

The FeedSax Digital Archive: A Description

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The FeedSax Digital Archive (<https://doi.org/10.5284/1057492>) comprises data, documents, images and queries produced by the ‘Feeding Anglo-Saxon England’ (FeedSax) project between 2017 and 2022, at the Universities of Oxford and Leicester.¹ These files are provided here, on the Archaeology Data Service, both to support future analyses and/or replication of the original findings, and to serve as supplementary material underpinning key publications (especially the project monograph: Hamerow *et al.* forthcoming). The constituent files are divided into five sets, lettered A–E, as summarised below.

In addition to this principal digital archive, the FeedSax Photographic Archive (<https://doi.org/10.25446/oxford.20254137.v1>) is hosted by the University of Oxford’s Sustainable Digital Scholarship service. The photographic archive consists of 6,599 images and a metadata catalogue which is equivalent to Digital Archive Document A23 in the present archive; the latter table provides DOI links to individual images. Each image is a microscope photograph of charred cereal grains selected for either destructive analysis by the FeedSax project (whether radiocarbon dating or stable isotope analysis), or geometric morphometric analysis by Tina Roushannafas as part of her doctoral research at the University of Oxford, in collaboration with FeedSax.

Citation guidelines

It is suggested that the present archive may be cited in the following manner.

Entire archive

McKerracher, M., Bogaard, A., Bronk Ramsey, C., Charles, M., Forster, E., Hamerow, H., Hodgson, J., Holmes, M., Neil, S., Roushannafas, T., Stroud, E. and Thomas, R. (2023). *Feeding Anglo-Saxon England: The FeedSax Digital Archive* [data-set]. York: Archaeology Data Service [distributor] <https://doi.org/10.5284/1057492>

Individual documents

McKerracher, M. (2023). ‘The FeedSax Digital Archive: A Description’ (FeedSax Digital Archive Document A01) in McKerracher, M., Bogaard, A., Bronk Ramsey, C., Charles, M., Forster, E., Hamerow, H., Hodgson, J., Holmes, M., Neil, S., Roushannafas, T., Stroud, E. and Thomas, R. *Feeding Anglo-Saxon England: The FeedSax Digital Archive* [data-set]. York: Archaeology Data Service [distributor] <https://doi.org/10.5284/1057492>

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Set A – Haystack

Haystack is the SQL database which holds most of FeedSax's raw data, including secondary data compiled and transformed by the project, as well as primary data newly produced by FeedSax. Digital Archive Document A02 contains a long SQL script which will reconstruct the entire archived database in a MySQL/MariaDB environment. Supporting documentation is provided in the form of an Entity Relationship Diagram, setting out the structure of Haystack (Digital Archive Document A03), and a document outlining what the various tables and fields represent (Digital Archive Document A04). To improve the accessibility of the data for users without recourse to SQL, every table is also included here as a separate CSV file (Digital Archive Documents A05–A44). The documents in this set were produced by Mark McKerracher.

Set B – Archaeobotany

Archaeobotanical data constitute a large proportion of Haystack: most are secondary data gleaned from both published reports and 'grey literature' or otherwise unpublished archive reports (see Digital Archive Documents A02–A04 to understand the structure and distribution of these data within Haystack). In addition to compiling such secondary data, FeedSax also produced new primary data from first-hand analysis of charred plant remains, represented in reports and data for assemblages from Coton Park (Digital Archive Documents B01–B02), Houghton (B03–B04), and Lyminge (B05–B06).

Certain standardised analyses, modelled on the methodology of McKerracher (2019), were applied to the complete national archaeobotanical dataset held within Haystack, both to produce a quantitative and descriptive characterisation of medieval English archaeobotany, and to prepare the datasets for more detailed statistical analyses as discussed in the project monograph (Hamerow *et al.* forthcoming). These standardised analyses and characterisations are presented in a national data report (Digital Archive Document B07), which is accompanied by a spreadsheet containing sample-by-sample attribute data, i.e. calculated characteristics concerning the archaeobotanical composition of each sample (Digital Archive Document B08). Supporting metadata used in these and other archaeobotanical analyses are provided in Digital Archive Document B12.

