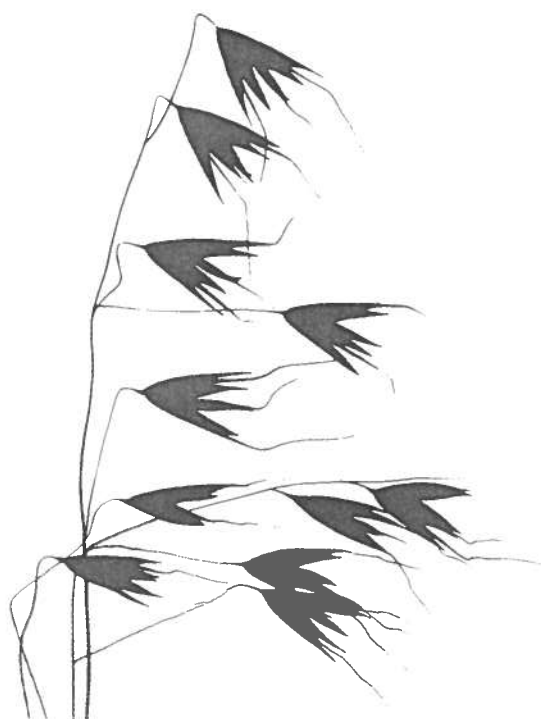


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**Medieval plant remains
from a well in Herstedøster,
Københavns Amt**

af

Sabine Karg



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Medieval plant remains from a well in Herstedøster, København Amt (SØL 1018, NNU A8076)

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Summary

During autumn 1999 archaeological excavations were performed in the vicinity of the church at Herstedøster (SØL 1018 - NNU j.nr. A8076). An area of almost 200 m² was investigated by archaeologists from Københavns Amtsmuseumsråd in Albertslund.

At the centre of the excavated area a well was discovered. By way of pot sherds it was possible to date the fill of the well to the Medieval period (1250 - 1350 AD).

Carbonised plant remains from two layers of the well fill were studied in order to augment our knowledge of agriculture in rural sites of Medieval Denmark. On the basis of the composition of plant remains in the two analysed samples it was also possible to reconstruct different activities in the near vicinity of the well during the 13/14th century AD.

Introduction

In autumn 1999 museum curator David E. Robinson was called to visit an archaeological excavation close to the churchyard near Herstedøster Menighedsrådshus (see map, figure 1).

In connection with construction work of a new building for the church council in the vicinity of the church of Herstedøster, an area of almost 200 m² was investigated by archaeologists from Københavns Amtsmuseumsråd in Albertslund. Property boundaries were discovered and in the centre of the excavated area a well with a diameter of almost 2m was found (Anlæg 1, see figure 2). The fill of the well could be dated to the Medieval Age period (1250 - 1350 AD) by way of pot sherds it contained. Both in the upper and lower part of the fill a concentrated layer of carbonised organic material was observed; carbonised barley grains (*Hordeum vulgare*) could be seen with the naked eye. In order to study the plant remains in detail two soil samples were taken, one from each

of the two layers (see cross-section, figure 3). Sieved sub-samples were handed over to the author for analysis and interpretation.

Materials and methods

The original size of the soil samples was ca. 0.5 litre. Subsamples of 100ml were dried and treated by flotation using a 0.5mm sieve.

The carbonised plant remains were screened under a stereomicroscope at a magnification of 6.3 times. The final determinations were made at magnifications of up to 60 times. All identifiable seeds, chaff and fruit or grain fragments were picked out and counted. Using the reference collection at the National Museum's Natural Science Research Department and a range of identification keys (see cited literature) most of the botanical finds could be identified to species level. Rare finds, such as flower stalks of oats, and the seed of *Portulaca* (*Portulaca sativa*) were documented in the form of electronic micrographs. Both the documentation and the botanical finds are stored in the archives of the National Museum.

