probably have been discouraged if they had grown abundantly in the crops as they are highly poisonous in all parts, including the seeds (Grieve 1994, 398). Henbane and hemlock might also have been collected deliberately for medicinal purposes, but their mere presence is not an indication of this as they were probably very common inhabitants in the disturbed vicinities of medieval settlements.

A few damp/wet ground plants are present. Spike rush (*Eleocharis palustris/uniglumis*) is a rhizomatous plant which grows in ground that is wet for at least part of the year (Walters 1949). Although normally a plant of damp grassland in modern Britain, its association with charred cereal remains is so consistent (eg Jones, M 1978; Moffett 1990) that it seems probable it invaded poorly drained arable fields with considerable regularity (Jones, M 1988). Many species of sedge also grow in wet or damp ground but there are species which do not and it was not possible to identify which sedges were present at Burton Dassett. Marsh bedstraw (*Galium palustre* agg) and bur-reed (*Sparganium* sp) are plants of permanently waterlogged soils where crops could not have grown. They may have been collected with plants gathered for thatch or bedding, and this may be true of the sedges also.

Heather (*Calluna vulgaris*), represented by one immature flower, and dyer's greenweed/ gorse (*Genista/Ulex* type), may also have been used for bedding or thatch. Neither dyer's greenweed nor gorse are very common in south Warwickshire today and heather is virtually absent (Cadbury *et al* 1971, 152; 187). Perhaps these plants grew locally in the medieval period but it is more likely that they were brought in from elsewhere, possibly the north of the county.

A couple of fragments of fruit stone which could have been sloe, bullace, damson or cherry (*Prunus* sp) and one fragment of hazel (*Corylus avellana*) are the only evidence of trees or shrubs typical of hedges and woodland edges. Fruits and nuts were undoubtedly collected for food and cuttings from trimming hedges and trees may also have been used as firewood.

Sample composition and possible biases in preservation

Processing a harvested crop into a final product of cleaned grain ready to be prepared for food can only be efficiently achieved in a limited number of ways. Although the tools used for these tasks may vary, the stages of processing and the sequence in which they are performed are fixed by the demands of the crop. The resulting products and by-products from each stage of processing are essentially similar regardless of the tools used. The archaeobotanical interpretation, therefore, of crop assemblages derived from the various stages of processing is not dependent on exact knowledge of the tools and methods used (Hillman 1981).

Ethnographic studies of modern traditional societies (eg Jones, G 1984) suggest that free-threshing cereals, like bread wheat and rivet wheat, were traditionally processed in several stages. After harvesting, the crop was threshed to make the grain fall out of the ears and then winnowed to separate the straw, weed stems, light chaff and weed seeds from the grain. Many contaminants are left after winnowing, such as small pieces of straw, fragments of chaff, seed heads and heavier weed seeds. The most efficient means of removing these is by sieving. Sieving has to be done at least twice, once with a coarse riddle which allows the grains to fall through while retaining the large contaminants, such as pieces of straw and large seed heads, and once with a fine sieve with holes just small enough to retain the grains while allowing most of the contaminants smaller than grains, which would include most of the remaining weed seeds, to fall through. In practice there may need to be

several winnowing and sieving stages before most of the contaminants are removed. A final stage of hand sorting can be done to remove the grain-sized contaminants, eg large weed seeds like corncockle, a few remaining chaff fragments and pieces of grit (Hillman 1981; 1984). Judging by the apparently widespread contamination of bread by harmful corncockle seeds (Hall 1981) it would seem that this last stage was often omitted.

Common oats and hulled barley have their grains tightly enclosed by the inner chaff parts (the lemma and palea) which simple threshing does not remove. They need further processing if they are to be used as food for humans and this processing would be done after the grain had been threshed, winnowed and sieved. In northern parts at least, of the British Isles oats and barley were traditionally parched to make the chaff brittle and then pounded in a mortar with a mallet or pestle to free the grain. The latter process was known as hummelling (Fenton 1978). The grain would then have to be winnowed and sieved again to remove the chaff. The waste from these stages is not generally identified in archaeobotanical samples because the lemmas and paleas of oats and barley are thin and papery, and seldom survive charring once they are detached from the grain.

Threshing and winnowing produce huge amounts of waste when the harvest is processed, yet apart from the anomalous sample containing residual Roman/post Roman glume wheat chaff from a ditch in Area D1 (D15 455/3/1), there are very few remains of cereal chaff or straw. The absence of straw and chaff remains is sometimes used to suggest that the crop arrived on a site already fully cleaned and processed. In fact, the presence or absence of threshing and winnowing waste may be a poor indication of the site's economy. Material probably derived from these stages is sometimes found in abundance on urban sites such as Oxford (Jones, M 1980), Stafford (Moffett 1994a) and Aylesbury (Moffett 1989) presumably having been brought in for animal bedding and fodder, possibly for fuel or other purposes. Rural medieval sites are too poorly studied for any comparison, but analogy with rural Iron Age and Roman sites suggests that the by-products of the early stages of crop processing (ie the threshing and winnowing waste) are often not found on the sites which produced the crops and at which these stages of processing must have been performed. This may be because these by-products were valued and kept protected from fire. In addition to bedding, fuel and fodder, these by-products can also be used for building materials and to temper pottery. It may be that these were more important uses of these materials than fuel. Alternatively it may have been more economical sometimes to sell the crop processing by-products. Either way there would be little charred evidence to find.

It is possible that differential preservation has biased the survival of the charred plant remains in favour of grains. This could possibly account for the lack of primary crop processing remains. Experiments have shown the grains survive charring much better than chaff fragments (Boardman and Jones 1990). Long pieces of straw and the rachises of free-threshing cereals such as bread and rivet wheat which remain joined together are particularly vulnerable as they tend to get caught in the upper parts of the fire where they are completely consumed. Only the dense, heavy items are likely to sink to the lower parts of the fire where reducing conditions prevail and where they are likely to become preserved by charring (Hillman 1978). The bias against straw and chaff relative to grains may be very considerable, and if this is the case then there may have been much more burning of crop processing by-products than is apparent from the surviving remains.

The largest categories of material from most samples were wheat grains and indeterminate cereal grains, the latter presumably mostly wheat also. Only one sample was dominated by chaff and this was spelt chaff found anomalously in a 15th-century ditch (D15 455/03/1) and shown to be residual from the pre-medieval phase. Although most samples contained some

weed seeds, weeds rarely predominated in a sample. There were some exceptions, however. In some samples weeds were between 30% and 50% of all the items in the sample and in two samples weeds predominated. These moderately weedy (30%-50%) to very weedy (>50%) samples were mostly from Areas H, I, and K, although two moderately weedy samples came from Area D2. It is possible that these weed seeds represent crop processing waste despite the scarcity of chaff, for the reasons of differential preservation discussed above. Cereal grains still predominate in the moderately weedy samples and are a significant percentage of even the two samples strongly dominated by weed seeds. Interpretation is very difficult since these assemblages may represent post-depositional mixing of different assemblages, mixing of material from different crop products during charring, or could be the result of differential survival in a fire.

There were 14 samples defined as rich (Figures 8.21.3B and 8.21.4, see methods section above). Most of these samples also comprised predominantly wheat and indeterminate cereal. The exceptions were the malting kiln (E5 1378), the ditch fill with abundant spelt chaff (D15 455/03/1) and the two very weedy samples from H2 (2443/01/1) and I2 (2370/01/1). It was also noticeable that two samples in particular (1214/00/1 from D26 and 2082/01/1 from J4) contained comparatively high percentages of legumes (12% and 19% respectively).

The Area E malting kiln

The early phase of the malting kiln had only a sparse amount of plant remains. Roughly one quarter of the items in the later phase of the malting kiln were weed seeds, of which the majority were *Brassica* cf *rapa* or *B rapa/nigra* (turnip or turnip/black mustard). Seeds of this species appear in other contexts but this is the only feature where they are abundant. This may well be fortuitous, but it is possible that the plant was being utilised. As noted earlier, seeds of cultivated *B. rapa* cannot be distinguished from seeds of the wild plant. The cereals were a mix of barley, oats and wheat, with barley being the most abundant and wheat the least abundant. As noted above, the barley and oats could either have been grown separately or together as dredge. Well over half the barley grains could be seen to have germinated but only a few of the oat grains could be definitely identified as germinated. The rest were too poorly preserved to be able to tell. This assemblage is probably partly the result of accidental charring of malt during the roasting process. The wheat grains, however, appear not to have germinated, suggesting that possibly the kiln was used for drying or parching grain as well as for curing malt.

Possible sources of the charred material

There is no clear evidence for where the plant material became charred. The majority of sampled contexts were from features such as ditches, pits, layers and hollows where the charred material had not been burned *in situ*. The hearths and the malting kiln seem the most likely places where the plant material could have become charred, but the samples from these contexts offer no confirmation of this. Other sources of charred material may not have been within the area of excavation. It is not known how far charred material may have been transported from the place where it originally became charred. In most cases this may not have been very far, but gathering up and dumping of rubbish containing charred material could have severed any detectable spatial relationship between the source and where the charred material was actually found.

The Area E malting kiln could potentially be a source of charred material on Tenement E and its near vicinity, resulting from the burning of crop waste as well as accidental destruction of the malt. Some post-medieval writers state that straw was preferable to wood for malt roasting as it did not smoke and taint the ale (Tusser 1580, Markham 1675). There is some evidence from charred remains from sites such as Dean Court Farm, near Oxford, and Stafford (Moffett 1994a; 1994b) which suggest that crop processing by-products or even rakings from the fields may have been used for fuel in malting kilns and bread ovens. At Burton Dassett there is hardly any chaff or straw in the malting kiln though the substantial number of weed seeds might be the remains of fuel. The malting kiln, however is in Area E, in the northern area of excavation and away from the weediest samples in the southern area. It seems unlikely to have been the source of material in these samples and indeed its use post-dates some of them. The cereal assemblage is also different from all other samples from the site in that it is mainly comprised of barley and oats. The malting kiln, therefore may have contributed very little to the charred remains on the rest of the site.

The hearths were not particularly productive of charred remains and indeed some contained hardly any. The composition of hearth samples was indistinguishable from that of the majority of other samples. Wheat and unidentified cereal grains usually predominate, with a few legumes, other cereals and weed seeds. The average number of items per litre of soil in the hearths was only slightly higher than the average, 5.3 as opposed to a mean average of 4.4 for the whole site (excluding pre-medieval samples). Only one of the samples defined as rich was from a hearth. This may have been at least partly because of their construction, which was generally just a stone platform supporting an open fire, without any containing structure (Palmer below). This kind of hearth would probably not be conducive to the survival of the plant remains, as a large proportion of the fire would be aerobic, causing the organic material to burn away rather than char. The hearths may also have been cleaned out fairly regularly. Cleaning of hearths could account for the accumulation of charred material in other features as a result of rubbish deposition. The amount of material accumulated in these deposits, however, does not seem very great, especially when one considers the amount of cereal grain that must have been consumed in the village. In terms of numbers of cereal grains needed to feed each household the amount would be vast, yet charred grains accumulated in the pits, ditches, etc. in relatively minute quantities. This suggests that the risk of cereal grains becoming charred was probably very low. What charred material there was on site was concentrated around the buildings, however, and correlates closely with the distribution of other domestic rubbish. This makes it seem likely that the hearths could have been the source of much of the charred material.

If the hearths were the main source of the charred material how did whole cereal grains come to be charred in the first place? Cooking whole cereal grains as groats is a common way of consuming cereals but bread wheat and rivet wheat in general are not particularly well suited to this, although the suitability is perhaps a matter of opinion. The medieval diet, however, was based not on groats but on pottage, of which cereals were the basis (Dyer 1983). Coarsely ground grain was boiled and peas, beans and other items could be added. Bread, of course, was also eaten. In either case the grain would have to be ground. Grain could have become charred if it was being parched in preparation for grinding. Experiments with Romano-British quernstones show that grain mills far more efficiently in such querns if it is parched first (Curwen 1941). Medieval hand mills such as were used in private households, though somewhat different in form, were not very different from Romano-British querns in operation and would undoubtedly also have been more efficient if the grain to be ground was first hardened by parching. Parching is also said to improve the flavour. Although most of the grain probably went to the mill to be ground, it is probable that

some people ground at least some of their grain at home. Free peasants were allowed to grind their grain where they pleased but unfree tenants were obliged to take their corn to the lord's mill, though this relaxed in the late 14th and 15th centuries as seigneurial power waned (Holt 1988). The presence of used querns, common in medieval villages, suggests that the suit of mill must often have been unenforceable. If the grain was ground in small batches as needed then the household hearth was probably the obvious place to parch the grain beforehand. Care would be taken not to spill or burn the grain and indeed the temperature needed to dry the grain hard would be very low. The grain might have been kept some distance above the fire or the fire kept very low. The probability of large quantities of grain becoming charred in this way is very small but it would be inevitable for a few to spill into the hearth and become charred. Beans and peas could perhaps have become charred by small spillages during food preparation.

Since many of the weeds are species likely to have grown in the crop fields it seems probable that most of the weed seeds are derived from arable products or waste. Possibly some households were using crop processing waste to light fires. Despite the few weedy samples discussed above, the evidence does not suggest very large numbers of weed seeds being burned as they presumably would be if the hearths were burning crop processing waste for fuel. One would also expect that there would be at least a few more straw nodes surviving if large numbers were being burned. Another possibility is that the weed seeds were the result of hand-cleaning the grain. Many of the weeds found are of fairly large, heavy seeds which might have been difficult to remove from the grain in any other way. Although not all of the weed seeds are large, some of them could have been still attached to seed heads or contained in pods and capsules, which are less dense in structure and may be more readily destroyed in a fire than the seeds themselves. In fact a Fabaceae pod fragment and a calyx tip of corncockle (*Agrostemma githago*) were found, and perhaps these kinds of items were present more abundantly than can be seen from the surviving charred remains. The hearths in the vicinity of the weedy samples, however, contain few weed seeds, and only one hearth from the whole site (1659/03/1 from E5) produced possibly significant numbers of weed seeds. The hearths, therefore, provide no evidence that these activities were in fact taking place.

