

Maize Evolution and Domestication

Early agricultural societies around the world each domesticated a grain crop that provided the bulk of calories required by people. In Asia, it was rice; in the Middle East, it was wheat; in Africa, it was sorghum; and in the Americas, it was corn.

Corn (*Zea mays* ssp. *mays*) is called maize in most of the world.

Corn, a crop familiar to people all over the world, had a mysterious origin until scientists confirmed the genetic basis of its domestication just a few years ago. We now know that corn's closest relative is a plant called "teosinte" that grows wild in Mexico.

Teosinte seems an unlikely plant to domesticate. It has hard seeds that are difficult to grind and they fall off the plant when they mature. Perhaps teosinte was first consumed as popcorn, since it pops when heated, or the sweet stalks were chewed like sugarcane.

We now know that changes in only four major genes account for the major difference in physical appearance of teosinte and corn: 1) holding tight to seed (shattering); 2) multiple branches (tillering); 3) multiple rows of seed per ear; and 4) reduction of the hard seed covering.



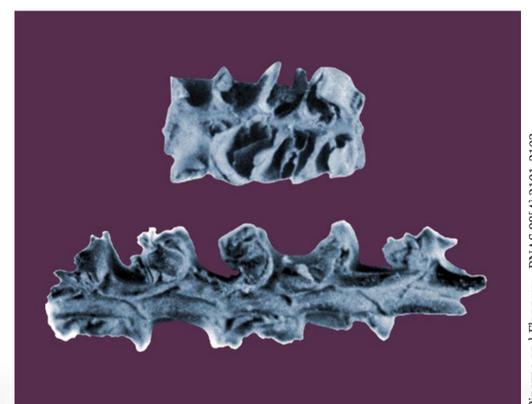
Right: map of the major archaeological sites with evidence of early maize

Where was corn domesticated? Botanists and archaeologists have searched North and South America for an answer. The closest wild relative of maize, a teosinte (*Zea mays* ssp. *parviglumis*), grows in the Balsas Valley of southern Mexico, but the oldest archaeological remains were found over 250 miles away in the Guila Naquitz cave in Oaxaca state, Mexico. Since the closest wild relatives of corn and the oldest archaeological evidence are both found in southern Mexico, corn probably was domesticated in this region, though the exact site is uncertain. We may never know the exact location.



Photo by Hugh Iltis

Above: Ears of teosinte look very different from the corn we know. Below: Archaeological remains of early corn, greatly enlarged: the actual size of lower cob is 2.5 centimeters, or about an inch long.



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