Results and Discussion

An extraordinarily large number of carbonised plant remains was preserved in both of the archaeobotanical samples. In the subsample (100ml) of sample 1 more than 450 carbonised macroremains could be identified (see table 1). In subsample (100ml) of sample 2, 262 plant remains were preserved (see table 1). The state of preservation of the plant finds can be described as very good. Not only cereal grains but also chaff of barley (*Hordeum vulgare*) and oats (*Avena sativa*, *Avena spec.*) was very well preserved. Both the florets of oats and the rachis fragments of barley are considered to be very fragile and sensitive to carbonisation. In many cases the grains survive the burning process but the chaff is reduced to ashes. This was certainly not the case in the fires in which the plant remains from Herstedøster were burnt; the plant remains were also unaffected by mechanical damage.

The composition of the plant macrofossils differed in the two samples. In figure 4 the number of identified remains in both samples is illustrated. Figure 5 shows the number of the identified plant species.

In sample 1: chaff, straw fragments, cereal grains and mostly arable weed seeds dominated. Barley (*Hordeum vulgare*) was the most common cereal followed by oats (*Avena sativa*). Only a few remains of bread wheat (*Triticum aestivum s.l.*) were found.

This composition can be interpreted as harvest remains that were deposited in the well. The great diversity of the weed species indicates that the cereal fields looked totally different from those of today. Blue flowers of Cornflower (*Centaurea cyanus*), which is relatively rare nowadays in Denmark, the purple flowers of Thistles (*Cirsium spec.*) and the pale yellow flowers of Wild Raddish (*Raphanus raphanistrum*) among other weeds decorated the medieval fields. Most probably barley was grown as a winter crop and both the Cornflower as well as the Wild Raddish, which are both considered to be winter cereal weeds, were harvested together with the barley. Bread wheat and the oats were certainly cultivated as summer crops because both species are sensitive to frost. The Thistles grew in the summer crop fields.

In addition to the cereals two other cultivated plant species were identified in this sample. One seed of Portulaca (*Portulaca sativa*) was found. Portulaca was grown as a vegetable in Medieval times. A few remains of pear or apple (*Pyrus communis/Malus domestica*) suggest the cultivation of fruit trees. From written sources it is known that fruit trees were often cultivated in medieval churchyards (Vogellehner 1984; Willerding 1992).

In sample 2 the composition of the archaeobotanical finds differed: besides fewer cereal remains (see table 1) more seeds from plants that grow on various grasslands could be seen together with animal dung (a coprolite from goat or sheep). It is suggested that these plant remains represent bedding material, possible deriving from a stable or a byre. Most of the bedding material may have been cut close to the borders of a stream or a in ditch, as for example Spice-rush (*Eleocharis palustris/uniglumis*) or Hemp-agrimony (*Eupatorium cannabinum*) preferably grow on such wet places.

To summarize: These two small samples from the medieval well deliver useful information about agriculture in Herstedøster in the 1300s.

The plant remains enable reconstruction of the environmental conditions, and also reveal the spectrum of the cultivated plants, the weed flora and the flora of pastures and wetlands at this time. Barley was most possibly cultivated as a winter crop according to the typical winter crop weeds that were found in the same sample as Cornflower (*Centaurea cyanus*), and Wild Raddish (*Raphanus raphanistrum*). Whereas the oats and the bread wheat were grown as summer crops.

On a larger scale, when compared with other finds and written sources from the medieval period, the data contribute to a broader understanding of contemporary life and the landscape.

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Illustrations

figure 1: map of the location of Herstedøster

figure 2: map of the excavated area

figure 3: cross-section of the well

figure 4: number of identified remains in the botanical samples 1 and 2

figure 5: number of identified species in the botanical samples 1 and 2

table 1: list of the macrofossils in botanical samples 1 and 2.



Fig. 1: Map of the location of Herstedøster, Københavns Amt (1:25000).