Spatial distribution and change through time

The location of the samples taken and the relative abundance of the charred material in the samples analysed can be seen in Figures 8.21.1.- 8.21.3. The greater intensity of sampling north of the road is obvious but otherwise the main pattern that emerges is that the charred material tends to be more concentrated around the houses. This is some confirmation that the charred material is domestic in origin as suggested above. Areas D2 and E seem to have produced the most material. The house from D2 in particular seems to show a concentration of remains. This is partly because there is also a concentration of samples taken, but a similar concentration of samples taken in the house in Area F produced very little.

There is very little sign of change in the plant remains during the occupation of the site. Apart from the obvious difference between the pre-medieval material and that associated with the medieval settlement, there is no detectable change in species present. The composition of the assemblages remains generally consistent, with no changes which appear to be associated with a change in time. At first it seemed as if there might be a slight change in the abundance of plant material, since the average number of items per litre declines through the general site phases steadily from 4.9 in the early 13th century to

3.8 in the later 15th century. A standard regression analysis, however, showed this to be statistically insignificant.

The distribution of glume wheat (emmer/spelt and spelt) remains was plotted and showed that these remains were confined to the north of the road except for two samples. This is in accordance with the distribution of Roman pottery.

The apparent abundance of cereal grains north of the road could be spurious as cereal grains are the most common item from the site and this is where most of the samples are from. The only difference which seems significant is in the distribution of weedy samples. There were more weedy samples from the area south of the road (eight samples) than from north of the road (two samples) (see Figure 8.21.3B), and given the much lesser number of samples from the south this difference is probably real. There is no detectable relationship with the date, since both areas of the settlement are contemporary for most of their period of occupation, and weedy samples are found from the early-mid 13th century to the late 15th. As suggested above, the weedy material could be the result of using crop waste to light household fires or of crop cleaning. It could possibly also be the result of burning garden rubbish, though why any of these should have been more common activities south of the road is difficult to explain.

Conclusions

The crop remains found at Burton Dassett corroborate what is known from the documentary evidence about the types of crops grown in the area. The archaeobotanical evidence also adds two crops, beans and vetch, not mentioned in the documents, and shows that two different species of wheat were grown, something which cannot seen from documentary evidence. It is not possible to tell from the plant remains if any of the cereals were grown for animal fodder, but vetch almost certainly was. It seems highly likely that the legume crops were part of a system of crop rotation which would have helped to maintain soil fertility.

Much of the discussion in this report has been based on the assumption that the most likely place for the plant remains to have become charred is in domestic hearths. This assumption is not necessarily valid and it has been pointed out that there is little evidence for this from the hearths themselves. It is difficult to postulate convincing alternative theories however. No bread ovens or other drying ovens were found and the one malting kiln produced a different assemblage from anywhere else on the site.

Continuing the tenuous chain of deduction, possible kinds of material were suggested which could have become charred in domestic hearths, such as crop cleaning waste being used as tinder or fuel, grain being parched prior to grinding, hand cleaning of grain and minor cooking spillages. The use of crop waste as tinder and/or fuel must surely have taken place since in a society with little waste paper straw would have been the handiest available material. Remains of straw, however, are conspicuous by their absence. Except for a few samples, charred weed seeds are also much fewer than one might expect to result from substantial burning of crop waste.

The presence of querns suggests that at least some grain was ground at home and therefore the parching of grain to facilitate hand-milling is also probable. Cereal grains, however, survive charring better than straw/chaff material and many weed seeds. It is difficult, therefore, to know if a predominance of grains is indicative of possible parching activities or indicates the minority survivors from handfuls of crop waste. Further

experimentation might help to resolve some of these problems. Extensive sampling of other rural settlements is also needed to provide comparisons which may also help to clarify patterns of distribution and use of plant material. Only when the taphonomic factors are better understood will it be possible to bring the botanical evidence to bear more on more complex questions of economic significance.

Acknowledgements

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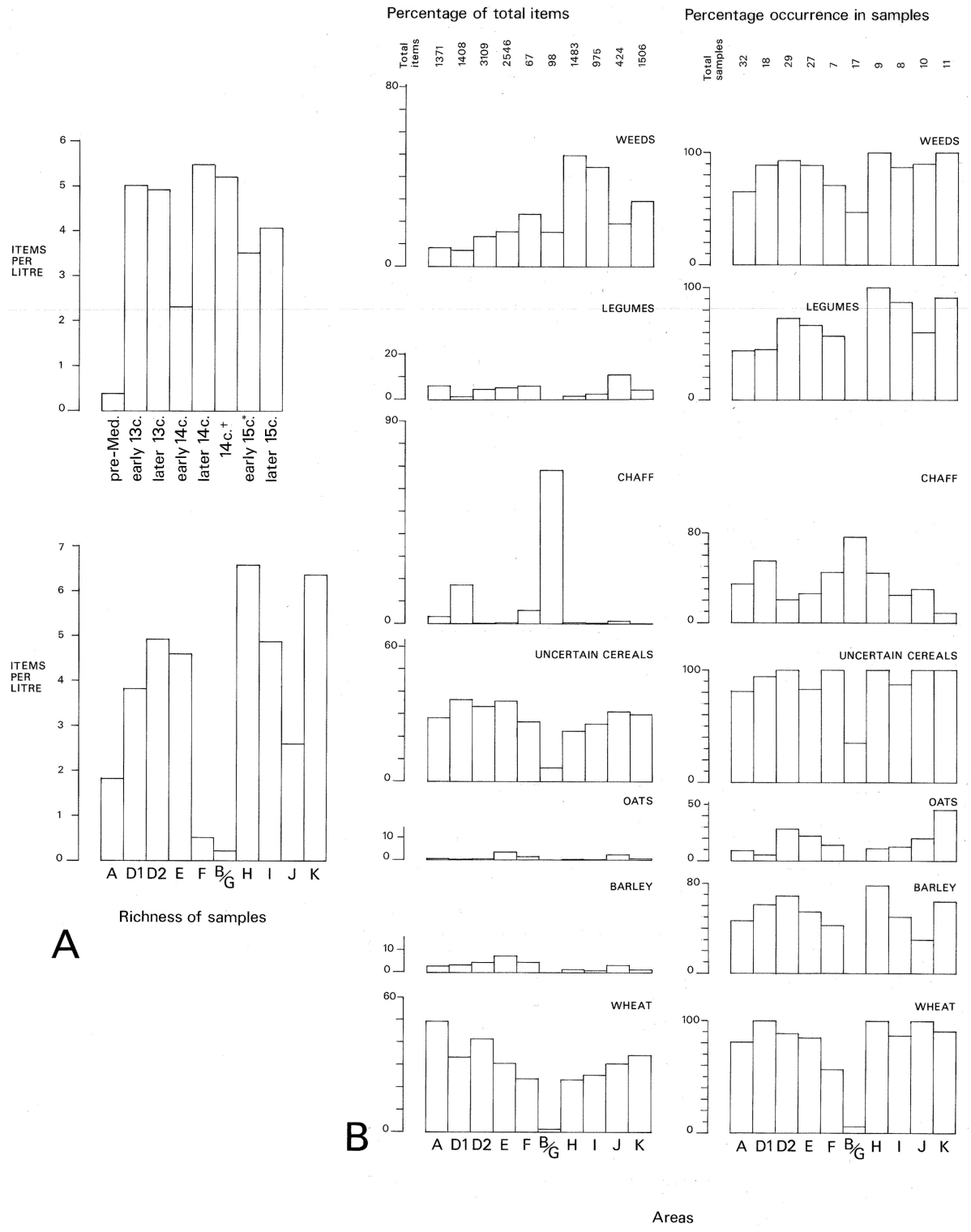

Figure 8.21.2: Plant Economy: A - sample richness by period and area; B – composition by area

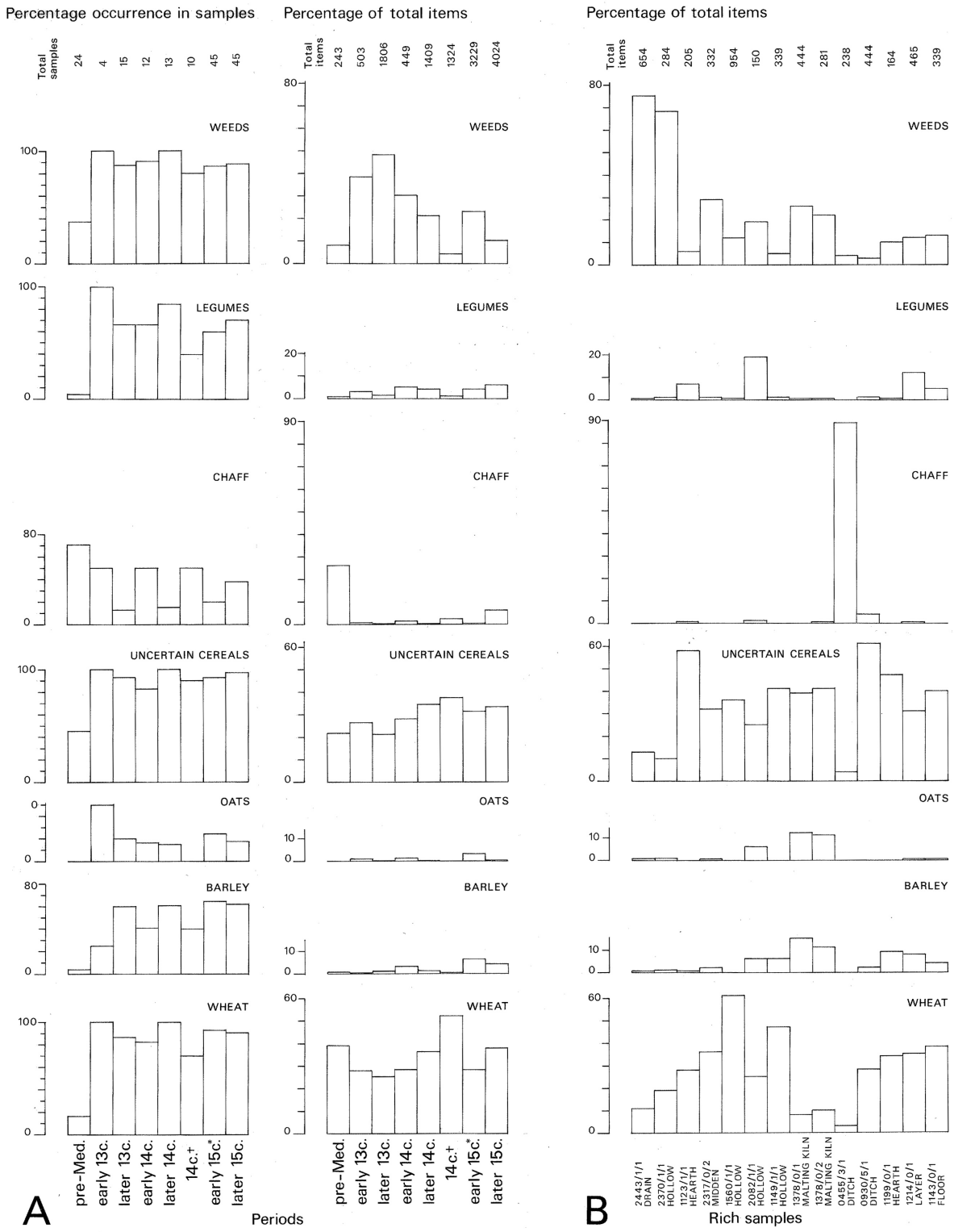

Figure 8.21.3: Plant Economy: A – composition by period; B – composition of rich samples

Charred plant remains: Rich samples
(with >10 items per litre and >100 total items in sample)

Phase	Sample	IPLt	Total items	Context type	% Wheat	% Barley	% Oat	% Cereal	% Chaff	% Legumes	% Weeds	% Other	Date
D15	455/03/1	21.64	238	Ditch/gully	3	-	-	4	89	-	4	-	Mid/late 15c
D15	930/05/1	17.76	444	Ditch/gully	28	2	-	61	4	1	3	<1	Mid/late 15c
D26	1199/00/1	10.93	164	Hearth	34	9	-	47	-	<1	10	-	Mid/late 15c
D26	1214/00/1	18.6	465	Layer	35	8	<1	31	<1	12	12	<1	Mid/late 15c
D23	1560/01/1	38.16	954	Hollow fill	61	-	-	36	-	<1	3	-	14c
E4	1123/01/1	22.78	205	Hearth	28	<1	-	58	<1	7	6	<1	Mid 14c
E6	1143/00/1	13.56	339	Floor surface	38	4	<1	40	-	5	13	<1	Mid/late 15c
E5	1149/01/1	13.56	339	Hollow	47	6	-	41	-	1	5	-	Early 15c
E5	1378/00/1	17.76	444	Malting kiln	8	15	12	39	-	<1	26	-	Early 15c
E5	1378/00/2	44.96	281	Malting kiln	10	13	11	41	<1	<1	22	1	Early 15c
H2	01/01/2443	25.8	645	Drain	11	<1	<1	13	-	<1	75	<1	Mid/late 13c
I2	01/01/2370	11.36	284	Hollow fill	19	1	<1	10	-	1	68	-	Mid/late 13c
J4	01/01/2082	15	150	Hollow fill	25	6	5	25	1	19	19	-	Early 15c
K4	2317/00/2	13.28	332	Midden layer	36	2	<1	32	-	1	29	-	Mid-late 14c

