Colophon

The microphotographs in this brochure were taken by Judith Jans and Fionna Bottema with a Stemi SV 11 stereomicroscope, an Axiocam digital camera and KS 400 software from Zeiss. The macrophotographs were taken by photographer Dirk Fennema.

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The Digital Plant Atlas
An international project

The Digital Plant Atlas is an international project that makes a unique contribution to the identification of seeds, fruits, roots, tubers, bulbs, stem fragments, leaves, flowers, buds and resins. The plant parts are illustrated with high-quality colour photographs and accompanied by a scale and their scientific name. The local names in various languages are included in an index. In 2006, the Digital Seed Atlas of the Netherlands appeared. In 2009 and 2010, the Digital Atlas of Economic Plants and the Digital Atlas of Economic Plants in Archaeology will be published.

Every part of the Digital Plant Atlas is published as a combination of book and website. The books contain full colour photographs of all the plant parts presented as well as extensive indices. On the websites www.zadenatlas.nl (Dutch) and www.seeditasnl.nl (English), all the photos can be examined in more detail, and the measurements and the provenance details can also be consulted. The Digital Seed Atlas of the Netherlands also has a Dutch and English search key based on seed and fruit characteristics, thus helping to name unknown examples. The websites will be kept regularly updated and new photos will be added to the system.

The Digital Plant Atlas is a joint project of the Groningen Institute of Archaeology (GIA), the Community and Conservation Ecology Group (COCON), both of the University of Groningen (the Netherlands), and the Deutsches Archäologisches Institut (DAI, Berlin, Germany). The books are published in the Groningen Archaeological Studies series.
Page from the Digital Seed Atlas of the Netherlands
This atlas contains digital photographs taken with a microscope of 1828 Dutch wild plants, adventitious plants and cultivated plants that have gone wild. In principle, the diaspose of every species has been illustrated. The diaspose can be a seed, a fruit or a fruit with flower parts. The seeds of plant species whose seeds are released from the fruits during dispersal have been illustrated. As far as possible a representative fruit of every plant genus whose seeds are released from fruits has also been illustrated. The fruit and the seed of the species in question are thus first presented within the genus so that the transition between the genera is highlighted. When the seed remains enclosed by the fruit during the dispersal process, as for example with the schizocarps of the umbelliferous plants (Apiaceae) and the nuts of the Composites (Asteraceae), then only the fruit is illustrated. In order to emphasize the difference between the fruits and seeds of such fruits, typical seeds from such fruits have been dissected and also illustrated. When it is also possible to confuse parts of fruits with seeds, such as the hard, innermost parts (‘endocarps’) of juicy drupes, illustrations of both the fruit and the seed are included. If other parts of the fruit and the seed also have a diagnostic value, they have also been illustrated. Thus of all clover species (Trifolium spp.), the calyx (if necessary with corolla), the fruit and the seed are illustrated, and of all the sedges (Carex spp.), both the utricles and the fruits are illustrated. Of the grasses (Poaceae), illustrations have been included in principle of the spikelets (floret(s) surrounded by glumes), the florets (fruit(s) surrounded by lemma and palea) and the fruits. When there is a question of seed dimorphism, as with Knotted Hedge Parsley (Torilis nodosa) and the Lesser Hawkbit (Leontodon saxatilis), all the different seed or fruit types are illustrated.

The photographs in the book are arranged in accordance with the system in the latest (23rd) edition of Heukels’ Flora van Nederland (Van der Meijden, 2005). This new, systematic arrangement is based on recent DNA research and has resulted in a new plant genealogy, which is generally accepted internationally. The Digital Seed Atlas of the Netherlands thus provides important supporting visual material for the new arrangement. In a very few instances this arrangement has not been followed at genus and species level, for example if the morphological relationship between seeds and fruits could then better be expressed.

A PDF file with the table of contents (including a complete overview of the new arrangement into classes, orders, families and genera), introduction, three pages with photographs, glossary and indices can be downloaded for free from the internet (www.barkhuis.nl).
Year of publication: 2006
Pages: XXVI + 502
Cover: hardbound
Size: 21 x 29.7 cm; 4000 full colour illustrations; 2500 g
Language: bilingual (Dutch and English) and scientific names of plants
Price incl. VAT: EUR 145 (individuals) and EUR 195 (institutions)
Order: from a bookshop or the publisher (see the colophon)
Purchase of the book grants access to the protected parts of the websites www.zadenatlas.nl and www.seedatlas.nl.
ISBN-10: 9077922113

Cover of the Digital Seed Atlas
This atlas presents the plant parts that have an economic value and are offered for sale at markets and in shops. They include plants that are used as food, spices, stimulants, medicines, poisons, offerings, dyes, tannins, building materials and ground coverings. In order to best illustrate the variety in seed and fruit types within families, one or more representatives of many decorative plants have also been included. How the different plants are used is indicated by pictograms.