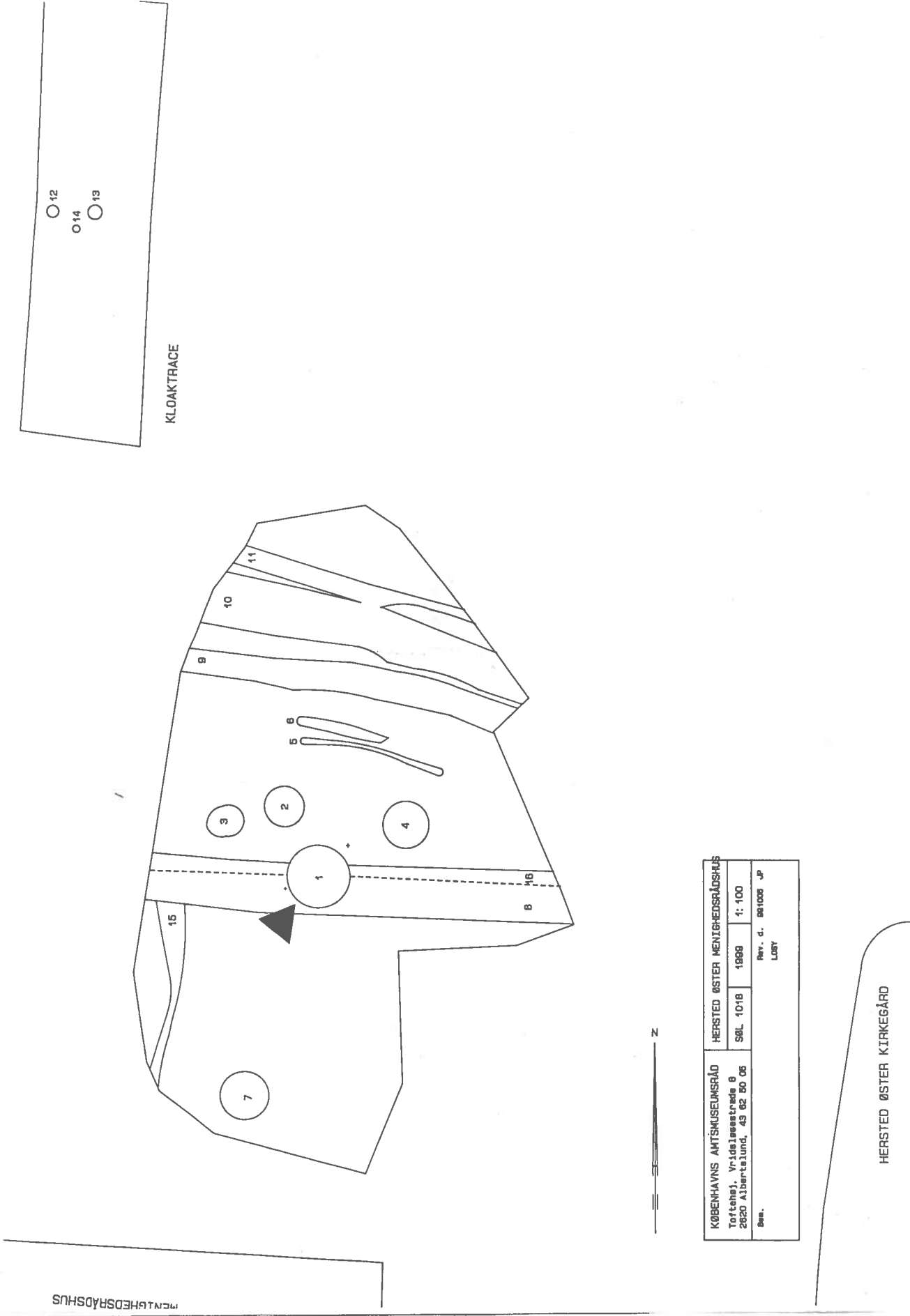
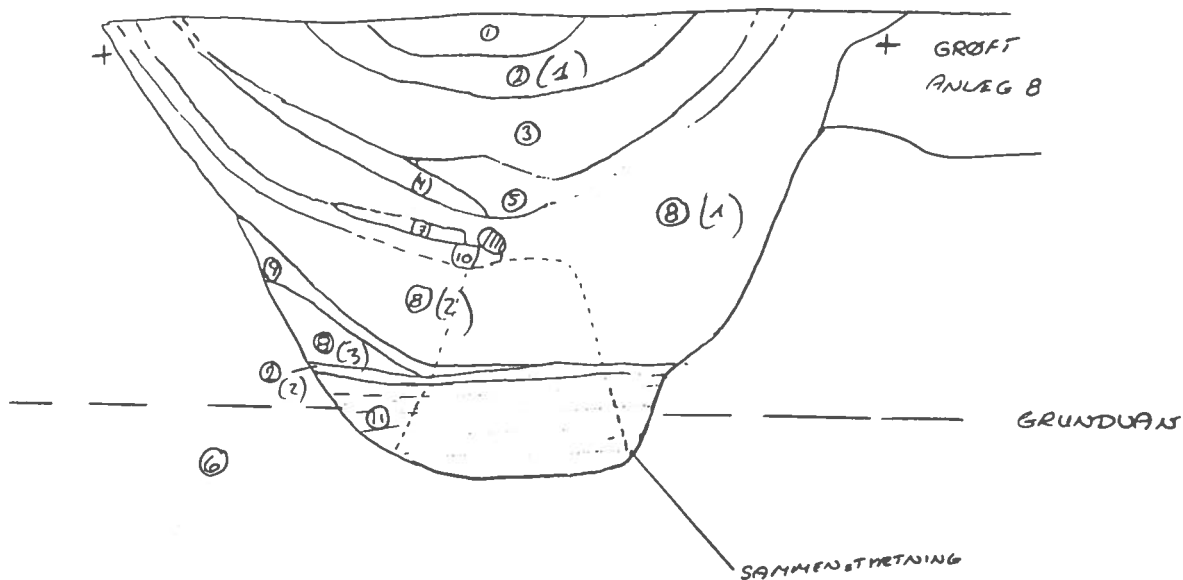