Figure 8.21.4: Charred Plant Remains; rich samples

Phase	Sample	Context type	IPL	Wheat	Barley	Oat	Cereal	Chaff	Legumes	Weeds	Other	Total items	Date
A1	79/01/1	Pit fill	5	90	2	-	40	-	2	5	-	139	Pre-Med
A1	93/01/1	Gully/ditch fill	<1	-	-	-	1	2	-	-	-	3	Pre-Med
A1	97/01/1	Pit fill	<1	-	-	-	-	1	-	-	-	1	Pre-Med
A1	113/01/1	Ditch fill	<1	-	-	-	-	3	-	-	-	3	Pre-Med
A1	164/01/1	Gully fill	<1	-	-	-	1	1	-	-	-	2	Pre-Med
A1	169/01/1	Gully/ditch fill	<1	1	-	-	2	1	-	-	-	4	Pre-Med
A1	252/01/1	Posthole/pit fill	<1	3	-	-	3	-	-	1	-	7	Pre-Med
A1	300/01/1	Pit fill	<1	-	-	-	-	3	-	-	1	4	Pre-Med
B1	191/01/1	Pit/ditch fill	<1	-	-	-	-	1	-	5	-	6	Pre-Med
B1	195/01/1	?Pit fill	<1	-	-	-	1	-	-	-	-	1	Pre-Med
B1	200/01/1	Pit fill	<1	-	-	-	-	-	-	-	1	1	Pre-Med
B1	373/01/1	Gully fill	<1	-	-	-	-	7	-	-	-	7	Pre-Med
B1	377/01/1	Gully fill	<1	-	-	-	1	6	-	1	-	8	Pre-Med
B1	398/01/1	Pit fill	<1	-	-	-	1	4	-	2	1	8	Pre-Med
B1	419/02/1	Gully/hollow fill	<1	-	-	-	-	5	-	1	-	6	Pre-Med
B1	679/01/1	Pit fill	<1	-	-	-	-	10	-	-	-	10	Pre-Med
B1	714/01/1	Hollow fill	<1	2	-	-	-	2	-	3	-	7	Pre-Med
B1	734/01/1	Gully fill	<1	-	-	-	-	5	-	-	-	5	Pre-Med
B1	739/01/1	Gully fill	<1	-	-	-	-	5	-	1	1	7	Pre-Med
B1	773/01/1	Pit	<1	1	-	-	-	5	-	-	1	7	Pre-Med
D21	1799/01/1	Pit/hollow fill	<1	-	-	-	1	-	-	-	-	1	Pre-Med
E1	1767/01/1	Pit fill	<1	-	-	-	1	-	-	-	-	1	Pre-Med
G1	01/01/1955	Pit fill	<1	-	-	-	-	1	-	1	-	2	Pre-Med
G1	01/01/1983	LBA pit fill	<1	-	-	-	1	-	-	-	-	1	Pre-Med
H1	2432/00/1	Pit/ditch	3	17	-	-	10	2	3	33	-	65	Early-mid 13c
K1	2428/00/1	Layer	7	40	1	3	54	1	1	74	2	176	Early-mid 13c
K1	01/01/2463	Ditch fill	6	57	-	-	45	-	5	34	2	143	Early-mid 13c
K1	01/01/2472	Ditch fill	5	27	-	2	25	-	7	55	-	116	Early-mid 13c
H2	01/01/2318	Hollow fill	9	92	3	-	76	-	1	58	-	230	Mid-late 13c
H2	01/01/2443	Hollow fill/layer	26	69	5	2	81	-	4	483	1	645	Mid-late 13c
I2	2309/00/1	Layer	10	79	1	-	85	1	5	76	1	248	Mid-late 13c
I2	01/01/2370	Hollow fill	11	54	4	1	29	-	3	193	-	284	Mid-late 13c
I2	01/01/2389	Layer	3	20	-	-	27	-	2	17	1	67	Mid-late 13c
J2	01/01/2154	Ditch fill	1	7	-	1	4	-	3	13	1	29	13c-late 13c

Figure 8.21.5: Charred plant remains – composition of samples

Phase	Sample	Context type	IPL	Wheat	Barley	Oat	Cereal	Chaff	Legumes	Weeds	Other	Total items	Date
K2	2438/00/1	Rubble surface	1	5	1	-	16	-	1	10	-	33	Mid-late 13c
A2	59/01/1	Pit fill	<1	-	-	-	-	-	-	-	1	1	Late 13c
A2	60/01/1	Pit fill	4	56	1	-	23	-	4	8	-	92	Late 13c
A2	64/01/1	Pit fill	<1	3	-	-	2	-	-	1	-	6	Late 13c
A2	106/01/1	Hearth fill	2	23	1	-	7	-	6	5	-	42	Late 13c
A2	168/01/1	Gully/pit fill	3	40	4	-	24	-	2	1	1	72	Late 13c
A2	242/01/1	Pit fill	2	13	1	-	8	9	-	5	2	38	Late 13c
D12	478/01/1	Pit fill	<1	1	-	-	2	-	-	-	-	3	Late 13c
F2	1427/01/1	Hollow fill	<1	-	-	-	1	-	-	1	1	3	Late 13c
E3	1298/00/1	Layer	<1	-	-	-	-	-	1	2	-	3	Early 14c
E3	1404/00/1	Layer	<1	1	-	-	1	-	-	-	-	2	Early 14c
E3	1661/00/1	Hollow fill	<1	5	3	-	-	-	6	4	-	18	Early 14c
E3	1888/00/1	Malting kiln	1	2	5	4	8	1	1	4	1	26	Early 14c
F3	1301/00/1	Layer	<1	3	1	-	4	2	1	1	1	13	Early 14c
F3	1326/00/1	Layer	<1	4	-	-	5	1	1	7	-	18	Early 14c
H3	2384/00/1	Layer	6	25	1	-	38	2	1	80	1	148	Early 14c
K3	01/01/2387	Burnt patch	1	-	-	-	2	-	-	3	-	5	Early 14c
K3	2488/00/1	Layer	12	25	-	2	23	-	8	28	-	86	Early 14c
D13	447/01/1	Hollow fill	4	55	5	-	34	1	1	4	-	100	Early-mid 14c
D13	629/01/1	Hollow fill	<1	3	-	-	8	-	-	8	-	19	Early-mid 14c
D13	631/01/1	Hollow fill	<1	6	-	-	3	1	-	3	-	13	Early-mid 14c
E4	998/01/1	Drain fill	<1	3	-	-	2	-	-	3	-	8	Mid 14c
E4	999/01/1	Burnt patch	<1	1	-	-	2	-	2	2	-	7	Mid 14c
E4	1123/01/1	Burnt patch	23	57	1	-	119	1	14	12	1	205	Mid 14c
E4	1191/01/1	Burnt patch	<1	3	-	-	6	-	1	4	-	14	Mid 14c
E4	1241/00/1	Layer	<1	6	-	-	10	-	-	2	-	18	Mid 14c
H4	2133/00/1	Layer	1	12	1	-	10	-	1	3	-	27	Mid-late 14c
H4	2137/00/1	Layer	5	56	6	-	38	-	7	28	1	132	Mid-late 14c
H4	2377/00/1	Floor layer?	2	23	-	-	15	1	2	17	-	58	Mid-late 14c
K4	2317/00/1	Layer	9	94	6	1	65	-	16	39	-	221	Mid-late 14c
K4	2317/00/2	Layer	13	120	5	1	107	-	4	95	-	332	Mid-late 14c
K4	2357/00/1	Rubble surface	1	10	1	-	8	-	1	17	-	37	Mid-late 14c
K4	2368/00/1	Layer	5	24	4	-	34	-	15	48	-	125	Mid-late 14c
K4	2445/00/1	Floor layer	9	112	1	-	73	-	1	36	1	224	Mid-late 14c

Figure 8.21.5 (continued): Charred plant remains – composition of samples

Phase	Sample	Context type	IPL	Wheat	Barley	Oat	Cereal	Chaff	Legumes	Weeds	Other	Total items	Date
A3	47/01/1	Pit fill	1	21	2	-	8	15	2	5	1	54	14c
A3	84/01/1	Pit fill	<1	2	1	-	2	4	2	-	-	11	14c
A3	221/01/1	Hollow fill	4	35	4	-	59	-	1	4	3	106	14c
A3	248/01/1	Gully fill	<1	3	-	-	5	-	-	2	-	10	14c
D23	1560/01/1	Hollow fill	38	581	-	-	346	-	3	24	-	954	14c
J3	2107/0/13	Rubbish layer	6	47	4	-	69	-	11	13	-	144	Early-late 14c
J3	2211/0/19	Floor layer	<1	7	-	-	5	-	-	11	-	23	Early-late 14c
A4	140/01/1	Ditch fill	<1	2	1	-	2	-	-	2	-	7	Early 15c
A4	255/02/1	Ditch fill	<1	5	-	-	-	-	-	-	-	5	Early 15c
A4	285/01/1	Ditch fill	<1	11	1	1	6	-	1	3	-	23	Early 15c
H6	01/01/2378	Gully fill	2	17	2	-	10	1	5	15	-	50	Early 15c demol
J4	01/01/2082	Hollow fill	15	38	9	8	37	2	28	28	-	150	Early 15c
J4	2204/0/31	Floor layer	<1	2	-	-	2	-	1	2	-	7	Early 15c
J4	2205/00/5	Floor layer	<1	10	-	-	2	-	-	-	-	12	Early 15c
J5	01/03/2050	Ditch fill	<1	3	-	-	2	-	-	5	-	10	Early 15c demol
J5	03/02/2165	Ditch fill	<1	4	-	-	4	3	-	2	-	13	Early 15c demol
J5	03/05/2165	Ditch fill	1	10	1	-	6	1	1	6	-	25	Early 15c demol
J5	2168/00/7	Slag layer	<1	1	-	-	1	-	1	2	-	5	Early 15c demol
D14	514/01/1	Burning layer	3	9	7	-	11	2	-	22	-	51	Early-mid 15c
D14	574/01/2	Ditch fill	5	58	1	-	47	-	-	9	-	115	Early-mid 15c
D14	598/01/1	Layer	<1	7	3	-	-	-	-	1	-	11	Early-mid 15c
D14	615/01/1	Hollow fill	2	22	2	-	10	-	2	4	-	40	Early-mid 15c
D24	657/01/1	Hearth fill	12	6	-	-	3	-	-	3	-	12	Early-mid 15c
D24	1200/00/2	Floor layer	2	13	2	-	25	-	1	20	-	61	Early-mid 15c
D24	1201/01/1	Burnt patch	2	4	1	-	6	-	-	14	1	26	Early-mid 15c
D24	1230/00/1	Ashy layer	6	80	5	1	35	-	11	20	1	153	Early-mid 15c
D24	1275/01/1	Ashy patch	6	21	13	2	57	-	-	68	-	161	Early-mid 15c
D24	1289/00/1	Floor layer	3	23	-	4	16	-	4	18	1	66	Early-mid 15c
D24	1315/01/1	Hearth fill	2	8	9	-	11	-	1	-	-	29	Early-mid 15c
D24	1475/01/1	Ashy patch	3	10	5	-	21	-	4	38	-	78	Early-mid 15c
D24	1479/01/1	Hollow fill	3	19	4	-	27	-	15	13	-	78	Early-mid 15c
D24	1543/01/1	Hollow fill	2	7	2	1	12	-	2	18	-	42	Early-mid 15c
D24	1548/04/1	Layer/ditch fill	<1	6	-	-	3	-	-	2	-	11	Early-mid 15c

Figure 8.21.5 (continued): Charred plant remains – composition of samples

Phase	Sample	Context type	IPL	Wheat	Barley	Oat	Cereal	Chaff	Legumes	Weeds	Other	Total items	Date
F4	1164/00/1	Floor layer	<1	3	-	-	1	-	-	1	-	5	Early-mid 15c
F4	1239/00/1	Floor layer	<1	-	1	-	2	1	-	4	-	8	Early-mid 15c
F4	1282/01/1	Hollow fill	2	6	1	1	4	-	1	3	1	17	Early-mid 15c
I4	2307/00/1	Floor layer	<1	2	-	-	-	1	2	-	-	5	Early-mid 15c
I4	2313/00/1	Floor layer	<1	-	-	-	1	-	-	1	-	2	Early-mid 15c
I4	2315/00/1	Floor layer	7	31	1	-	54	-	5	86	1	178	Early-mid 15c
I4	01/01/2375	Gully fill	3	29	-	-	24	-	2	16	-	71	Early-mid 15c
W2	2112/00/3	Layer	1	7	-	-	8	-	3	15	-	33	Early-mid 15c
E5	1136/00/1	Floor layer	<1	-	-	-	1	-	-	-	-	1	Early/mid-late 15c
E5	1149/01/1	Pit fill	14	159	20	-	140	-	3	17	-	339	Early/mid-late 15c
E5	1162/00/1	Rubble surface	4	38	4	-	33	-	17	5	-	97	Early/mid-late 15c
E5	1270/00/1	Burnt layer	5	43	7	1	60	-	10	4	-	125	Early/mid-late 15c
E5	1351/00/1	Layer	<1	3	1	-	2	-	-	4	-	10	Early/mid-late 15c
E5	1378/00/1	Malting kiln	18	37	65	52	173	-	2	115	-	444	Early/mid-late 15c
E5	1378/00/2	Malting kiln	45	27	37	31	115	2	2	63	4	281	Early/mid-late 15c
E5	1653/01/1	Stone tank fill	2	23	-	-	7	-	-	3	-	33	Early/mid-late 15c
E5	1655/01/1	Gully fill	1	5	-	-	3	2	2	5	-	17	Early/mid-late 15c
E5	1659/03/1	Hearth layer	8	14	3	2	6	-	1	50	-	76	Early/mid-late 15c
A5	42/00/2	Floor surface?	4	39	5	1	41	-	1	14	-	101	Mid-late 15c
A5	98/00/2	Floor surface	<1	1	-	-	1	2	-	-	-	4	Mid-late 15c
A5	110/01/1	Pit fill	<1	2	-	-	-	-	-	1	-	3	Mid-late 15c
A5	111/00/1	Layer	<1	2	-	-	4	-	4	-	-	10	Mid-late 15c
A5	136/03/1	Pit fill	<1	6	-	-	1	-	2	2	-	11	Mid-late 15c
A5	152/00/1	Layer	5	59	-	-	40	-	8	18	-	125	Mid-late 15c
A5	209/00/1	Layer	<1	4	-	-	3	-	-	-	-	7	Mid-late 15c
A5	287/01/1	Hollow fill	4	53	2	-	8	-	-	2	-	65	Mid-late 15c
D15	430/02/1	Layer	<1	1	-	-	4	-	-	6	-	11	Mid-late 15c
D15	431/01/1	Gully fill	1	16	1	-	6	2	1	3	-	29	Mid-late 15c
D15	437/02/1	Ditch fill	<1	8	-	-	8	1	-	3	-	20	Mid-late 15c
D15	454/04/1	Ditch fill	<1	1	1	-	1	-	-	-	-	3	Mid-late 15c
D15	455/03/1	Ditch fill	22	6	-	-	10	212	-	10	-	238	Mid-late 15c
D15	503/01/1	Gully fill	3	44	4	-	30	2	1	5	-	86	Mid-late 15c
D15	510/01/1	Pit fill	2	19	-	-	13	2	2	9	1	46	Mid-late 15c
D15	512/01/1	Ditch fill	5	78	10	-	32	1	3	4	-	128	Mid-late 15c
D15	836/04/1	Ditch fill	2	18	1	1	23	-	1	6	-	50	Mid-late 15c