Presence analyses were used to obtain a broad picture of the occurrence of different plant species across time and space: some example results are presented in Digital Archive Documents B42–B43, which should be interpreted with reference to the national report (B07). More complex multivariate statistical analyses were deployed by FeedSax to investigate crop husbandry practices through the lens of functional weed ecology. Data and graphs pertaining to these analyses are provided in Digital Archive Documents B10–B11 (for correspondence analyses) and B46–B49 (for discriminant analyses). In addition, a basic assessment of how many archaeobotanists produced the data compiled in Haystack is given in Digital Archive Document B45.

Where possible, the SQL queries which can be run against Haystack to replicate many of the standardised analyses used by FeedSax have also been included in the digital archive: see Documents B18–41 and B44 (to be interpreted with reference to the national report: B07).

Finally, FeedSax undertook botanical field surveys in two locations in England (Laxton, Notts, and Highgrove, Glos), to contribute to the functional weed ecological analysis of soil disturbance

(Bogaard *et al.* 2022). The original survey data are included here in Digital Archive Documents B14–B17, with corresponding taxonomic codes (based on *Flora Europaea* nomenclature) in B13.

The files in this set were produced by Mark McKerracher, except for the Laxton and Highgrove files (B13–17) which constitute the work of John Hodgson, Amy Bogaard, Elizabeth Stroud, Alexander Weide and Mark McKerracher; and B46–B49, which constitute the work of Amy Bogaard.

Set C – Radiocarbon dating

This set contains analytical reports from the FeedSax radiocarbon dating programme, with one report for each of the 26 sites for which the project dated charred grain or animal bone samples. Each report lists, calibrates and interprets the radiocarbon dating results with reference to site-specific information; these results underpin the phasing used for these sites in Haystack (Digital Archive Documents A02 and A42). The radiocarbon table in Haystack also contains the results data, including dates obtained from cores, which do not have separate reports in this archive (Digital Archive Documents A02 and A38). Finally, Digital Archive Document C27 presents the FeedSax Universal Chronological Framework: a specially devised phasing structure for the fifth to fourteenth centuries, as outlined in the project monograph (Hamerow *et al.* forthcoming). These ‘FeedSax phases’ are referenced in Haystack’s sitePhase table (Digital Archive Documents A02 and A42). Documents in this set were produced by Mark McKerracher.

Set D – Stable isotope analysis

The principles, methods and results of FeedSax’s stable isotope analyses of charred cereal grains and animal bone collagen are set out at length in project publications (e.g. Stroud 2022; Hamerow *et al.* forthcoming). The ‘raw’ results – for both stable isotope analyses and, in some cases, FTIR analyses – are contained within Haystack (Digital Archive Documents A02, A20–22, A24–27). Complementing these data, Digital Archive Document D01 presents a discrete study investigating variability in stable isotopic values from single grains of bread wheat, the results of which have informed FeedSax’s wider methodology and interpretations. This document was produced by Elizabeth Stroud.

Set E – Pollen analysis

The structure and schedule of the project meant that palynological data could not be incorporated into the Haystack database, but they are presented here – along with explanatory metadata and reference to further published details (e.g. Forster and Charles 2022) – in Digital Archive Document E01, accompanied by a map of sites in Document E02. These files were produced by Emily Forster.

References

- Bogaard, A., Hodgson, J., Kropp, C., McKerracher, M. and Stroud, E. (2022) 'Lessons from Laxton, Highgrove and Lorsch: Building arable weed-based models for the investigation of early medieval agriculture in England', in M. McKerracher and H. Hamerow (eds) *New Perspectives on the Medieval 'Agricultural Revolution': Crop, Stock and Furrow*. Liverpool: Liverpool University Press, 25–39.
- Forster, E. and Charles, M. (2022) 'Agricultural Land Use in Central, East and South-East England: Arable or Pasture?', in M. McKerracher and H. Hamerow (eds) *New Perspectives on the Medieval 'Agricultural Revolution': Crop, Stock and Furrow*. Liverpool: Liverpool University Press, 61–86.
- Hamerow, H. *et al.* (forthcoming) *Feeding Medieval England (700-1300). The Bioarchaeology of a Long 'Agricultural Revolution'*. Oxford: Oxford University Press.
- McKerracher, M. (2019). *Anglo-Saxon Crops and Weeds: A Case Study in Quantitative Archaeobotany*. Oxford: Archaeopress.
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