Fig. 2: Map of the excavated area near Herstedøster Kirke (SØL 1018).

SØL 1018 x1, Herstedøster Præstegård, Anlæg 1, 1:20 ABH

Prøveudtagning

Prøverne er udtaget fra lagene 2 (1) of 2 (2) for så vidt muligt i midten af profilet.



- ① GRÅ SANDET LER
- ② SORT (TRÆKULSFARVET) LERET SAND, RESTER AF UBRENDETE DYREKNOG
- ③ GRÅ LERET SAND, NISER AF TRÆKUL
- ④ SOM ② BLOT UDEN KNOGLER
- ⑤ MØRK GRÅ LERET SAND, NISER ②, LETTERE TRÆKULBIANDET
- ⑥ MØRK GULBRUN LER
- ⑦ LYS GUL SAND
- ⑧ SOM ⑤, BLOT MINDRE INDHOLD AF TRÆKUL
- ⑨ SOM ⑤, BLOT SPÆTTET M. ⑥
- ⑩ SOM ⑨, BLOT EN ANELSE MERE OPTIÅNDE M. ⑥
- ⑪ SOM ⑤, MEN VIRKER VANDAFLEJRET, MERE LAGDELT DER KAN DOG IKKE UDSKILLES DEJDEREDE LAG, IDET FYLDEN ER MEGET ENSPÆTTET

Fig. 3: Cross-section of the well at Herstedøster Kirke (SØL 1018).