Figure 8.21.5 (continued): Charred plant remains – composition of samples

Phase	Sample	Context type	IPL	Wheat	Barley	Oat	Cereal	Chaff	Legumes	Weeds	Other	Total items	Date
D15	930/05/1	Ditch fill	18	125	9	-	272	17	6	14	1	444	Mid-late 15c
D25	577/00/2	Floor layer?	<1	5	1	-	7	1	4	4	-	22	Mid-late 15c
D25	666/00/1	Layer	2	22	10	-	20	1	3	4	-	60	Mid-late 15c
D25	1134/01/1	Floor layer	<1	-	-	-	1	-	1	1	-	3	Mid-late 15c
D25	1194/01/1	Hollow fill	1	5	4	-	9	-	1	4	1	24	Mid-late 15c
D25	1202/00/1	Floor layer	<1	-	-	-	2	-	-	3	-	5	Mid-late 15c
D25	1233/00/1	Layer	4	33	5	-	28	1	2	32	3	104	Mid-late 15c
D25	1242/02/1	Gully fill	2	31	2	1	13	-	2	3	-	52	Mid-late 15c
D25	1468/01/1	Gully fill	4	28	16	-	39	2	8	13	-	106	Mid-late 15c
F5	913/00/1	Floor layer	<1	-	-	-	1	-	1	-	-	2	Mid-late 15c
A6	27/00/1	Demolition rubble	8	112	6	1	29	1	17	18	14	198	Late 15c demol
A6	66/00/1	Layer	5	40	3	-	26	-	18	8	-	95	Late 15c demol
A6	66/00/2	Layer	5	49	5	-	45	-	7	12	-	118	Late 15c demol
D26	556/01/1	Stone drain fill	2	15	2	-	13	-	2	3	-	35	Late 15c
D26	925/00/1	Layer	8	94	8	-	79	-	11	16	1	209	Late 15c
D26	992/01/1	Ashy layer	<1	10	1	1	4	-	-	3	-	19	Late 15c
D26	1130/00/1	Floor layer	<1	6	1	-	9	-	1	3	-	20	Late 15c
D26	1172/01/1	Gully fill	4	41	-	-	33	-	10	11	1	96	Late 15c
D26	1199/00/1	Burnt patch	11	56	14	-	77	-	1	16	-	164	Late 15c
D26	1203/00/1	Floor layer	1	10	-	1	8	-	-	18	-	37	Late 15c
D26	1214/00/1	Layer	19	165	36	2	146	2	55	57	2	465	Late 15c
E6	909/00/1	Layer	<1	2	-	-	4	-	-	3	-	9	Late 15c
E6	977/01/1	Burnt patch	<1	-	-	-	2	-	-	14	2	18	Late 15c
E6	1143/00/1	Ashy layer	14	129	12	1	134	-	17	44	2	339	Late 15c
E6	1192/01/1	Hollow fill	2	14	1	-	25	-	8	14	-	62	Late 15c
E6	1679/01/1	Hearth	4	49	1	-	28	1	4	15	-	98	Late 15c
E7	874/00/2	Layer	9	117	10	-	60	-	13	15	-	215	Late 15c demol
E7	1180/00/1	Layer	4	13	8	-	14	1	15	4	-	55	Late 15c demol
B2	177/01/1	Pit fill	<1	-	-	-	1	-	-	1	-	2	Medieval
B2	378/01/1	Gully/pit fill	<1	-	-	-	-	6	-	-	-	6	Medieval
B2	425/01/1	Pit/hollow fill	<1	-	-	-	1	8	-	2	1	12	Medieval
H7	2222/00/1	Layer	5	47	1	-	57	-	2	20	1	128	Early post-Med
		Totals		4440	463	130	4083	382	511	2761	67	12837	

Figure 8.21.5 (continued): Charred plant remains – composition of samples

Complete list of plant species

Taxonomy of wild species follows Stace (2010)

Taxon	Common name	No. of items on site	No. of samples occurring (out of 168)
Cultivated plants			
Triticum dicoccum/spelta	emmer/spelt	201	27
Triticum durum/turgidum	macaroni/rivet wheat	2	2
Triticum cf. *durum/turgidum*	macaroni/rivet wheat	2	2
Triticum spelta L.	spelt	135	34
Triticum cf. *spelta* L.	spelt	6	5
Triticum spelta/aestivum	spelt/bread wheat	4	3
Triticum cf. *spelta/aestivum*	spelt/bread wheat	4	1
Triticum aestivum s.l. (not incl. spelt)	bread/club wheat	5	5
Triticum cf. *aestivum* s.l.	bread/club wheat	4	2
Triticum sp. free-threshing	free-threshing wheat	1177	92
Triticum sp. cf. free-threshing	free-threshing wheat	1	1
Triticum sp.	wheat	3322	143
cf. *Triticum* sp.	wheat	1	1
Triticum/Secale	wheat/rye	10	7
cf. *Secale cereale* L.	rye	1	1
Hordeum vulgare L., hulled	hulled barley	27	15
Hordeum vulgare L., hulled germinated	-	2	1
Hordeum vulgare L.	barley	448	87
Hordeum vulgare L., germinated	-	44	2
cf. *Hordeum vulgare* L.	barley	5	1
Avena sp.	wild/cultivated oat	59	22
Avena sp. germinated	-	13	2
Avena/Large Poaceae	oat/large-seeded grass	70	12
Avena/Large Poaceae, germinated	-	6	1
Cereal indet.	unidentifiable cereal	3987	146
Cereal indet. coleoptiles	cereal sprouts	1	1
Cereal/Large Poaceae	cereal/large grass	5	5
Cereal/Poaceae coleoptiles	cereal/grass sprouts	2	1
Vicia sativa ssp. *sativa* (L.) Boiss.	cultivated vetch	1	1
cf. *Vicia sativa* ssp. *sativa* (L.) Boiss.	cultivated vetch	7	6
Vicia sativa/faba	cultivated vetch/bean	1	1
Vicia faba var. *minuta* (Alef.) Mansf.	Celtic bean	6	3
cf. *Vicia faba* var. *minuta* (Alef.) Mansf.	Celtic bean	1	1
Vicia faba L.	field bean	14	12
cf. *Vicia faba* L.	field bean	9	8
Pisum sativum L.	pea	11	10
cf. *Pisum sativum* L.	pea	10	9
Vicia/Pisum	bean/pea	84	27
Vicia/Lathyrus/Pisum	bean/vetch/vetchling/pea	402	70

Figure 8.21.6: Complete list of plant species

Taxon	Common name	No. of items on site	No. of samples occurring (out of 168)
Wild plants			
Ranunculus acris/repens/bulbosus	buttercups	3	3
Ranunculus parviflorus L.	small-flowered buttercup	1	1
Ranunculus arvensis L.	corn crowfoot	5	5
cf. *Ranunuculus arvensis* L.	corn crowfoot	1	1
Ranunculus flammula/reptans	lesser/creeping spearwort	1	1
cf. *Ranunculus* sp.	? crowfoot/buttercup	1	1
Vicia hirsuta (L.) S.F. Gray	hairy tare	2	2
Vicia hirsuta (L.) S.F. Gray (immature)	hairy tare	1	1
Vicia ? *parviflora* Cav.	slender tare	1	1
Vicia cf. *tetrasperma* (L.) Shreber	smooth tare	6	3
cf. *Lathyrus aphaca* L.	yellow vetchling	1	1
Lathyrus pratensis L.	meadow vetchling	1	1
Vicia/Lathyrus	vetch/vetchling	1317	101
Medicago lupulina L.	black medick	2	1
Trifolium type	clover type	14	8
*Melilotus/Medicago/*large seeded *Trifolium*	melilot/medick/clover	494	90
Genista/Ulex type	greenweed/gorse	1	1
Fabaceae indet.	pea family	4	3
cf. Fabaceae indet.	? pea family	1	1
Prunus sp.	sloe/bullace/damson/cherry	2	2
cf. *Prunus* sp.	? sloe/bullace/damson/cherry	2	1
? Rosaceae	? Rose family	2	1
Corylus avellana L.	hazel	7	6
cf. *Corylus avellana* L.	hazel	1	1
Brassica rapa L.	wild turnip/turnip	27	3
Brassica cf. *rapa* L.	? wild turnip/turnip	20	10
Brassica rapa/nigra	wild turnip/black mustard	115	23
Brassica sp.	wild cabbage/turnip/mustard	1	1
Brassica/Sinapis	wild cabbage/turnip/mustard	1	1
Raphanus raphanistrum L.	wild radish	2	2
Brassicaceae indet.	cabbage family	25	3
Polygonum aviculare agg.	knotgrass	18	13
Polygonum cf. *aviculare agg.*	knotgrass	2	1
Polygonum sp.	? knotgrass	1	1
Fallopia convolvulus (L.) Á. Löve	black bindweed	5	5
Rumex acetosella L.	sheep's sorrel	4	2
Rumex sp.	dock	292	80
cf. *Rumex* sp.	? dock	5	3
Polygonaceae indet.	knotweed family	2	2
cf. Polygonaceae indet.	? knotweed family	9	2

Figure 8.21.6 (continued): Complete list of plant species

Taxon	Common name	No. of items on site	No. of samples occurring (out of 168)
Wild plants (cont'd)			
Polygonaceae/Cyperacae indet	knotweed family/sedge family	17	7
Agrostemma githago L.	corn cockle	7	7
Caryophyllaceae indet.	pink family	3	3
Chenopodium sp.	goosefoot etc.	4	4
Atriplex sp.	orache	2	2
Amaranthaceae indet.	goosefoot family	14	9
cf. Amaranthaceae indet.	? goosefoot family	3	3
cf. *Calluna vulgaris* L. (immature flower)	? heather	1	1
Sherardia arvensis L.	field madder	3	3
Galium palustre L.	marsh bedstraw	1	1
Galium aparine L.	cleavers	7	7
Galium sp.	bedstraw	7	5
Hyoscyamus niger L.	henbane	32	6
Solanum nigrum L.	black nightshade	1	1
Veronica hederifolia L.	ivy-leaved speedwell	2	2
cf. *Veronica hederifolia*	? ivy-leave speedwell	1	1
Rhinanthus sp.	yellow rattle	7	1
Centaurea cyanus L.	cornflower	1	1
Helminthotheca echioides (L.) Holub	bristly oxtongue	2	1
Anthemis cotula L.	stinking mayweed	2	2
Asteraceae indet.	daisy family	2	2
cf. Asteraceae indet.	? daisy family	2	2
Scandix pectin-veneris L.	shepherd's needle	4	3
cf. *Scandix pectin-verneris* L.	? shepherd's needle	5	5
Conium maculatum L.	hemlock	4	1
Bupleurum rotundifolium L.	thorow wax	1	1
Apiaceae indet.	carrot family	14	9
cf. Apiaceae indet.	? carrot family	1	1
Sparganium sp.	bur-reed	2	2
Eleocharis palustris/uniglumis	spike-rush	6	5
Carex sp.	sedge	38	26
cf. *Carex* sp.	? sedge	1	1
Lolium temulentum L.	darnel	4	1
cf. *Lolium temulentum*	? darnel	4	4
Arrhenatherum elatius (L.) P. Beauv. ex J.&C.Presl	false oat grass	1	1
Poaceae indet.	grass family	181	73
cf. Poaceae indet.	? grass family	4	4
cf. *Claviceps purpurea*	ergot	1	1
Tree/shrub buds	-	4	4

Figure 8.21.6 (continued): Complete list of plant species

Key: br = basal rachis, cmbs = culm bases, cmnd = culm nodes, col=coleoptiles, ctip=calyxtip,, flbs=flowerbase, flr=flower, frg = fragment, ggr = germinated grain, gb = glume bases, pdfr = pod fragment, r = rachises, rh/rt = rhizome/root, spfk = spikelet forks, tbr = tuber. All other items are 'seeds' in the broad sense unless noted otherwise. Identifications by Lisa Moffett.