In addition to seeds and fruits, this atlas also illustrates other plant parts, such as roots, bulbs and tubers, stem fragments, leaves, flowers and buds. Typical examples of objects of daily use made from plant parts are also presented, for example a begging bowl from the Coco de Mer (*Lodoicea maldivica*) and beads from the Dom palm (*Hyphaene thebaica*).

Although plants from all over the world have been included, the emphasis is on the Old World (Europe, Asia and North Africa). It goes without saying that completeness was not the aim – there are simply too many plants with economic value. The selection is based on *World Economic Plants. A Standard Reference* by J.H. Wiersema & B. León (1999).

In recent years, many markets and herb shops in the old world have been visited to expand the comparative collection with what is currently on offer in trade plants. It turns out that the range has been changing in the last 10 years. On the one hand, globalization has resulted in a wider variety of mainly food plants through the migration of people and increased international transport of goods. However, the same globalization has also resulted in a certain degree of impoverishment of the range – medicinal plants in particular are vanishing from the shelves.
This atlas documents both the plants currently dominating the market and those that are now only offered in specialist shops. Thus this atlas can be regarded as an important period document, which is not only important for all kinds of specialists, such as paleobotanists, plant taxonomists, plant ecologists, pharmacists, ethnologists and traders, but also for a wider audience.

If you would like to be kept informed of the publication date of this atlas, please register for the atlas mailing list on the websites www.zadenatlas.nl and www.seedatlas.nl. When the atlas appears, you will be offered the opportunity to order it with a 25% discount!

Year of publication: 2009
Language: trilingual (English, German and Dutch) and scientific names of plants
Price: unknown
Purchase of the book grants access to the protected parts of the websites that form part of the project.
The third part of the Digital Plant Atlas presents illustrations of subfossil remains of plants with economic value. These plant remains mainly come from excavations in the old world (Europe, Western Asia and North Africa) that the Deutsches Archäologisches Institut (DAI, Berlin) and the Groningen Institute of Archaeology (GIA) have conducted or participated in.

Plant material is usually very perishable, but can nevertheless be preserved in archaeological sites if the biological decay of the material is blocked. Many plant remains are discovered during excavations in carbonized form, where despite having been in contact with fire, they have not been completely reduced to ash. Extremely dry climatic conditions, like those in Egypt, can also preserve plant material in a completely dessicated condition. Most of the economically valuable plants illustrated here have been preserved in this way. Thus, this atlas follows on well from the Digital Atlas of Economic Plants.

Just as in part two of the series, this part will not only include illustrations of seeds and fruits, but also of other plant parts. The resulting variety in seed and fruit forms will be illustrated by examples from different excavations. If relevant, photographs of recent samples will be presented, thus illustrating the increase in size as a result of selection and domestication processes. The illustrations of the subfossil plant remains will be supplemented by photographs of the traditional cultivation and processing of a number of cultivated plants.

To supplement the photographs, the website will also include morphometric measurements of the subfossil seeds and fruits. These measurements can be compared with the own measurements of the plant taxonomy in question.
If you would like to be kept informed of the publication date of this atlas, please register for the atlas mailing list on the websites www.zadenatlas.nl and www.seedatlas.nl. When the atlas appears, you will also be offered the opportunity to order it with a 25% discount!

Year of publication: 2010
Language: trilingual (English, German and Dutch) and scientific names of plants
Price: unknown
Purchase of the book grants access to the protected parts of the websites of the project.
Expansion of the Digital Plant Atlas

The Digital Plant Atlas can be expanded by new parts in addition to the planned three volumes. New authors may make use of photographs from the first three parts. Thus atlases of other countries can be produced efficiently, as well as of new selections of economic plants and subfossil plant remains. These books will also be published as new volumes in the Groningen Archaeological Studies series, and the digital version will be added to the website of the digital library of the University of Groningen. The Digital Plant Atlas will also form part of the National Reference Collection (NRc), which combines knowledge in the field of specific material groups.

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