# TECHNICAL SHEET

## Introduction to maize

The scientific name Zea mays L. is a tropical annual herbaceous plant of the Poaceae family. The maize plant is a cereal whose grains are rich in starch. The maize kernel is made up of three parts: the embryo, commonly known as the germ, the albumen, which is essentially made up of starch grains, and the outer shell, which is a thin membrane. The size and weight of the grain depends on the variety. 1000 maize kernels weigh between 200 and 350 grams and can be up to 700 grams depending on the variety. There are several varieties of maize grown for human consumption: sweet maize, pearl maize, dent maize, floury maize and glass maize, which is also used as fodder.

## Maize cycle

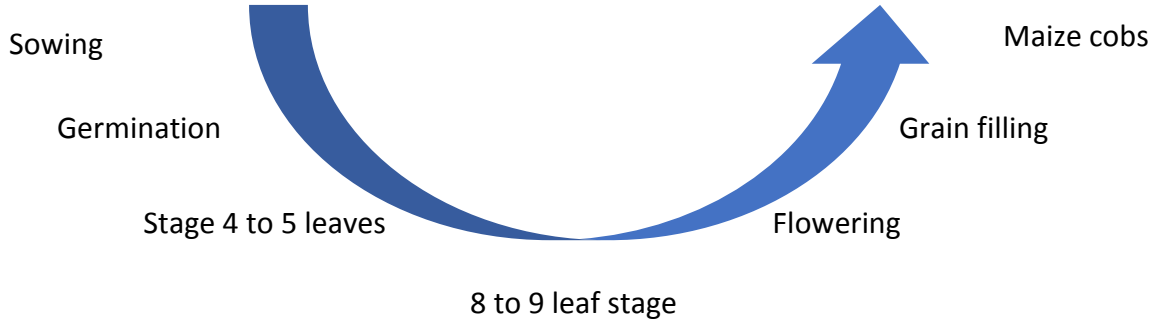


**Figure 1:** Maize cycle

After sowing, the plant develops over a period of 5 to 7 months. This development takes place in three main phases:

- **The vegetative phase:** this corresponds to the formation of the roots, the stem and the leaves.
- **Reproduction:** during this phase, the reproductive organs (male and female) appear. First, the male panicle containing the stamens (pollen) appears. The female flowers will appear a few days later and give rise to the spikes.
- **Grain development and ripening:** At this stage, the grain filled with water and products of photosynthesis forms and reaches maturity. When the plant turns yellow and dries out, the ears can be harvested.

**Growing maize in Ghana**

Many households in Ghana produce and consume maize. In the north of the country, it is not only a staple crop, but also a cash crop. It accounts for 62% of the country's total cereal production (rice 16%, sorghum 14% and millet 8%). Maize is a staple food for Ghanaians and is an increasingly important component of poultry feed.

Maize production in northern Ghana is threatened by declining soil fertility (mainly low nitrogen content), increasing incidence of drought and infestation by Striga hermonthica (Striga). The combined effects of these stresses can lead to a reduction in yields of up to 80%, with negative effects on the food security and livelihoods of affected households. In order to increase maize productivity at the smallholder level, maize varieties to be grown in savannah areas should have desirable levels of tolerance to the above-mentioned stresses.

CSIR-Wang-Basig has been extensively tested for drought and Striga adaptation in drought-prone and Striga-endemic areas of northern Ghana. It has also been tested for its superior agronomic performance and yield potential in the major agro-ecological zones of the country. Grain yield of CSIR-Wang-Basig in the researchers' and farmers' fields was 5.5 t/ha and 2.8 t/ha, respectively.

**Targets of the technology**

- Small, medium and large seed companies
- Agricultural input dealers
- Processors
- Livestock feed industry
- Breweries

**Area of application of the technology**

- This variety can be grown successfully in all agro-ecologies of Ghana, but it performs best in the savannah and forest-savannah transition zones of Ghana.
- It can also be successfully produced in the Guinean and Sudanese savannah zones of other West African countries such as Nigeria and the Republic of Benin.

**Level of technology development or deployment**

Fully developed technology being commercialized

**Photo of the technology**

**Figure 2 :** CSIR-Wang Basig, a climate-smart hybrid maize variety

**References**

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