Context:	**79/01/1**	**93/01/1**	**97/01/1**	**113/01/1**	**164/01/1**	**169/01/1**	**252/01/1**	**300/01/1**	**191/01/1**	**195/01/1**	**200/01/1**	**373/01/1**
Sample volume (litres):	28	22	18	22	15	20	15	25	25	22	18	27
% analysed:	100	100	100	100	100	100	100	100	100	100	100	100
Items per litre:	5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	0
Phase:	A1	A1	A1	A1	A1	A1	A1	A1	B1	B1	B1	B1
Period:	pre-Med	pre-Med	pre-Med	pre-Med	pre-Med	pre-Med	pre-Med	pre-Med	pre-Med	pre-Med	pre-Med	pre-Med
Cultivated plants												
Triticum dicoccum/spelta (spfk)	-	-	-	-	-	-	-	1	-	-	-	-
Triticum dicoccum/spelta (gb)	-	1	-	1	1	-	-	2	-	-	-	3
Triticum cf. *spelta* (r)	-	-	-	-	-	-	-	-	-	-	-	1
Triticum spelta (gb)	-	1	-	2	-	1	-	-	-	-	-	3
Triticum cf. *spelta* (gb)	-	-	1	-	-	-	-	-	1	-	-	-
Triticum sp. free-threshing	27	-	-	-	-	-	3	-	-	-	-	-
Triticum sp.	63	-	-	-	-	1	-	-	-	-	-	-
Hordeum vulgare	2	-	-	-	-	-	-	-	-	-	-	-
Cereal indet.	40	1	-	-	1	2	3	-	-	1	-	-
Vicia/Pisum	*2*	-	-	-	-	-	-	-	-	-	-	-
Wild plants												
Vicia hirsuta	1	-	-	-	-	-	-	-	1	-	-	-
Vicia tetrasperma	1	-	-	-	-	-	-	-	-	-	-	-
Vicia/Lathyrus	1	-	-	-	-	-	-	-	4	-	-	-
Medicago/Melilotus/Large -seeded *Trifolium*	1	-	-	-	-	-	-	-	-	-	-	-
Polygonum aviculare agg.	1	-	-	-	-	-	-	-	-	-	-	-
Poaceae indet. (cmbs)	-	-	-	-	-	-	-	-	-	-	1	-
Poaceae indet.	-	-	-	-	-	-	1	-	-	-	-	-
Unidentified (rh/rt)	-	-	-	-	-	-	-	1	-	-	-	-

Figure 8.21.7: Detailed species data

Context:	**377/01/1**	**398/01/1**	**419/02/1**	**679/01/1**	**714/01/1**	**734/01/1**	**739/01/1**	**773/01/1**	**1799/01/1**	**1767/01/1**	**01/01/1955**	**01/01/1983**	**2432/00/1**
Sample volume (litres):	25	25	25	25	25	25	25	25	25	25	25	25	25
% analysed:	100	100	100	100	100	100	100	100	100	100	100	100	100
Items per litre:	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	3
Phase:	B1	B1	B1	B1	B1	B1	B1	B1	D21	E1	G1	G1	H1
Period:	pre-Med	pre-Med	pre-Med	pre-Med	pre-Med	pre-Med	pre-Med	pre-Med	pre-Med	pre-Med	pre-Med	pre-Med	E/M 13c
Cultivated plants													
Triticum dicoccum/spelta (gb)	2	2	4	3	2	1	3	2	-	-	-	-	-
Triticum durum/turgidum (r)	-	-	-	-	-	-	-	-	-	-	-	-	1
Triticum spelta (r)	-	-	-	1	-	-	-	-	-	-	-	-	-
Triticum spelta (gb)	4	2	1	6	2	4	2	3	-	-	1	-	-
Triticum aestivum s.l. (r)	-	-	-	-	-	-	-	-	-	-	-	-	1
Triticum sp. free-threshing	-	-	-	-	-	-	-	-	-	-	-	-	1
Triticum sp.	-	-	-	-	-	-	-	1	-	-	-	-	16
Cereal indet.	1	1	-	-	-	-	-	-	1	1	-	1	10
Vicia/Pisum/Lathyrus	-	-	-	-	-	-	-	-	-	-	-	-	3
Wild plants													
Vicia/Lathyrus	-	-	1	-	2	-	-	-	-	-	1	-	18
Medicago/Melilotus/Large-seeded *Trifolium*	-	1	-	-	-	-	-	-	-	-	-	-	6
Brassica rapa/nigra	-	-	-	-	-	-	-	-	-	-	-	-	1
Polygonum aviculare agg.	-	-	-	-	-	-	-	-	-	-	-	-	1
Fallopia convolvulus	-	-	-	-	-	-	-	-	-	-	-	-	1
Rumex acetosella agg.	-	1	-	-	-	-	-	-	-	-	-	-	-
Rumex sp.	1	-	-	-	-	-	-	-	-	-	-	-	-
cf. Polygonaceae indet.	-	-	-	-	-	-	-	-	-	-	-	-	2
cf. Amaranthaceae indet.	-	-	-	-	-	-	1	-	-	-	-	-	-
Galium aparine	-	-	-	-	1	-	-	-	-	-	-	-	-
Apiaceae indet.	-	-	-	-	-	-	-	-	-	-	-	-	2
Carex sp.	-	-	-	-	-	-	-	-	-	-	-	-	1
Poaceae indet. (cmbs)	-	1	-	-	-	-	2	1	-	-	-	-	-
Poaceae indet.	-	-	-	-	-	-	-	-	-	-	-	-	1
Unidentified	-	-	-	-	-	-	-	1	-	-	-	-	-

Figure 8.21.7 (continued): Detailed species data

Context:	**2428/00/1**	**01/01/2463**	**01/01/2472**	**01/01/2318**	**01/01/2443**	**2309/00/1**	**01/01/2370**	**01/01/2389**	**01/01/2154**	**2438/00/1**	**59/01/1**	**60/01/1**	**64/01/1**
Sample volume (litres):	25	25	25	25	25	25	25	25	25	25	10	22	8
% analysed:	100	100	100	100	100	100	100	100	100	100	100	100	100
Items per litre:	7	6	5	9	26	10	11	3	1	1	<1	4	0
Phase:	K1	K1	K1	H2	H2	I2	I2	I2	J2	K2	A2	A2	A2
Period:	E/M 13c	E/M 13c	E/M 13c	M/L 13c	M/L 13c	M/L 13c	M/L 13c	M/L 13c	M/L 13c	M/L 13c	L 13c	L 13c	L 13c
Cultivated plants													
Triticum spelta (r)	1	-	-	-	-	-	-	-	-	-	-	-	-
Triticum spelta type (r)	-	-	-	-	-	1	-	-	-	-	-	-	-
Triticum aestivum s.l. (r)	-	-	-	-	-	1	-	-	-	-	-	-	-
Triticum sp. free-threshing	14	3	5	16	16	13	6	5	3	-	-	8	-
Triticum sp. (r)	1	-	-	-	-	-	-	-	-	-	-	-	-
Triticum sp.	26	54	22	76	53	66	48	15	4	5	-	47	3
Hordeum vulgare	1	-	-	3	5	1	4	-	-	1	-	1	-
Avena sp.	3	-	2	-	2	-	1	-	1	-	-	-	-
Cereal indet.	54	45	25	76	81	85	29	27	4	16	-	23	2
Cereal/Large Poaceae (cmnd)	-	-	1	-	-	-	-	-	-	-	-	-	-
cf. *Vicia faba*	1	-	-	-	-	-	-	-	-	-	-	-	-
cf. *Pisum sativum*	-	-	-	-	-	-	-	-	-	-	-	1	-
Vicia/Pisum	-	-	-	1	-	-	3	-	-	3	-	-	-
Vicia/Pisum/Lathyrus	-	5	7	-	4	5	-	2	3	-	-	3	-
Wild plants													
Vicia hirsuta (immature)	-	-	-	-	1	-	-	-	-	-	-	-	-
Vicia tetrasperma	-	-	-	-	7	-	-	-	-	-	-	-	-
Vicia cf. *tetrasperma*	-	-	-	4	-	-	1	1	-	-	-	-	-
Vicia/Lathyrus	51	26	29	41	402	29	146	10	2	6	-	2	-
Medicago/Melilotus/Large *Trifolium*	4	4	10	4	22	28	16	4	5	3	-	2	-
cf. *Prunus* sp. (frg)	-	-	-	-	-	-	-	-	1	1	-	-	-
Corylus avellana (frg)	1	2	-	-	-	-	-	-	-	-	-	-	-
cf. *Corylus avellana* (frg)	-	-	-	-	-	-	-	1	-	-	-	-	-
Brassica cf. *rapa*	-	-	-	-	4	-	-	-	-	-	-	-	-
Brassica rapa/nigra	3	-	3	1	-	5	4	1	-	-	-	-	-
Polygonum aviculare agg.	2	-	-	-	2	1	1	1	-	-	-	-	-
Rumex sp.	4	1	3	3	24	6	8	3	5	1	-	2	-
Polygonaceae indet.	1	-	-	-	-	-	-	-	-	-	-	-	-
Agrostemma githago	-	-	-	-	1	-	-	-	-	-	-	-	-
Agrostemma githago (ctip)	-	-	-	1	-	-	1	-	-	-	-	-	-
Chenopodium sp.	-	-	-	-	1	-	-	-	-	-	-	-	-
Amaranthaceae indet.	1	-	1	-	-	-	-	-	1	-	-	1	-
Galium aparine	-	-	-	-	1	-	-	-	-	-	-	-	-
Galium sp.	1	-	-	-	-	-	-	-	-	-	-	-	-
Centaurea cyanus	-	-	-	-	-	-	1	-	-	-	-	-	-
cf. *Centaurea* sp.	-	-	-	1	-	-	3	-	-	-	-	-	-
Anthemis cotula	-	-	-	-	-	1	-	-	-	-	-	-	-
Asteraceae indet.	-	-	-	-	-	-	-	-	-	-	-	1	-
Scandix pecten-veneris	1	-	-	-	-	-	-	-	-	-	-	-	-
cf. *Scandix pecten-veneris*	-	-	-	-	1	1	-	-	-	-	-	-	-
Bupleurum rotundifolium	-	-	-	-	-	-	1	-	-	-	-	-	-
Apiaceae indet.	-	-	-	-	2	2	2	-	-	-	-	-	-
cf. Apiaceae indet.	-	-	1	-	-	-	-	-	-	-	-	-	-
Sparganium sp.	-	-	-	-	1	-	-	-	-	-	-	-	-
Carex sp.	1	-	4	-	2	-	-	-	-	-	-	-	-
Arrhenatherum elatius (tbr)	-	-	-	-	-	-	-	-	-	-	1	-	-
Poaceae indet. (cmnd)	1	-	-	-	-	-	1	-	-	-	-	-	-
Poaceae indet.	4	3	4	3	13	3	8	2	-	-	-	-	1
Unidentified	1	1	-	-	-	-	-	2	3	-	-	-	-

Figure 8.21.7 (continued): Detailed species data

Context:	**106/01/1**	**168/01/1**	**242/01/1**	**478/01/1**	**1427/01/1**	**1298/00/1**	**1404/00/1**	**1661/00/1**	**1888/00/1**	**1301/00/1**	**1326/00/1**	**2384/00/1**	**01/01/2387**
Sample volume (litres):	18	23	25	25	25	25	25	20	25	25	25	25	5
% analysed:	100	100	100	100	100	100	100	100	100	100	100	100	100
Items per litre:	2	3	2	<1	<1	<1	<1	1	1	1	1	6	1
Phase:	A2	A2	A2	D12	F2	E3	E3	E3	E3	F3	F3	H3	K3
Period:	L 13c	L 13c	L 13c	L 13c	L 13c	E 14c	E 14c	E 14c	E 14c	E 14c	E 14c	E 14c	E 14c
Cultivated plants													
Triticum dicoccum/spelta (gb)	-	-	5	-	-	-	-	-	-	-	-	-	-
Triticum cf. *durum/turgidum* (r)	-	-	-	-	-	-	-	-	-	-	-	1	-
Triticum spelta (gb)	-	-	4	-	-	-	-	-	1	-	-	-	-
Triticum sp. free-threshing (r)	-	-	-	-	-	-	-	-	-	1	-	-	-
Triticum sp. free-threshing	10	17	1	-	-	-	-	3	-	-	-	-	-
Triticum sp. (r)	-	-	-	-	-	-	-	-	-	-	1	-	-
Triticum sp. (spfk)	-	-	-	-	-	-	-	-	-	1	-	-	-
Triticum sp.	13	23	12	1	-	-	1	2	2	3	4	25	-
Hordeum vulgare hulled (ggr)	-	-	-	-	-	-	-	-	2	-	-	-	-
Hordeum vulgare	1	4	1	-	-	-	-	3	3	1	-	1	-
Avena sp.	-	-	-	-	-	-	-	-	2	-	-	-	-
Avena/Large Poaceae	-	-	-	-	-	-	-	-	2	-	-	-	-
Cereal indet.	7	24	8	2	1	-	1	-	8	4	5	38	2
Cereal/Large Poaceae (cmnd)	-	-	-	-	-	-	-	-	-	-	-	1	-
cf. *Vicia sativa* ssp. *Sativa*	1	-	-	-	-	-	-	-	-	-	1	-	-
Pisum sativum	-	-	-	-	-	-	-	1	-	-	-	-	-
Vicia/Pisum	5	-	-	-	-	1	-	-	1	-	-	-	-
Vicia/Pisum/Lathyrus	-	1	-	-	-	-	-	8	-	1	-	1	-
Wild plants													
Vicia tetrasperma	-	-	-	-	-	-	-	-	-	-	1	-	-
Vicia/Lathyrus	-	1	-	-	-	1	-	1	2	-	3	57	-
Trifolium type	1	-	-	-	-	-	-	-	-	-	-	-	-
Medicago/Melilotus/Large *Trifolium*	-	-	3	-	-	-	-	-	-	-	-	13	-
Fabaceae indet.	-	-	-	-	-	-	-	-	-	-	-	-	1
Corylus avellana (frg)	-	-	-	-	-	-	-	-	1	-	-	1	-
Brassica rapa/nigra	-	-	-	-	-	-	-	-	-	-	2	1	-
Polygonum aviculare agg.	1	-	-	-	-	-	-	-	-	-	-	-	-
Fallopia convolvulus	-	-	-	-	-	-	-	-	-	-	-	-	1
Rumex sp.	2	-	-	-	-	1	-	-	-	1	1	3	1
Polygonaceae/Cyperaceae	-	-	2	-	-	-	-	-	-	-	-	-	-
Amaranthaceae indet.	-	-	-	-	-	-	-	-	-	-	-	2	-
Carex sp.	1	-	-	-	-	-	-	-	-	-	-	2	-
Poaceae indet. (cmnd)	-	-	-	-	-	-	-	-	-	-	-	1	-
Poaceae indet.	-	1	-	-	1	-	-	-	2	-	-	1	-
cf. Poaceae (rh)	-	-	1	-	1	-	-	-	-	1	-	-	-
Unidentified (flbs)	1	1	1	-	-	-	-	-	-	-	-	-	-