Herstedøster Kirke 1250-1350 AD, identified plant remains (by Sabine Karg)				
SØL 1018, NNU j.nr. A8076		sample numbers	SØL 1018-1	SØL 1018-2
		size of floated sample	100ml	100ml
Taxon, Latin name)	Danish name	plant part (English, Danish)	number of identified remains	
crop plants				
Hordeum vulgare (hulled)	Alm. Byg (avn klædt)	rachis segments, aksdele	190	37
		grains, kerner	52	16
cf. Hordeum vulgare	cfr. Alm. Byg	rachis segments, aksdele		2
Avena sativa	Alm. Havre	glumes, avner	25	3
Avena cf. sativa		grains, kerner	25	13
Avena sativa		flower stalks, blomsterstilke	37	21
Triticum aestivum s.l.	Brødhvede	rachis segments, aksdele	6	2
		grains, kerner	2	
Cerealia	Korn sp.	straw fragments, halmfragmenter	62	26
		grains, mostly fragments, kerner	12	5
		glume fragment, avn fragment	1	1
vegetables and fruits				
Portulaca sativa	Haveportulak	seed, frø	1	
Pyrus/Malus	Pære og/eller Æble	seed, frø	1	
		receptacle (part of the flower cup)	3	2
		del af blomsten		
arable weeds and ruderals				
Centaurea cf. cyanus	Kornblomst	embryo, indmal	2	
Centaurea spec.	Kornblomst	embryo, indmal, very small, unripe		1
cf. Cichorium intybus/endivia	Cikorie	achene, frø, fragment, very small, unripe		1
Chenopodium album	Hvidmelet Gåsefod	seeds, frø	16	2
Cirsium sp.	Tidsej	achene, frø		34
Poa annua	Enårig Rapgræs	grain within the spikelet, småaks	1	
Polygonum convolvulus	Snerle-Pileurt	seed fragment, frø fragment	1	
Plantago lanceolata	Lancet-Vejbred	seed, frø		1
cf. Plantago spec.	måske Vejbred	capsule fragment, skulpedel	1	
Prunella vulgaris	Alm. Brunelle	seed, frø		2
Ranunculus cf. acris	Ranunkel (måske Bidende)	seed, frø		1
Raphanus raphanistrum	Kiddike	capsule fragment, skulpedel	1	
Rumex sp.	Skræppe sp.	seed, frø	3	4
Rumex sp.	Skræppe sp.	calyx		2
Rumex acetosella	Rødknæ	seed, frø		1
Thlaspi arvense	Alm. Pengeurt	seed, frø		1
Viola sp.	Viol sp	seed, frø		1
grassland species and wetland plants				
Blysmus compressus	Fladtrykt Kogleaks	seed, frø	1	
Carex cf. flava Typ	Star (måske Gul)	seed, frø		2
Cyperaceae, v.a. Carex	Halvgræsser, mest Star	seed, frø		45
Eleocharis pal./uniglumis	Sumpstrå Alm./Enskællet	seeds, frø		9
Eupatorium cannabinum	Hjortetrøst	seed, frø		1
Linum catharticum	Vild Hør	seed, frø		1
Myosoton aquaticum	Kløvkrone	seed, frø		1
trees				
cf. Acer sp.	cfr. Løn sp.	embryo, indmad	1	
unidentified seeds, other finds				
Compositae	Kurvblomstfamilien	poorly preserved, dårlig bevaret	4	1
Poaceae	Græs sp.		1	5
Indeterminata	Ubestemt		1	8
Bryophyte, moss	Mos			9
coprolit	Fækalie fra Får/Ged			1
sum			450	262

Table 1: List of the macrofossils in botanical samples 1 and 2 from Herstedøster Kirke (A8076).

