



Photo: Gcina Ndwane

# Sorghum

sorghum (*Sorghum bicolor*) isiZulu: amabele

The earliest evidence of the use of sorghum is an 8 000-year-old site on the current border between Egypt and Sudan, where sorghum seeds were found together with pottery fragments and cattle bones. North-eastern Africa is believed to be the centre of origin for cultivated sorghum due to the genetic diversity of the varieties, and similarities with wild sorghums, in this region.

Sorghum is now the 5th most important cereal crop worldwide, providing the staple food for 750 million people. Sorghum is an important animal feed; the whole plant is used as fodder, hay and silage (moist fodder that is fermented in an airtight store). Commercial production for livestock feed is greater than food, with the USA producing the most sorghum worldwide.

## Ancient grain

Thousands of years of growing sorghum in different parts of the world, has resulted in varieties that are so different that they used to be classified as separate species! Now scientists have realised that they are all the same amazing crop. For example, in some parts of India one can find sorghum that can be popped like popcorn, or cooked and eaten as a vegetable like sweetcorn. In Nigeria there is yellow sorghum, rich in Vitamin A.



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Some varieties are shunned by birds, some cook fast, and some have the fragrance of Basmati rice. In Ethiopia there are two scarce varieties named “milk in my mouth” and “honey squirts out of it” that farmers hide between their other crops because they are so delicious!

Zulu farmers have traditionally grown sweet sorghum, which has a stem that can be eaten like sugarcane. This indigenous sorghum gave British colonists the idea to start growing sugarcane as a commercial crop in South Africa, beginning in Tongaat in the 1850s.

## Growing sorghum

Sorghum is an annual or short-term perennial crop in the grass family. Sorghum grows best in temperatures above 20 degrees Celsius, in light to medium textured soils with good aeration and drainage. It can tolerate some water logging and produces well with 450mm to 650mm of rain a year. The main advantage of sorghum is that it can still produce with as little as 350mm of rain and can even grow in temperatures above 38 degrees; conditions that maize can't grow in. Sorghum is adapted to tolerate drought: leaves and stalks have a waxy coating that prevents drying; it has a low transpiration ratio – the leaves curl up when wilting to reduce surface area, it has a large fibrous root mass to absorb moisture; and the plant can become dormant during a drought period and then carry on growing.

## Delicious, nutritious, ancient grain

Sorghum is completely gluten-free, providing a safe alternative for people suffering from digestive and other auto-immune reactions to gluten. Sorghum contains around 69% starch and 3% fat. The protein in sorghum varies depending on the variety and growing conditions, but in general the protein content is low especially in the amino acid lysine. It is a reliable source of the vitamins thiamine (B1) and niacin (B3), as well as phosphorus and magnesium.

The dark and red-grained sorghums contain high levels of tannins in their hull, which contribute to their bird and insect resistance. These tannins lock onto the proteins and starch in the grain preventing their digestion, but also provide anti-oxidants that help combat aging, and enable better malting and flavour when brewing fermented beverages. Traditionally, these sorghums are processed to make them more edible: fermenting them for beer, treating them with wood ash, and pounding the grain to remove the hull. Interestingly, brewing sorghum into traditional beer appears to improve its protein and starch content, as well as concentrating thiamine (B1), niacin (B3) and the minerals copper, manganese, iron, magnesium, potassium and phosphorus. The absorption of iron is 12 times higher from beer compared to eating the sorghum as porridge.

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