Figure 8.21.7 (continued): Detailed species data

Context:	**2488/00/1**	**447/01/1**	**629/01/1**	**631/01/1**	**998/01/1**	**999/01/1**	**1123/01/1**	**1191/01/1**	**1241/00/1**	**2133/00/1**	**2137/00/1**	**2377/00/1**	**2317/00/1**
Sample volume (litres):	7	25	25	25	23	25	9	15	25	25	25	25	25
% analysed:	100	100	100	100	100	100	100	100	100	100	100	100	100
Items per litre:	12	4	1	1	<1	<1	23	1	1	1	5	2	9
Phase:	K3	D13	D13	D13	E4	E4	E4	E4	E4	H4	H4	H4	K4
Period:	E 14c	E/M 14c	E/M 14c	E/M 14c	M 14c	M 14c	M 14c	M 14c	M 14c	M-L 14c	M-L 14c	M-L 14c	M-L 14c
Cultivated plants													
Triticum dicoccum/spelta (gb)	-	1	-	1	-	-	-	-	-	-	-	-	-
Triticum sp. free-threshing (r)	-	-	-	-	-	-	1	-	-	-	-	-	-
Triticum sp. free-threshing	8	12	-	3	-	-	12	-	-	-	10	6	24
Triticum sp. (r)	-	-	-	-	-	-	-	-	-	-	-	1	-
Triticum sp.	17	43	3	3	3	1	45	3	6	12	42	17	70
Triticum/Secale	-	-	-	1	-	-	-	-	-	-	-	-	-
Hordeum vulgare hulled	-	-	-	-	-	-	-	-	-	-	-	-	1
Hordeum vulgare	-	5	-	-	-	-	1	-	-	1	6	-	5
Avena sp.	-	-	-	-	-	-	-	-	-	-	-	-	1
Avena/Large Poaceae	2	-	-	-	-	-	-	-	-	-	-	-	-
Cereal indet.	23	34	8	2	2	2	119	6	10	10	38	15	65
Vicia faba	-	-	-	-	-	1	-	-	-	-	-	-	-
Vicia/Pisum	-	1	-	-	-	-	-	-	-	-	4	-	16
Vicia/Pisum/Lathyrus	8	-	-	-	-	1	14	1	-	1	3	2	-
Wild plants													
Ranunculus parviflorus	-	-	-	-	-	-	-	-	-	-	1	-	-
Vicia tetrasperma	-	-	-	-	-	-	-	-	-	-	1	1	-
Vicia/Lathyrus	5	1	1	-	-	-	1	1	-	1	9	7	16
Trifolium type	-	-	3	3	-	-	-	-	-	-	-	-	-
Medicago/Melilotus/Large *Trifolium*	9	2	-	-	1	1	1	1	-	1	8	5	11
Prunus sp. (frg)	-	-	-	-	-	-	-	-	-	-	1	-	-
Brassica cf. *rapa*	-	-	-	-	-	-	-	-	-	-	-	-	1
Brassica rapa/nigra	-	-	-	-	1	-	-	-	1	-	1	-	-
Rumex sp.	5	1	1	-	-	1	6	1	-	-	3	2	8
Polygonaceae/Cyperaceae	-	-	-	-	-	-	-	-	-	1	-	-	-
Chenopodium sp.	-	-	-	-	-	-	-	-	-	-	-	-	1
Sherardia arvensis	-	-	-	-	1	-	-	-	-	-	-	-	-
Veronica hederifolia	-	-	-	-	-	-	-	-	-	-	-	-	1
cf. *Veronica hederifolia*	-	-	-	-	-	-	-	-	-	-	1	-	-
Scandix pecten-veneris	-	-	-	-	-	-	-	-	-	-	1	-	-
Apiaceae indet.	2	-	-	-	-	-	-	-	-	-	1	-	-
Carex sp.	-	-	-	-	-	-	1	1	-	-	-	1	-
Poaceae indet.	7	-	-	-	-	-	-	-	1	-	1	1	1
Tree/shrub (bud)	-	-	-	-	-	-	1	-	-	-	-	-	-
Unidentified (?)	1	-	-	-	-	-	3	-	-	-	1	-	-

Figure 8.21.7 (continued): Detailed species data

Context:	**2317/00/2**	**2357/00/1**	**2368/00/1**	**2445/00/1**	**47/01/1**	**84/01/1**	**221/01/1**	**248/01/1**	**1560/01/1**	**2107/0/13**	**2211/0/19**	**140/01/1**	**255/02/1**
Sample volume (litres):	25	25	25	25	44	24	25	23	25	25	25	23	25
% analysed:	100	100	100	100	100	100	100	100	100	100	100	100	100
Items per litre:	13	1	5	9	1	<1	4	<1	38	6	1	<1	<1
Phase:	K4	K4	K4	K4	A3	A3	A3	A3	D23	J3	J3	A4	A4
Period:	M/L 14c	M/L 14c	M/L 14c	M/L 14c	14c	14c	14c	14c	14c	14c	14c	E 15c	E 15c
Cultivated plants													
Triticum dicoccum/spelta (gb)	-	-	-	-	4	-	-	-	-	-	-	-	-
Triticum spelta (r)	-	-	-	-	1	-	-	-	-	-	-	-	-
Triticum spelta (gb)	-	-	-	-	10	4	3	-	-	-	-	-	-
Triticum cf. *aestivum* s.l.	-	-	-	-	-	-	-	2	-	-	-	-	-
Triticum sp. free-threshing	20	-	5	40	7	-	6	1	186	12	-	1	1
Triticum sp.	100	10	19	72	14	2	29	-	395	35	7	1	4
Triticum/Secale	-	-	-	-	1	-	2	-	-	-	-	-	-
Hordeum vulgare	5	1	4	1	2	1	4	-	-	4	-	1	-
Avena sp.	1	-	-	-	-	-	-	-	-	-	-	-	-
Cereal indet.	107	8	34	73	8	2	57	5	346	69	5	2	-
Cereal indet. (col)	-	-	-	-	1	-	-	-	-	-	-	-	-
Vicia faba	-	-	1	1	-	-	-	-	-	-	-	-	-
cf. *Vicia faba*	1	-	-	-	-	-	-	-	-	-	-	-	-
Vicia/Pisum	3	-	14	-	2	-	-	-	-	-	-	-	-
Vicia/Pisum/Lathyrus	-	1	-	-	-	-	1	-	3	11	-	-	-
Wild plants													
Vicia/Lathyrus	55	15	9	13	2	2	-	-	5	3	4	-	-
Trifolium type	-	-	-	-	-	-	-	1	-	-	-	1	-
Medicago/Melilotus/Large *Trifolium*	23	1	32	15	2	-	-	-	9	2	4	-	-
Fabaceae indet.	-	-	-	-	-	-	1	-	-	-	-	-	-
Corylus avellana (frg)	-	-	-	1	-	-	-	-	-	-	-	-	-
Brassica rapa/nigra	3	-	-	-	-	-	-	-	-	-	-	-	-
Brassica cf. *rapa*	-	-	-	2	-	-	-	-	2	1	-	-	-
Brassica rapa/nigra	-	-	-	1	-	-	-	-	3	-	-	-	-
Brassica/Sinapis	-	-	-	-	-	-	-	-	-	-	1	-	-
Polygonum sp.	-	-	1	-	-	-	-	-	-	-	-	-	-
Rumex sp.	8	1	3	3	-	-	-	-	3	5	1	1	-
cf. *Rumex* sp.	-	-	-	-	-	-	2	-	-	-	-	-	-
Atriplex sp.	-	-	-	-	-	-	-	-	1	-	-	-	-
cf. Asteraceae indet.	-	-	-	-	-	-	-	-	-	-	1	-	-
Apiaceae indet.	1	-	1	-	-	-	-	-	-	-	-	-	-
Eleocharis palustris/uniglumis	1	-	-	-	-	-	-	1	-	-	-	-	-
Carex sp.	-	-	-	1	-	-	1	-	-	-	-	-	-
Poaceae indet.	4	-	2	1	1	-	-	-	1	2	-	-	-
Unidentified (?)	1	-	-	-	-	-	1	-	-	-	-	-	-

Figure 8.21.7 (continued): Detailed species data

Context:	**285/01/1**	**01/01/2378**	**01/01/2082**	**2204/0/31**	**2205/00/5**	**01/03/2050**	**03/02/2165**	**03/05/2165**	**2168/00/7**	**514/01/1**	**574/01/2**	**598/01/1**	**615/01/1**
Sample volume (litres):	25	25	10	25	25	25	25	25	25	20	25	25	25
% analysed:	100	100	100	100	100	100	100	100	100	100	100	100	100
Items per litre:	1	2	15	<1	<1	<1	1	1	<1	3	5	<1	2
Phase:	A4	H6	J4	J4	J4	J5	J5	J5	J5	D14	D14	D14	D14
Period:	E 15c	E 15c	E 15c	E 15c	E 15c	E 15c	E 15c	E 15c	E 15c	E-M 15c	E-M 15c	E-M 15c	E-M 15c
Cultivated plants													
Triticum dicoccum/spelta (gb)	-	-	-	-	-	-	3	-	-	-	-	-	-
Triticum spelta (r)	-	-	-	-	-	-	-	-	-	1	-	-	-
Triticum spelta (gb)	-	-	-	-	-	-	-	-	-	1	-	-	-
Triticum sp. free-threshing	2	1	11	-	2	-	-	-	-	-	5	7	10
Triticum sp. (spfk)	-	1	-	-	-	-	-	-	-	-	-	-	-
Triticum sp.	9	16	27	2	8	3	4	10	1	9	53	-	11
Hordeum vulgare (lax) (r)	-	-	2	-	-	-	-	1	-	-	-	-	-
Hordeum vulgare hulled	-	-	1	-	-	-	-	-	-	-	-	-	-
Hordeum vulgare	1	2	8	-	-	-	-	1	-	7	1	3	2
Avena sp.	1	-	4	-	-	-	-	-	-	-	-	-	-
Avena/Large Poaceae	-	-	4	-	-	-	-	-	-	-	-	-	-
Cereal indet.	6	10	37	2	2	2	4	6	1	11	47	-	12
cf. *Vicia faba*	-	-	1	-	-	-	-	-	-	-	-	-	-
Pisum sativum (hilum)	-	1	-	-	-	-	-	-	-	-	-	-	-
cf. *Pisum sativum*	-	-	2	-	-	-	-	-	-	-	-	-	-
Vicia/Pisum	1	-	-	-	-	-	-	1	1	-	-	-	-
Vicia/Pisum/Lathyrus	-	4	26	1	-	-	-	-	-	-	-	-	2
Wild Plants													
cf. *Lathyrus aphaca*	-	-	-	-	-	-	-	-	-	1	-	-	-
Vicia/Lathyrus	-	7	7	-	-	2	-	2	1	3	5	1	-
Medicago/Melilotus/Large *Trifolium*	-	2	6	-	-	1	1	2	1	16	2	-	2
Polygonum aviculare agg.	-	-	-	2	-	-	-	-	-	-	-	-	1
Rumex sp.	-	4	6	-	-	1	1	1	-	2	-	-	-
Amaranthaceae indet.	-	-	3	-	-	-	-	-	-	-	-	-	-
Hyoscyamus niger	1	-	-	-	-	-	-	-	-	-	-	-	1
Eleocharis palustris/uniglumis	-	-	-	-	-	-	-	1	-	-	-	-	-
Carex sp.	-	-	-	-	-	-	-	-	-	-	1	-	-
Poaceae indet.	2	2	5	-	-	1	-	-	-	-	1	-	-
Unidentified (?)	1	-	-	-	-	-	1	-	2	-	1	-	-

