

# The cultural and ecological context of early plant domestication

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**S**outheast Anatolia contains some of the earliest and best-known sites associated with the beginning of cultivation and herding in southwest Asia. Since the first excavations at Çayönü Tepesi in 1964 by the Joint Istanbul-Chicago Prehistoric Project, led by Halet Çambel and Robert Braidwood, several excavations and field surveys have revealed an impressive array of aceramic Neolithic sites (Hallan Çemi, Körtik, Gusir, Göbekli Tepe, Nevalı Çori, Cafer Höyük, etc.) spanning a period of ~1,500 years from the mid-tenth to the late ninth millennium cal. BC. However, nearly six decades of intensive fieldwork and spectacular archaeological discoveries notwithstanding, still little is known about the origin of Neolithic plant management practices and the process of early crop domestication in this region.

The earliest aceramic Neolithic sites located in the Tigris basin (Gusir, Çayönü/Round Plan sub-phase, Hallan Çemi, Körtik, Demirköy, Hasankeyf) have produced limited evidence for the exploitation of wild-type cereals and pulses, despite the fact that this region occupies a central position in the primary zone of the distribution of southwest Asian crop progenitor species. In the Euphrates basin, the limited sampling conducted to date at Göbekli has also produced minimal quantities of plant remains. Although cereals and pulses are better represented in late ninth-millennium cal. BC phases sampled at Çayönü, Nevalı Çori and Cafer Höyük, the evidence for early crop domestication from these sites remains inconclusive. Of all the aforementioned sites, few (Hallan Çemi, Gusir, Demirköy, Körtik) have been sampled by machine-assisted water flotation. The absence of large-scale, intensive flotation sampling is acutely felt in large and architecturally more complex sites such as Göbekli, Çayönü and Nevalı Çori, where archaeologists have unearthed some of the most spectacular examples of the symbolic and ritual behaviours (reflected in monumental communal architecture and material culture) associated with the transition from foraging to farming in southwest Asia.

The key objective of our research project, the pilot phase of which is funded by a grant from the British Institute at Ankara, is to address this important gap in research on the region's agricultural origins through the intensive, large-scale sampling and analysis of archaeobotanical remains from aceramic Neolithic Karahan Tepe. A new programme of excavation started at the site, which is located in the Şanlıurfa province, in September 2019, under the direction of Necmi Karul of the Department of Prehistory at Istanbul University.



General overview of the 2019 Karahan Tepe excavations.

Recent field surveys have established the extent of the visible prehistoric remains on the eastern terrace of the site at 32.5ha. They comprise the upper parts of >250 in-situ, T-shaped pillars protruding from the topsoil and the remnants of prehistoric walls and rock-cut features, alongside abundant knapped- and ground-stone scatters. Surface finds (especially the morphology and size of the visible pillars and lithic technology) place Karahan in the same chronological horizon as Göbekli II and Nevalı Çori. During the 2019 field season, excavation work revealed several structures cut directly into the bedrock, in addition to evidence for the careful infilling of these structures. In this first season, we established an on-site, three-tank, machine-assisted, water-recycling flotation system with which we processed >700 litres of excavated sediment. Our plan in forthcoming seasons is to apply intensive flotation sampling at Karahan, targeting ~50% of all excavated deposits and 100% of select deposits (hearths, floors, dumps, middens) in order to retrieve representative archaeobotanical samples.



The three-tank, water-recycling flotation system.