

## Alternative uses of maize

A.V. TAK AND V.B. TAK

See end of the article for authors' affiliations

Correspondence to :

**A.V. TAK**

Department of  
Agricultural Extension  
Economics,  
Marathwada  
Agricultural University,  
PARBHANI (M.S.)  
INDIA

### Food Purpose:

Maize and cornmeal (ground dried maize) constitutes a staple food in many regions of the world. Maize meal is made into a thick porridge in many cultures. From the polenta of Italy, the angu of Brazil, the mamaliga of Romania, to mush in the U.S. or the food called sadza, nshima, ugali, and mealie pap in Africa. Maize meal is also used as a replacement for wheat flour, to make cornbread and other baked products. Masa (cornmeal treated with lime water) is the main ingredient for tortillas, atole and many other dishes of Mexican food.

Popcorn is kernels of certain varieties of maize which explode when heated, forming fluffy pieces that are eaten as a snack. Roasted dried maize cobs with semi-hardened kernels, coated with a seasoning mixture of fried chopped spring onions with salt added to the oil, is a popular snack food in Vietnam.

Chicha and "chicha morada" (purple chicha) are drinks made usually from particular types of maize. The first one is fermented and alcoholic, the second is a soft drink commonly drunk in Peru.

Corn flakes are a common breakfast cereal in North America and the United Kingdom, and found in many other countries all over the world.

Maize can also be prepared as hominy, in which the kernels are soaked with lye in a process called nixtamalization; or grits, which are coarsely ground hominy. These are commonly eaten in the South eastern United States, foods handed down from native Americans, who called the dish sagamite.

The Brazilian dessert canjica is made by boiling maize kernels in sweetened milk

Maize can also be harvested and consumed in the unripe state, when the kernels are fully grown but still soft. Unripe maize must be cooked to become palatable; this may be done by simply boiling and eating the kernels right off the cob. Such corn on the cob is a

common dish in the United States, United Kingdom and some parts of South America, but virtually unheard in some European countries. The cooked unripe kernels may also be shaved off the raw unripe kernels may also be grated off the cobs and processed into a variety of cooked dishes, such as maize paine putee, tamales, pamongas, cutau, cakes, ice creams, etc. Sweetcorn, a genetic variety that is high in sugars and low in starch, is usually consumed in the unripe state.

Corn the cob, as it is usually called in the United States, was hawked on the streets of early 19th-century New York City by poor, barefoot "Hot Corn Girls" who were thus the precursors hot-dog carts, churro wagons, and fruit stands seen on the streets of big cities today.

Maize is a major source of starch. Cornstarch (maize flour) is a major ingredient in home cooking and in many industrialized food products. Maize is also a major source of cooking oil (corn oil) and of maize gluten. Maize starch can be hydrolyzed and enzymatically treated to produce syrups, particularly high fructose corn syrup, a sweetener; and also fermented and distilled to produce grain alcohol. Grain alcohol from maize is traditionally the source of bourbon whiskey. Maize is sometimes used as the starch source for beer.

In the United States and Canada maize is also widely grown to feed for livestock, as forage, silage (made by fermentation of chopped green cornstalks), or grain. Maize meal is also a significant ingredient of some commercial animal food products, such as dog food.

Maize is also used as fish bait, called "dough balls." It is particularly popular in Europe for coarse fishing.

### Chemicals and medicines :

Starch from maize can also be made into plastics, fabrics, adhesives, and many other

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chemical products.

Stigmas from female maize flowers, known popularly as cotton silk, are sold as herbal supplements.

The corn steep liquor, a plentiful watery by product of maize wet milling process, is widely used in the biochemical industry and research as a culture medium to grow many kinds of microorganisms.

### **Biofuel :**

Maize is tentively cheap and home-heating furnaces have been developed which use maize kernels as a fuel. They feature a larhe hoppet that feeds the uniformly sized maize kernels (or wood pellets or cherry pits) into the fite.