Herstedøster Kirke 1250 - 1350 AD

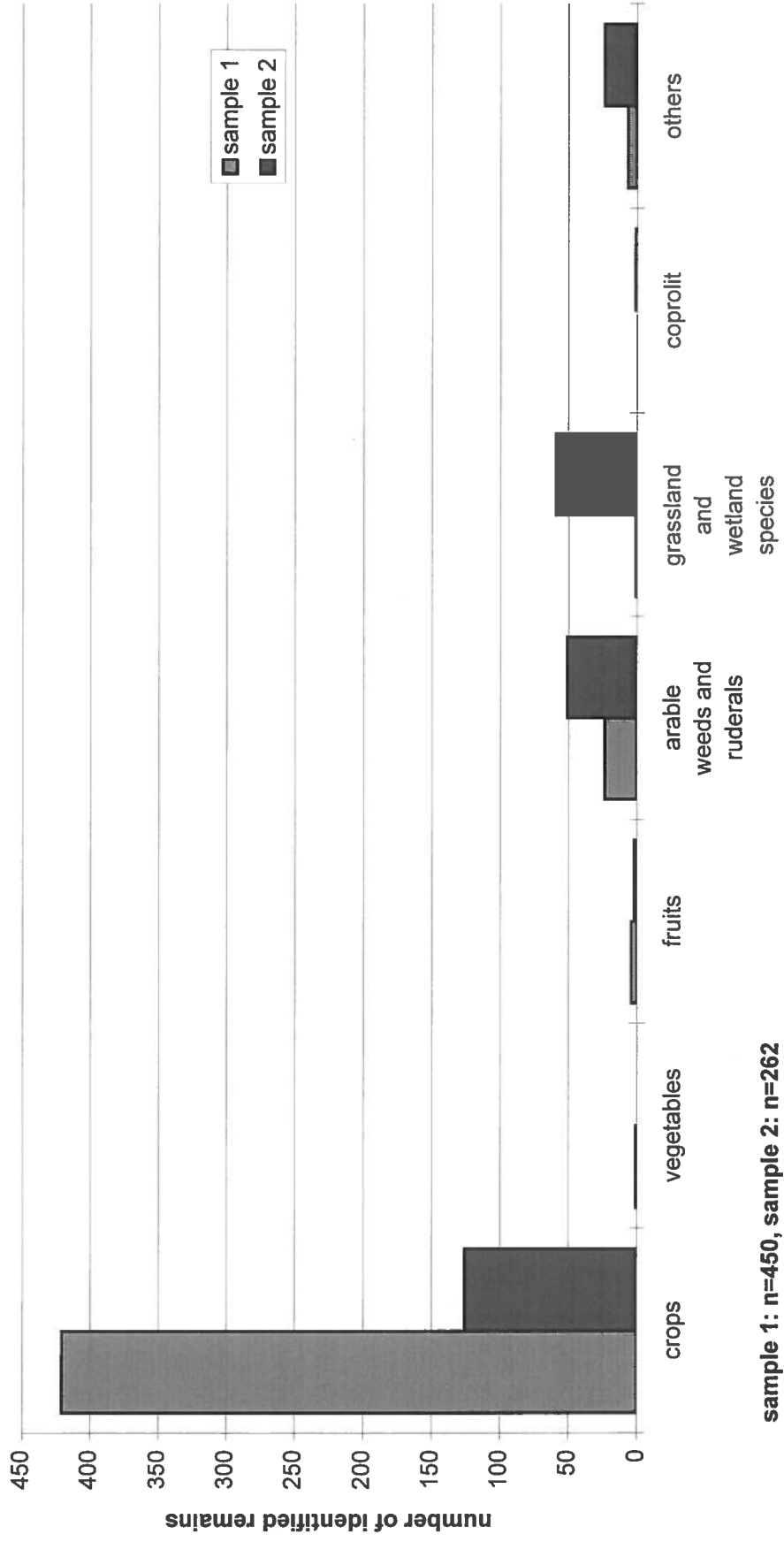


Fig. 4: Number of identified remains in the botanical samples 1 and 2 from Herstedøster Kirke (A8076).