Figure 8.21.7 (continued): Detailed species data

Context:	**657/01/1**	**1200/00/2**	**1201/01/1**	**1230/00/1**	**1275/01/1**	**1289/00/1**	**1315/01/1**	**1475/01/1**	**1479/01/1**	**1543/01/1**	**1548/04/1**	**1164/00/1**	**1239/00/1**
Sample volume (litres):	1	25	12	25	25	25	16	25	25	25	25	25	25
% analysed:	100	100	100	100	100	100	100	100	100	100	100	100	100
Items per litre:	12	2	2	6	6	3	2	3	3	2	<1	<1	<1
Phase:	D24	D24	D24	D24	D24	D24	D24	D24	D24	D24	D24	F4	F4
Period:	E-M 15c	E-M 15c	E-M 15c	E-M 15c	E-M 15c	E-M 15c	E-M 15c	E-M 15c	E-M 15c	E-M 15c	E-M 15c	E-M 15c	E-M 15c
Cultivated plants													
Triticum cf. *aestivum* s.l.	2	-	-	-	-	-	-	-	-	-	-	-	-
Triticum sp. free-threshing	-	1	-	5	2	5	2	2	4	-	-	-	-
Triticum sp. (r)	-	-	-	-	-	-	-	-	-	-	-	-	1
Triticum sp.	4	12	4	75	19	18	6	8	15	7	6	3	-
Hordeum vulgare hulled	-	-	-	-	-	-	3	-	4	-	-	-	-
Hordeum vulgare	-	2	1	5	13	-	6	5	-	2	-	-	1
Avena sp.	-	-	-	1	2	2	-	-	-	1	-	-	-
Avena/Large Poaceae	-	-	-	-	-	2	-	-	-	-	-	-	-
Cereal indet.	3	25	6	35	57	16	11	21	27	12	3	1	2
Vicia sativa ssp. *Sativa*	-	-	-	1	-	-	-	-	-	-	-	-	-
Vicia faba	-	1	-	-	-	-	-	1	-	-	-	-	-
cf. *Vicia faba*	-	-	-	-	-	-	-	1	-	-	-	-	-
Pisum sativum	-	-	-	2	-	-	-	-	-	-	-	-	-
cf. *Pisum sativum*	-	-	-	-	-	-	-	1	-	-	-	-	-
Vicia/Pisum	-	-	-	-	-	1	-	-	-	2	-	-	-
Vicia/Pisum/Lathyrus	-	-	-	8	-	3	1	1	15	-	-	-	-
Wild plants													
Ranunculus arvensis	-	-	-	-	-	-	-	1	-	-	-	-	-
cf. *Ranunuculus arvensis*	-	-	-	-	-	-	-	1	-	-	-	-	-
cf. *Ranunculus* sp.	-	-	-	-	-	-	-	-	-	1	-	-	-
Lathyrus pratensis	-	-	-	-	1	-	-	-	-	-	-	-	-
Vicia/Lathyrus	-	2	2	9	61	5	-	3	4	4	1	-	1
Trifolium type	2	-	-	-	-	-	-	-	-	-	-	-	-
Medicago/Melilotus/Large *Trifolium*	-	10	4	5	1	2	-	6	1	9	-	-	1
Brassica rapa	-	-	-	-	-	-	-	-	4	-	-	-	-
Brassica cf. *rapa*	-	1	2	-	-	1	-	2	-	-	-	-	-
Brassica rapa/nigra	-	-	-	-	-	-	-	-	-	-	-	-	1
Brassicaceae indet.	-	-	-	-	-	-	-	12	-	-	-	-	-
Polygonum aviculare agg.	-	1	-	-	-	-	-	-	-	-	-	-	-
Polygonum cf. *aviculare* agg.	-	-	1	-	-	-	-	-	-	-	-	-	-
Rumex acetosella agg.	-	-	-	3	-	-	-	-	-	-	-	-	-
Rumex sp.	-	6	-	-	-	9	-	3	4	1	1	-	-
cf. *Rumex* sp.	-	-	1	-	-	-	-	-	-	-	-	-	-
Amaranthaceae indet.	-	-	2	-	-	-	-	-	-	-	-	-	-
cf. Amaranthaceae indet.	-	-	-	-	-	-	-	1	-	-	-	-	-
Hyoscyamus niger	-	-	-	-	-	-	-	1	-	-	-	-	-
Rhinanthus sp.	-	-	-	-	-	-	-	7	-	-	-	-	-
Helminthotheca echioides	-	-	2	-	-	-	-	-	-	-	-	-	-
cf. Asteraceae indet.	-	-	-	-	-	-	-	1	-	-	-	-	-
Carex sp.	1	-	-	-	-	-	-	-	-	1	-	-	-
cf. Poaceae indet.(rhfr)	-	-	-	-	-	-	-	-	-	-	-	1	-
Poaceae indet.	-	-	-	3	5	1	-	-	-	2	-	-	1
cf. *Claviceps purpurea* (ergot)	-	-	-	-	-	1	-	-	-	-	-	-	-
Tree/shrub (bud)	-	-	-	1	-	-	-	-	-	-	-	-	-
Unidentified	-	1	1	4	-	-	-	3	-	-	-	-	1

Figure 8.21.7 (continued): Detailed species data

Context:	**1282/01/1**	**2307/00/1**	**2313/00/1**	**2315/00/1**	**01/01/2375**	**2112/00/3**	**1136/00/1**	**1149/01/1**	**1162/00/1**	**1270/00/1**	**1351/00/1**	**1378/00/1**	**1378/00/2**
Sample volume (litres):	10	25	25	25	25	25	25	25	25	25	25	25	25
% analysed:	100	100	100	100	100	100	100	100	100	100	100	100	25
Items per litre:	2	<1	<1	7	6	1	<1	14	4	5	<1	18	11
Phase:	F4	I4	I4	I4	I4	W2	E5	E5	E5	E5	E5	E5	E5
Period:	E-M 15c	E-M 15c	E-M 15c	E-M 15c	E-M 15c	E-M 15c	E-M/L 15c	E-M/L 15c	E-M/L 15c	E-M/L 15c	E-M/L 15c	E-M/L 15c	E-M/L 15c
Cultivated plants													
Triticum spelta/aestivum (r)	-	-	-	-	-	-	-	-	-	-	-	-	1
Triticum sp. free-threshing (r)	-	1	-	-	-	-	-	-	-	-	-	-	-
Triticum sp. free-threshing	-	-	-	1	11	-	-	67	11	24	-	12	7
Triticum sp. (r)	-	-	-	-	-	-	-	-	-	-	-	-	2
Triticum sp.	6	2	3	30	40	7	-	92	27	57	3	25	20
Hordeum vulgare hulled	-	-	-	-	-	-	-	-	-	-	-	3	-
Hordeum vulgare	1	-	-	1	2	-	-	20	9	10	1	39	16
Hordeum vulgare (ggr)	-	-	-	-	-	-	-	-	-	-	-	23	21
Avena sp.	-	-	-	-	-	-	-	-	-	1	-	9	6
Avena sp. (ggr)	-	-	-	-	-	-	-	-	-	-	-	2	11
Avena/Large Poaceae	1	-	-	-	-	-	-	-	-	-	-	41	8
Avena/Large Poaceae (ggr)	-	-	-	-	-	-	-	-	-	-	-	-	6
Cereal indet.	4	-	7	54	48	8	1	140	33	18	2	173	115
Cereal/Poaceae (col)	-	-	-	-	-	-	-	-	-	-	-	2	-
Cereal/Large Poaceae (cmnd)	-	-	-	-	-	-	-	-	-	-	-	-	1
cf. *Vicia sativa* ssp. *sativa*	-	-	-	1	1	-	-	-	-	-	-	-	-
Vicia faba var. *minuta*	1	-	-	-	-	-	-	-	-	-	-	-	-
Pisum sativum	-	-	-	-	1	-	-	-	1	-	-	-	-
Pisum sativum (hilum)	-	-	-	-	-	-	-	-	1	-	-	-	-
cf. *Pisum sativum*	-	-	-	-	-	-	-	-	-	-	-	1	-
Vicia/Pisum/Lathyrus	-	2	1	4	4	3	-	3	16	15	-	1	2
Wild plants													
Ranunculus arvensis	-	-	-	-	-	-	-	-	-	-	-	-	1
Vicia/Lathyrus	-	-	2	52	10	5	-	15	1	1	2	6	2
Medicago/Melilotus/Large *Trifolium*	2	-	1	9	25	5	-	-	2	2	-	7	4
Brassica rapa	-	-	-	-	-	-	-	-	-	-	-	-	21
Brassica rapa/nigra	1	-	-	3	1	-	-	-	-	-	1	66	11
Raphanus raphanistrum (pdfr)	-	-	-	-	-	-	-	-	-	-	-	-	1
Brassicaceae indet.	-	-	-	-	-	-	-	-	-	-	-	12	-
Polygonum aviculare agg.	-	-	-	-	2	-	-	-	-	-	-	-	1
Fallopia convolvulus	-	-	-	1	-	-	-	-	-	-	-	-	-
Rumex sp.	-	-	1	4	4	2	-	2	1	1	-	6	3
cf. Polygonaceae indet.	-	-	-	-	-	-	-	-	-	-	-	7	-
Polygonaceae/Cyperaceae	-	-	-	-	-	-	-	-	-	-	-	-	5
Caryophyllaceae indet.	-	-	-	-	-	1	-	-	-	-	-	-	-
Chenopodium sp.	-	-	-	-	-	-	-	-	-	-	-	-	1
Sherardia arvensis	-	-	-	-	-	-	-	-	-	-	-	1	1
Galium aparine	-	-	-	-	-	-	-	-	-	-	-	-	1
Veronica hederifolia	-	-	-	-	1	-	-	-	-	-	-	-	-
Scandix pecten-veneris	-	-	-	-	-	-	-	-	-	-	-	1	-
Apiaceae indet.	-	-	-	1	-	-	-	-	-	-	-	-	-
Carex sp.	-	-	1	1	-	1	-	-	-	-	-	-	-
Lolium temulentum	-	-	-	-	-	-	-	-	-	-	-	4	-
cf. *Lolium temulentum*	-	-	-	-	-	-	-	-	-	1	-	1	-
Poaceae indet. (cmnd)	-	-	-	1	-	-	-	-	-	-	-	-	2
Poaceae indet.	-	-	-	7	4	1	-	-	1	1	1	4	11
Unidentified	1	-	-	-	2	2	-	-	-	-	-	6	1

Figure 8.21.7 (continued): Detailed species data

Context:	**1653/01/1**	**1655/01/1**	**1659/03/1**	**42/00/2**	**98/00/2**	**110/01/1**	**111/00/1**	**136/03/1**	**152/00/1**	**209/00/1**	**287/01/1**	**430/02/1**	**431/01/1**
Sample volume (litres):	17	25	10	26	24	24	19	15	25	25	15	25	25
% analysed:	100	50	100	100	100	100	100	100	100	100	100	100	100
Items per litre:	2	1	8	4	<1	<1	1	1	5	<1	4	1	1
Phase:	E5	E5	E5	A5	A5	A5	A5	A5	A5	A5	A5	D15	D15
Period:	E-M/L 15c	E-M/L 15c	E-M/L 15c	M/L 15c	M/L 15c	M/L 15c	M/L 15c	M/L 15c	M/L 15c	M/L 15c	M/L 15c	M/L 15c	M/L 15c
Cultivated plants													
Triticum dicoccum/spelta (gb)	-	-	-	-	-	-	-	-	-	-	-	-	1
Triticum spelta (gb)	-	-	-	-	1	-	-	-	-	-	-	-	1
Triticum spelta/aestivum (r)	-	2	-	-	-	-	-	-	-	-	-	-	-
Triticum sp. free-threshing	7	2	8	16	-	-	2	-	18	-	24	-	3
Triticum sp. (r)	-	-	-	-	1	-	-	-	-	-	-	-	-
Triticum sp.	16	3	6	23	1	2	-	6	41	4	29	1	13
cf. *Secale cereale*	-	-	-	1	-	-	-	-	-	-	-	-	-
Hordeum vulgare	-	-	3	5	-	-	-	-	-	-	2	-	1
Avena sp.	-	-	2	-	-	-	-	-	-	-	-	-	-
Cereal indet.	7	3	6	41	1	-	4	1	40	3	8	4	6
cf. *Vicia faba*	-	-	-	-	-	-	-	1	1	-	-	-	-
Pisum sativum (hilum)	-	-	-	-	-	-	-	-	1	-	-	-	-
Vicia/Pisum	-	2	-	-	-	-	-	-	-	-	-	-	1
Vicia/Pisum/Lathyrus	-	-	1	1	-	-	4	1	6	-	-	-	-
Wild plants													
Ranunculus arvensis	-	-	1	-	-	-	-	-	-	-	-	-	-
Vicia tetrasperma	-	-	-	-	-	-	-	1	-	-	1	-	-
Vicia/Lathyrus	-	-	6	1	-	-	-	-	3	-	-	3	-
Trifolium type	-	-	-	-	-	1	-	-	-	-	-	-	-
Medicago/Melilotus/Large *Trifolium*	-	1	3	6	-	-	-	-	6	-	-	3	-
Genista/Ulex type	-	-	1	-	-	-	-	-	-	-	-	-	-
Fabaceae indet.	-	2	-	-	-	-	-	-	-	-	-	-	-
Brassica rapa/nigra	-	-	1	-	-	-	-	-	-	-	-	-	-
Fallopia convolvulus	-	-	1	-	-	-	-	-	-	-	-	-	-
Rumex sp.	2	-	27	1	-	-	-	-	2	-	-	-	3
Polygonaceae/Cyperaceae	-	1	-	-	-	-	-	-	-	-	-	-	-
Agrostemma githago	-	-	1	-	-	-	-	-	-	-	-	-	-
Chenopodium sp.	-	-	-	1	-	-	-	-	-	-	-	-	-
Amaranthaceae indet.	-	-	1	-	-	-	-	-	-	-	-	-	-
Galium aparine	-	-	1	-	-	-	-	-	1	-	-	-	-
Galium sp.	-	-	-	2	-	-	-	-	-	-	-	-	-
Asteraceae indet.	-	-	1	-	-	-	-	-	-	-	-	-	-
cf. *Scandix pecten-veneris*	-	-	1	-	-	-	-	-	-	-	-	-	-
Eleocharis palustris/uniglumis	-	-	1	-	-	-	-	-	-	-	-	-	-
Carex sp.	-	-	-	-	-	-	-	-	1	-	-	-	-
cf. *Lolium temulentum*	-	-	-	-	-	-	-	-	-	-	1	-	-
Poaceae indet. (cmnd)	-	-	-	2	-	-	-	-	-	-	-	-	-
Poaceae indet.	-	1	4	1	-	-	-	1	5	-	-	-	-
Unidentified	1	-	2	-	-	-	-	-	2	-	-	2	-

