

More than seven thousand years ago, the first farming communities reached the area of present-day southern Poland, migrating from regions further south in Europe. They introduced a new way of life based on crop cultivation, animal husbandry, and permanent settlement. These early agricultural societies are identified with the Linear Pottery culture – an archaeological culture distinguished in part by its characteristic ceramic vessels. This pivotal period in human history, known as the Neolithic Revolution, brought lasting transformations in the relationship between humans and the natural environment. However, unfamiliar environmental conditions required these settlers to adapt their established practices. How did early farmers cope with such diverse and unknown landscapes, and what choices did they make in their use of plants?

The aim of this project is to understand how Neolithic communities in southern Poland adapted their agricultural strategies to local environmental conditions. The research focuses on plant remains (seeds, fruits, and wood charcoal) recovered from seven archaeological sites associated with the Linear Pottery culture. These remains make it possible to identify the cultivated species, determine which wild plants were used, and reconstruct the surrounding landscapes of the settlements.

The project investigates how early farming societies adapted their plant-use strategies to the diverse ecological landscapes of southern Poland. The study will be carried out at two analytical levels: local and comparative. The first level involves a detailed analysis of local ecological conditions and the composition of plant macroremains (both cultivated and wild) at each of the six studied sites. The second level is comparative in nature and focuses on synthesizing results from different regions in order to identify broader patterns in plant use and settlement strategies.

Among the dominant crops were emmer wheat (*Triticum dicoccon*) and einkorn wheat (*T. monococcum*). However, the project will also enable verification of less commonly recorded taxa, such as a “new” hulled wheat closely resembling Timopheev’s wheat (*T. timopheevii* s.l.), as well as barley (*Hordeum vulgare*) and poppy (*Papaver somniferum*). A key research goal will be to determine whether these plants truly appeared in the earliest Neolithic contexts, or whether their presence results from later intrusions or contamination. New radiocarbon dates will help clarify the chronology of these finds. Charcoal analysis, in turn, will provide insight into the composition of local forests and plant communities surrounding the first farming settlements.

For the first time in Poland, ecological niche modelling (MaxEnt) will be applied to Neolithic archaeobotanical data. This approach will make it possible to assess the environmental preferences of early settlers and to understand which landscape features influenced settlement location choices.

The results of the project will contribute to a better understanding of the beginnings of agriculture in Central Europe and the human – environment relationship at a key moment in the history of our civilization. The findings will help fill gaps in the archaeobotanical record for southern Poland and contribute to broader discussions on the origins of farming and environmental change in Central Europe.