Herstedøster Kirke 1250 - 1350 AD

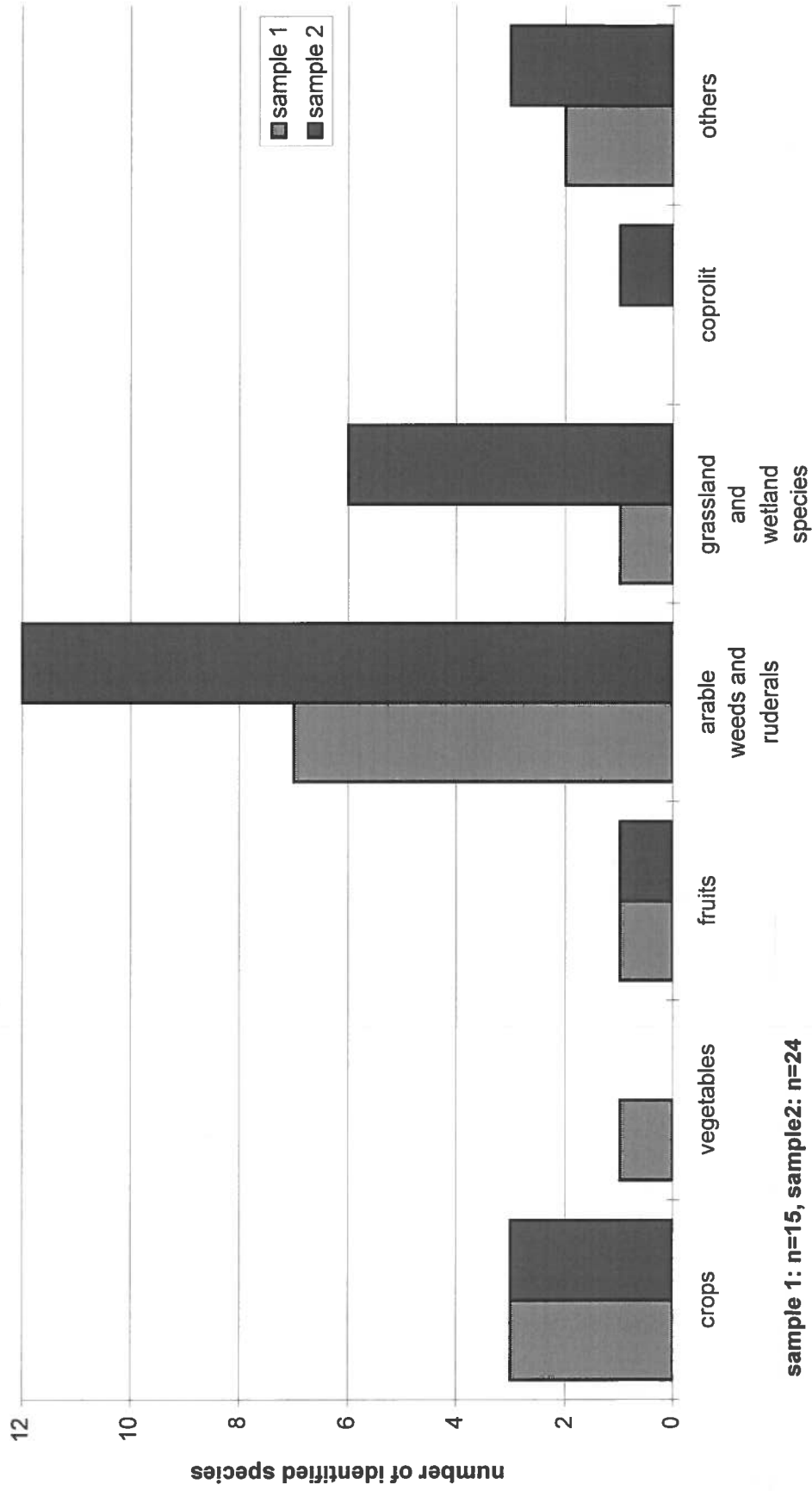


Fig. 5: Number of identified species in the botanical samples 1 and 2 from Herstedøster Kirke (A8076).