Figure 8.21.7 (continued): Detailed species data

Context	**437/02/1**	**454/04/1**	**455/03/1**	**503/01/1**	**510/01/1**	**512/01/1**	**836/04/1**	**930/05/1**	**577/00/2**	**666/00/1**	**1134/01/1**	**1194/01/1**	**1202/00/1**
Sample volume (litres):	25	25	11	25	25	25	25	25	25	25	25	20	25
% analysed:	100	100	100	100	100	100	100	100	100	100	100	100	100
Items per litre:	1	<1	22	3	2	5	2	18	1	2	<1	1	<1
Phase:	D15	D15	D15	D15	D15	D15	D15	D15	D25	D25	D25	D25	D25
Period:	M/L 15c	M/L 15c	M/L 15c	M/L 15c	M/L 15c	M/L 15c	M/L 15c	M/L 15c	M/L 15c	M/L 15c	M/L 15c	M/L 15c	M/L 15c
Cultivated plants													
Triticum dicoccum/spelta (spfk)	-	-	1	-	-	-	-	-	-	-	-	-	-
Triticum dicoccum/spelta (gb)	-	-	147	-	-	-	-	1	-	1	-	-	-
Triticum durum/turgidum (r)	-	-	-	1	-	-	-	-	-	-	-	-	-
Triticum spelta (r)	-	-	5	-	-	-	-	-	-	-	-	-	-
Triticum spelta (spfk)	-	-	1	-	-	-	-	-	-	-	-	-	-
Triticum spelta (gb)	-	-	57	-	-	-	-	-	1	-	-	-	-
Triticum cf. *spelta*	-	-	-	2	-	-	-	-	-	-	-	-	-
Triticum spelta/aestivum (r)	-	-	1	-	-	-	-	-	-	-	-	-	-
Triticum cf. *spelta/aestivum* (r)	-	-	-	-	-	-	-	4	-	-	-	-	-
Triticum aestivum s.l. (r)	-	-	-	-	-	-	-	1	-	-	-	-	-
Triticum cf. *aestivum* (r)	-	-	-	-	1	-	-	-	-	-	-	-	-
Triticum sp. free-threshing (r)	-	-	-	1	-	-	-	3	-	-	-	-	-
Triticum sp. cf. free-threshing (r)	-	-	-	-	-	1	-	-	-	-	-	-	-
Triticum sp. free-threshing	2	-	-	5	5	28	2	42	3	-	-	-	-
Triticum sp. (r)	-	-	-	-	1	-	-	9	-	-	-	-	-
cf. *Triticum* sp. (br)	-	-	-	1	-	-	-	-	-	-	-	-	-
Triticum sp.	6	1	6	36	14	50	16	83	2	22	-	5	-
Hordeum vulgare (r)	1	-	-	-	-	-	-	-	-	-	-	-	-
Hordeum vulgare hulled	-	-	-	-	-	1	-	2	1	-	-	-	-
Hordeum vulgare	-	1	-	4	-	9	1	7	1	10	-	4	-
Avena sp.	-	-	-	-	-	-	1	-	-	-	-	-	-
Cereal indet.	8	1	10	30	13	32	23	272	7	20	1	9	2
Vicia faba	-	-	-	-	-	1	-	-	1	-	-	-	-
cf. *Vicia faba*	-	-	-	-	-	-	-	2	-	-	-	-	-
cf. *Pisum sativum*	-	-	-	-	1	-	-	-	-	-	-	1	-
Vicia/Pisum	-	-	-	-	1	-	-	-	-	1	1	-	-
Vicia/Pisum/Lathyrus	-	-	-	1	-	2	1	4	3	2	-	-	-
Wild plants													
Ranunculus acris/repens/bulbosus	-	-	-	-	-	-	-	-	-	-	-	1	-
Vicia/Lathyrus	2	-	1	1	1	-	2	6	1	-	-	1	-
Trifolium type	-	-	-	-	-	-	-	-	2	-	-	-	-
Medicago/Melilotus/Large *Trifolium*	1	-	-	3	3	1	3	3	-	2	1	-	1
Brassica rapa	-	-	-	-	-	-	-	2	-	-	-	-	-
Rumex sp.	-	-	-	1	4	3	-	2	1	1	-	1	2
Polygonaceae/Cyperaceae	-	-	2	-	-	-	-	-	-	-	-	-	-
cf. Amaranthaceae indet.	-	-	-	-	-	-	-	-	-	1	-	-	-
Galium palustre	-	-	-	-	-	-	-	-	-	-	-	1	-
Carex sp.	-	-	-	-	-	-	1	1	-	-	-	1	-
Poaceae indet.	-	-	7	-	1	-	-	-	-	-	-	-	-
Tree/shrub (bud)	-	-	-	-	1	-	-	-	-	-	-	-	-

Figure 8.21.7 (continued): Detailed species data

Context:	**1233/00/1**	**1242/02/1**	**1468/01/1**	**913/00/1**	**27/00/1**	**66/00/1**	**66/00/2**	**556/01/1**	**925/00/1**	**992/01/1**	**1130/00/1**	**1172/01/1**	**1199/00/1**
Sample volume (litres):	25	25	25	25	24	20	25	17	25	25	25	25	15
% analysed:	100	100	100	100	100	100	100	100	100	100	100	100	100
Items per litre:	4	2	4	<1	8	5	5	2	8	1	1	4	11
Phase:	D25	D25	D25	F5	A6	A6	A6	D26	D26	D26	D26	D26	D26
Period:	M/L 15c	M/L 15c	M/L 15c	M/L 15c	L 15c	L 15c	L 15c	L 15c	L 15c	L 15c	L 15c	L 15c	L 15c
Cultivated plants													
Triticum cf. *durum/turgidum* (r)	-	-	1	-	-	-	-	-	-	-	-	-	-
Triticum spelta (gb)	1	-	1	-	-	-	-	-	1	-	-	-	-
Triticum sp. free-threshing	7	7	7	-	29	9	11	3	37	2	-	19	5
Triticum sp. (r)	1	-	-	-	-	-	-	-	-	-	-	-	-
Triticum sp.	26	24	21	-	83	31	38	12	57	8	6	22	51
Triticum/Secale	-	-	1	-	3	-	-	-	-	1	-	-	-
Hordeum vulgare (r)	-	-	1	-	-	-	-	-	-	-	-	-	-
Hordeum vulgare hulled	1	-	1	-	-	-	-	-	2	1	-	-	-
Hordeum vulgare	4	2	15	-	1	3	5	2	6	-	1	-	14
cf. *Hordeum vulgare*	-	-	-	-	5	-	-	-	-	-	-	-	-
Avena/Large Poaceae	-	1	-	-	1	-	-	-	-	1	-	-	-
Cereal indet.	28	13	38	1	26	26	45	13	79	3	9	33	77
Cereal/Large Poaceae (cmnd)	-	-	-	-	1	-	-	-	-	-	-	-	-
cf. *Vicia sativa* ssp. *Sativa*	-	-	-	-	2	-	-	-	-	-	-	-	-
Vicia faba var. *minuta*	-	1	-	-	-	-	-	-	-	-	-	-	-
cf. *Vicia faba* var. *minuta*	-	-	-	-	-	-	-	-	1	-	-	-	-
Vicia faba	-	-	-	-	2	1	1	-	-	-	-	-	-
Pisum sativum	-	-	-	-	-	1	-	1	-	-	-	-	-
cf. *Pisum sativum*	-	-	1	-	-	-	-	-	-	-	-	-	-
Vicia/Pisum	-	1	-	-	11	-	-	1	-	-	1	-	-
Vicia/Pisum/Lathyrus	3	-	7	1	13	16	6	-	11	-	-	10	1
Wild plants													
Vicia ? *parviflora*	-	-	-	-	1	-	-	-	-	-	-	-	-
Vicia tetrasperma	-	-	1	-	-	-	-	-	-	-	-	-	-
Vicia/Lathyrus	9	1	3	-	2	2	2	-	4	3	3	1	6
Medicago/Melilotus/Large *Trifolium*	10	1	5	-	7	2	4	-	3	-	-	6	2
Fallopia convolvulus	1	-	-	-	-	-	-	-	-	-	-	-	-
Rumex sp.	4	-	4	-	-	2	-	-	7	-	-	1	-
cf. *Rumex* sp.	-	-	-	-	-	-	-	-	-	-	-	-	2
Polygonaceae/Cyperaceae	-	-	-	-	-	-	-	2	-	-	-	-	-
Caryophyllaceae indet.	-	-	-	-	1	-	-	-	-	-	-	1	-
Atriplex sp.	1	-	-	-	-	-	-	-	-	-	-	-	-
cf. *Calluna vulgaris* (immature flr)	-	-	-	-	-	-	-	-	-	-	-	-	1
Galium sp.	-	-	-	-	-	-	-	-	-	-	-	1	-
Hyoscyamus niger	1	-	-	-	-	-	-	-	-	-	-	1	-
Solanum nigrum	-	-	-	-	-	-	-	-	-	-	-	-	1
Anthemis cotula	-	-	-	-	-	-	1	-	-	-	-	-	-
cf. *Scandix pecten-veneris*	-	-	-	-	-	-	1	-	-	-	-	-	1
Eleocharis palustris/uniglumis	2	-	-	-	-	-	-	-	-	-	-	-	-
Carex spp.	3	-	-	-	-	-	-	-	-	-	-	-	-
cf. *Carex* sp.	-	-	-	-	1	-	-	-	-	-	-	-	-
Poaceae indet. (cmnd)	-	-	-	-	2	-	-	-	-	-	-	-	-
Poaceae indet. (rhzm)	1	-	-	-	-	-	-	-	-	-	-	-	-
Poaceae indet.	-	1	-	-	3	2	4	1	2	-	-	1	3
Tree/shrub (bud)	-	-	-	-	1	-	-	-	-	-	-	-	-
Unidentified (?)	2	1	-	-	2	-	-	1	-	-	-	1	1

Figure 8.21.7 (continued): Detailed species data

Context:	**1203/00/1**	**1214/00/1**	**909/00/1**	**977/01/1**	**1143/00/1**	**1192/01/1**	**1679/01/1**	**874/00/2**	**1180/00/1**	**177/01/1**	**378/01/1**	**425/01/1**	**2222/00/1**
Sample volume (litres:	25	25	25	25	25	25	25	25	13	24	25	25	25
% analysed:	100	100	100	100	100	100	100	100	100	100	100	100	100
Items per litre:	1	19	<1	1	14	2	4	9	4	<1	<1	<1	5
Phase:	D26	D26	E6	E6	E6	E6	E6	E7	E7	B2	B2	B2	H7
Period:	L 15c	L 15c	L 15c	L 15c	L 15c	L 15c	L 15c	*c*1497	*c*1497	Medieval	Medieval	Medieval	E Post-Med
Cultivated plants													
Triticum dicoccum/spelta (gb)	-	-	-	-	2	-	-	-	-	-	2	4	-
Triticum spelta (gb)	-	-	-	-	-	-	-	-	-	-	4	3	-
Triticum aestivum s.l. (r)	-	1	-	-	-	-	1	-	-	-	-	-	-
Triticum sp. free-threshing (r)	-	-	-	-	-	-	-	-	1	-	-	-	-
Triticum sp. free-threshing	3	75	-	-	22	-	8	59	-	-	-	-	6
Triticum sp. (r)	-	-	-	-	-	-	1	-	-	-	-	-	-
Triticum sp. (spfk)	-	-	-	-	-	-	-	-	-	-	-	1	-
Triticum sp.	7	90	2	-	107	14	40	58	13	-	-	-	41
Triticum/Secale	-	-	-	-	-	1	-	-	-	-	-	-	-
Hordeum vulgare hulled	-	-	-	-	-	-	1	-	3	-	-	-	-
Hordeum vulgare	-	36	-	-	12	1	-	10	5	-	-	-	1
Avena sp.	-	2	-	-	1	-	-	-	-	-	-	-	-
Avena/Large Poaceae	1	-	-	-	-	-	-	-	-	-	-	-	-
Cereal indet.	8	146	4	2	134	24	28	60	14	1	-	1	57
Cereal/Large Poaceae (cmnd)	-	1	-	-	-	-	-	-	-	-	-	-	-
cf. *Vicia sativa* ssp. *Sativa*	-	-	-	-	-	-	-	-	1	-	-	-	-
Vicia sativa/faba	-	-	-	-	-	-	-	-	1	-	-	-	-
Vicia faba var. *minuta*	-	-	-	-	-	4	-	-	-	-	-	-	-
Vicia faba	-	-	-	-	1	-	-	-	1	-	-	-	-
cf. *Vicia faba*	-	1	-	-	-	-	-	-	-	-	-	-	-
cf. *Pisum sativum*	-	1	-	-	-	-	-	1	-	-	-	-	-
Vicia/Pisum	-	-	-	-	-	-	1	-	-	-	-	-	-
Vicia/Pisum/Lathyrus	-	53	-	-	16	4	3	12	12	-	-	-	2
Wild plants													
Ranunculus acris/repens/bulbosus	1	-	-	-	1	-	-	-	-	-	-	-	-
Ranunculus arvensis	-	-	-	1	-	-	1	-	-	-	-	-	-
Ranunculus flammula/reptans	-	-	-	-	1	-	-	-	-	-	-	-	-
Vicia tetrasperma	-	1	-	-	-	-	-	-	-	-	-	-	-
Vicia/Lathyrus	6	6	2	3	10	3	2	5	3	-	-	1	12
Medicago lupulina	-	-	-	-	2	-	-	-	-	-	-	-	-
Medicago/Melilotus/Large *Trifolium*	6	5	1	-	7	3	6	2	-	-	-	-	8
cf. Fabaceae (pdfr)	-	-	-	-	1	-	-	-	-	-	-	-	-
?Rosaceae (internal)	-	-	-	-	-	-	-	-	-	-	-	2	-
Corylus avellana (frg)	-	1	-	-	-	-	-	-	-	-	-	-	-
Brassica cf. *rapa*	-	-	-	-	-	-	1	-	-	-	-	-	-
Brassica rapa/nigra	-	-	-	-	1	-	2	-	-	-	-	-	-
Brassica sp.	-	-	-	1	-	-	-	-	-	-	-	-	-
Raphanus raphanistrum (pdfr)	-	-	-	-	1	-	-	-	-	-	-	-	-
Brassicaceae indet.	1	-	-	-	-	-	-	-	-	-	-	-	-
Rumex sp.	4	15	-	3	8	1	3	1	-	-	-	-	-
Polygonaceae indet.	-	-	-	-	-	1	-	-	-	-	-	-	-
Polygonaceae/Cyperaceae	-	-	-	4	-	-	-	-	-	-	-	-	-
Agrostemma githago	-	1	-	-	1	-	-	-	-	-	-	-	-
Agrostemma githago (ctip)	-	-	-	-	-	-	1	-	-	-	-	-	-
Amaranthaceae indet.	-	-	-	-	2	-	-	-	-	-	-	-	-
Galium aparine	-	-	-	-	1	1	-	-	-	-	-	-	-
Galium sp.	-	2	-	-	-	-	-	-	1	-	-	-	-
Hyoscyamus niger	-	27	-	-	-	-	-	-	-	-	-	-	-
Conium maculatum	-	-	-	-	4	-	-	-	-	-	-	-	-
Sparganium sp.	-	-	-	-	-	-	-	-	-	-	-	-	1
Carex sp.	-	-	-	2	1	2	-	4	-	-	-	-	-
cf. *Lolium temulentum*	-	-	-	-	-	-	1	-	-	-	-	-	-
Poaceae indet.	-	-	-	-	3	3	-	3	-	-	-	-	-
Unidentified (?)	-	1	-	2	-	-	-	-	-	1	-	-	-

Figure 8.21.7 (continued): Detailed species data