



## Zea mays

Family name: Poaceae

Common name: Poaceae

Local name: (عيش ريف) Aish reef



## INTRODUCTION

## Herb, grass

*Zea mays*, corn, is a grass cultivated worldwide for its grains. Corn was first domesticated by native peoples in southern Mexico about 10,000 years ago. It was first introduced to the Americas following discovery of the continent by European travelers during the 15th century, later, it spread to Sub-Saharan Africa and rest of the world. The plant possesses a single main culm with nodes and internodes and, Nodes gradually taper towards the top of the plant. It is also characterized by a loose terminal panicle of male flowers. The female inflorescences form at the ends of short axillary shoots.

In Sudan, corn is grown in the regions of Kordofan, Darfur, and in limited areas in the states of northern Sudan and the Nile River state. Corn is one of the crops of great importance as human food and animals fodder.

## LIVELIHOODS / CULTURE

## Cultivation

In the rain-fed areas of Sudan, maize is planted in the first half of July. Farmers ensure that the flowering period matches rainfall rates and also the crop is not exposed to water stress. In irrigated areas, it can be planted at any time. In Khartoum and River Nile states, farmers plant the crop in October and November. In central Sudan, it is usually planted during July and also in October and November.

**Land preparation:** It starts with deep plowing, then a number of shallow plowings are carried out. For grain production cultivation, trenches or *srabat* are designed with a width of 80 cm.

**Seeds sowing:** Planting is done manually in holes on top of the trenches with dimensions of 20-25 cm, with two seeds placed in the hole, which can later be reduced to one plant per hole. Planting can also be done by machine on trenches with dimensions of 75 cm between the trenches and 15-20 cm between the plants. For fodder production cultivation, the seed rate increases to three times, and planting is done by scattering the seeds first, then infiltration.

**Watering:** Corn does not tolerate thirst or drowning, and the crop should not be exposed to water stress after the flowering stage to ensure high grain productivity. Irrigation intervals range from 7 to 15 days, taking into account the season, soil type, and growth stage.

**Harvesting:** Harvesting is done after the signs of maturity appear, usually after 100-120 days from planting, the signs of maturity appear clearly, which are yellowing of the covers, dryness, and fullness and hardening of the grains. Forage crops can be harvested before these signs appear. Harvesting is either manual or mechanical using specialized harvesters. Harvesting for grains begins when the grains are fully mature, while harvesting of maize intended for seeds must be done at the end of the physiological maturity of the grains. One of the advantages of maize is that there is no significant loss in the harvest due to the over-harvesting of grains or birds. Hand harvesting is usually done in two stages, where the cobs are cut first, followed by the separation of the grains from them.

## Cultural Value

Maize is consumed in the form of flour or can be eaten as grilled or boiled. It is also used in the manufacture of fodder to feed poultry and animals.

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## Cultural Expressions

Information not available.

## THREATS

**Climate change:** At temperatures above 30°C, pollen of maize plant loses viability very quickly, especially if relative humidity is low.

A period of high humidity can also interfere with fertilization if it reduces pollen shed preventing successful pollination.

**Pests:** Corn leaf aphids (*Rhopalosiphum maidis*) are highly destructive pests of maize that threaten growth and seed yield.

## Cultivated



## Role in Biodiversity

If corn cultivation uses large areas of land, the cropping system will have negative impacts on the environment (monoculture, delayed canopy closure, nitrate leaching, limited habitat, and food resources), small vertebrates and arthropods, but if planted with some other flowering plants it could be an additional flowering and ground cover which are beneficial for biodiversity.



## Environment and Growing

Corn is adapted to grow in tropical and warm temperate zones. It can grow on a wide range of soil types ranging from sandy loams to clay loams.

Growth requirements:

- 38-50 cm of water during a growing season for best growth without water stress.
- optimum soil temperatures range 25-30°C,
- PH range 6.0-6.8



## Reproduction and Communication

Maize is a monoecious plant with imperfect flowers (that is, separate male and female flowers on the same plant). It reproduces naturally by seeds. It is predominantly cross-pollinated by wind. Self-pollination is limited.



## Life span

Maize plant has a life span of 75-150 days.



## Size

Maize plants can reach as much as 12 feet (4 meters) in height



## Parts



Stem of a maize plant is a long central stalk that supports every part of the plant. The only branches on the stem are those that support the reproductive parts.

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The root system of corn is seasonal with brace roots that start 2 or 3 joints above the ground and main roots that descend up to 2 m vertically and 1.2 m horizontally.



Leaves are comprised of a sheath and ligule wrapped tightly around the stem or culm. They are broad and arranged in two vertical rows on opposite sides of the stalk. The upper surface of the leaf blade is hairy, while the lower surface is hairless.



Female flowers are arranged in ears (also called **rames** or **spikes**), which occur at the ends of short, thick branches on the sides of the main stem.

Male flowers are grouped in an inflorescence called a **tassel** at the tip of the stem. Maize tassels consist of a central stem bearing branches (also called **rames**) on its sides. Each branch bears many pairs of spikelets.

Fruits are kernels. Unlike in most other grasses, ears of corn do not disarticulate.

Seeds are caryopsis, ., 91 to 250 mg

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