Research reveals history of Chinese agriculture
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A research team headed by a University of Toronto anthropology professor has published a study containing new insights into the history of agriculture in a region of China where one of the world’s earliest state-level societies originated.

Professor Gary Crawford, an archeologist and chair of anthropology at the University of Toronto Mississauga, led the team whose research into the historical sequence of crop development in the Yilou River valley has just been published in the Proceedings of the National Academy of Sciences.

The Yilou valley is part of the Huanghe (Yellow) River basin in north China, a region where advances in agricultural practices in turn gave rise to centralized forms of government and an area where the Xia, Shang and Zhou dynasties developed (at different times) during the Bronze Age.

“We know very little about the development of agriculture in China, which is so important in terms of world agricultural history,” Crawford said. “Our research is revealing a rich potential for understanding a previously poorly known food production system in the Yilou valley, one of the major regions in the world where agriculture developed.”

Entitled Plants and People from the Early Neolithic to Shang Periods in North China, the paper presents findings obtained during an archeological survey conducted from 1998 to 2002. Crawford and Gyoung-Ah Lee, a former PhD student at U of T, are co-authors of the paper. Li Liu from Australia’s La Trobe University and Xingcan Chen from the Chinese Academy of Social Science in Beijing are the principal field investigators.

The paper details the development sequence for crops and other plants in the Yilou valley from about 6000 BC to 1300 BC. Radiocarbon dating of seeds gathered at 26 archeological sites showed that two forms of millet, foxtail and broomcorn, were being cultivated in the valley sometime around 6000 BC, followed by the introduction of rice and wheat by about 2000 BC.

Crawford said the research shows that cultivation of millet allowed for the founding of state-level societies — societies with a central government or administration -- in this part of China, but the addition of rice and wheat to the crop mix played a crucial role in contributing to their success and expansion.

“So for the very first time we can say which crops were in north China and in which sequence they were added. We were hypothesizing in the past but now we have the hard data and can move on to more sophisticated levels of thinking about how advances in agricultural development allowed for the rise of state-level societies,” Crawford said.

One of the more intriguing findings of the research is that for several thousand years in the region substantial political and social development was made possible by the cultivation of millet. Crawford said millet grain is quite small compared with other grains and it would be necessary to grow large volumes of the crop to feed a population.

“Obviously these people at this time in history saw some advantage to this plant,” Crawford said. “We feed it to birds today but millet was crucial to the foundation of Chinese agriculture and, in a sense, Chinese civilization. In the past, we suspected that from the archeological evidence but now we’ve proven it with this research.”

Source: University of Toronto