Maize is increasingly used as a feedstock the ptoDUCTION of ethanol fuel. Ethanol is mixed with gasoline in order to decrease the amount of pollutants emitted when used to fuel motor vehicles. High fule prices in mid 2007 led demand for ethanol; which in turn to higher prices paid to farmers for maize. This led to the 2007 harvest being one of the profitable maize crops in history for farmers. Because of the relationship between fuel and maize, prices paid for the crop now tend to track price of oil.

It has been erroneously assered that recent food price increases were the result of higher prices for maize. Transpotarion costs, a large portion of the prine of food, and higher fuel prices for transportaion effected food prices. Higher costs for food were mostly due to higher transportation costs. The price of the maize derived content has little effect.

Farm-based maize silage digester located near Neumunster in Germany, 2007 Green inflatable biogas holder is shown on top of the digester

Maize is widely used in Germany as a feedstock for biogas. Here the maine is harvested, shredded then placed silage clamps from which it is fed into the biogas plants.

A biornass gasification power plant in Strem near Gussin, Burgenland, Austria began in 2005. Research is being done to make diesel out of the biohgas by the Fischer Tropsch method.

Increasingly ethaol is being used at low concentrations (10% or less) as an additive gasoline (gasohol) for fuel to increase the octane ratinh, lower pollutants, and reduce petroleum use (what is nowadays also known as "biofuels" and has been generating an intense debate regarding the human beings' necessity of new sources of energy, on the one hand, and the need to maintain, in regions such as Latin America, the food habits and culture which has been the essence of civilizations such as the one originated in Mesoamerica; the entry,

january 2008, of maize among the commercial agreements of NAFTA has increased this debate, considering the bad labour conditions of workers in the fields, and mainly the fact that NAFTA opened the doors to the import of maize form the United States, where the farmers who grow it receicve multi-million dollar subsidies and other government supports. According to OXFAM UK, after NAFTA went into effect, the price of maize in Mexico fell 70% between 1994 and 2001. The number of farm jobs dropped as well: from 8.1 million in 1993 to 6.8 million in 2002. Many of those who found themselves without work were small-scale maize growers. However, introduction in the northern latitudes of the U.S. of tropical maize for biofuels, and not for human or animal consumption, may potentially alleviate this.

As a result of the U.S. federal government announcing its production target of 35 billion gallons of biofuels by 2017, ethanol production will grow to 7 billion gallons by 2010, up from 4.5 billion in 2006, boosting ethanol's share of maize demand in the U.S. from 22.6 per cent to 36.1 percent.

### **Ornamental and other uses:**

Some forms of the plant are occasionally grown for ornamental use in the garden. For this purpose, variegated and colored leaf forms as well as those with colorful ears are used. Additionally, size-superlative varieties, having reached 31 ft (9.4m) tall, or with ears 2 inches (60.96cm) long, have been popular for at least a century.<sup>(32)(33)</sup>

Corncoobs can be hollowed out and treated to make inexpensive smoking pipes, first manufactured in the United States in 1869.

### **Children playing in a corn kernel box**

An unusual use for maize is to create a *corn maze* (or *maize maze*) as a tourist attraction. The idea of a maize maze was introduced by Adrian Fisher, one of the most prolific designers of modern mazes, with The American Maze Company who created a maze in Pennsylvania in 1993. Traditional mazes are most commonly grown using hedges, but these take several years to mature. The rapid growth of a field of maize allows a maze to grow tall enough to obstruct a visitor's line of sight by the start of the summer. In Canada and the U.S., these are popular in many farming communities.

Maize kernels can be used in place of sand in a sandbox-like enclosure for children's play.

### **Folder:**

Maize makes a greater quantity of epigeous mass than other cereal plants, so can be used for fodder.

Digestibility and palatability are higher when ensiled and fermented, rather than dried.

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Authors' affiliations:

**V.B. TAK**, Department of Agricultural Economics,  
Marathwada Agricultural University, PARBHANI (M.S.)  
INDIA

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