

The Confounding History of Corn

Is there anything more picnic perfect than an ear of corn rolled in butter? It is amazing this maize, condensing in its history the history of agriculture. The most widely cultivated food crop in the world, 700 million tons are grown yearly. One reason its history is concurrent with the growth of agriculture as a science is that without people it would die. The kernels won't blow about but if not harvested will pile up in a heap, the seedlings choking each other to extinction.

In general there are two types of corn, 'flint' or 'dent'. Flint corns are hard, meaning the starch at the center of the kernel is hard. Dent corn has a softer center that shrinks when drying and therefore denting. The corn that we don't eat off the cob, we eat as meat, eggs, and dairy products, so largely is it used as feed. We may even drink it as in whiskey or use it to drive our cars as a biofuel.

In the poorer parts of the world corn is used ground for paste or gruel. It is not an ideal food, lacking protein, but it is being enhanced genetically to add genes to improve its nutritional value. That is the newest version of a very old crop. In St. Marco's Cave, Tehuacan, Mexico, tiny little cobs were found that have been carbon-dated back to 5000 BCE. Corn cultivation is part of many ancient civilizations, each having its own species. The last Aztec Emperor, Montezuma is reported to have demanded 3000 bushels of corn as tribute each harvest from his 20 provinces. In 1492 Columbus found corn being grown in Cuba and it actually was grown from near the St. Lawrence River south to Chili with perhaps two or three hundred local varieties.

Only two of those varieties have given rise to the many kinds being grown today. Because the needed qualities can only come from hybrid vigor, new seed is needed every year, therefore seed can't be saved for replanting. Before a plant was discovered in Texas in 1940 having a special form of male sterility that prevented pollen formation, farmers had to prevent cross fertilization by removing the tassels. This discovery resulted in corn with that particular feature being grown throughout the country and when a fungus attacked it in 1970 half the crop in some places was ruined. However, not only do ancient varieties still exist, they are being used in improving the current species.

Corn culture is still at the heart of the Zapotec people who live in Oaxaca high in the Sierra Juarez Mountains. These people call themselves the people of the clouds and still speak Zapotec. As their land is held communally they pay a lot of attention to what is grown on it. Corn is more than a crop: it is their way of life. Unfortunately when NAFTA went into effect in 1994 the Mexican government initiated measure to eliminate the country's small farm sector. It was understandable that they wanted to boost those small farmers out of poverty but the Zapotec resisted. In defending their way of life they weaned themselves off expensive fertilizers and subsist today on what they can grow, harvest and barter. By using an ancient method of lime cooking, the corn provides a complete protein when combined with beans, making up 70% of the daily calories.

In the Mexican countryside there are 59 distinct cultivars that may in time provide genetic material to improve the world's corn crop. In the mountains and valleys along this 'spine' other

crops have originated such as squash, and beans: even important herbal and culinary ‘weeds’ are grown in their fields, a rich genetic resource.

In the tremendously successful production of corn in the US the real cost is not part of the equation Each bushel requires between a quarter and a third gallon of oil for fuel and fertilizer, 50 gallons an acre. According to Michael Pollan in “The Omnivore’s Dilemma” in Iowa in 2005 it cost \$2.50 to grow a bushel of corn that sold for \$1.45. Government subsidies bridged the gap. When exported to Mexico this corn depressed the market there and sent the farmers off the land.

Research at tufts University finds that corn is chemically dependent, a cost to the environment for which there is no accounting.

Genetically modified corn was first planted commercially in 1996; by 2000 25% of the US crop was GM, by 2009 85%. It has an implanted Bt gene that imparts resistance to several insects and another gene that makes corn resistant to the herbicide glyphosate. All well and good if the transgenes stay put but tests show these genes have entered the culture where corn seed is saved and exchanged and 7000 years of corn culture is threatened... More evidence of unintended consequences?