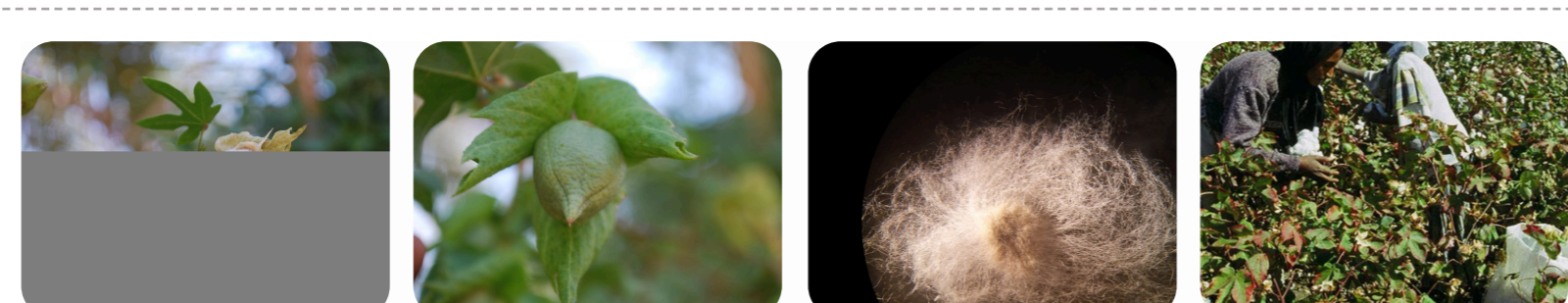




# Gossypium barbadense

Family name: **Malvaceae**Common name: **Malvaceae**Local name: **(قطن) Cotton**

## Cultivated



### Role in Biodiversity

Cultivated cotton has many biological enemies. In Africa there are 500 insect and animal species that feed on cotton. Unfortunately, many insecticides are heavily used, thus impoverishing biodiversity.



### Environment and Growing

*Gossypium barbadense* is cultivated mainly in short savannah. It needs full sun, high humidity and high rainfall. It grows well in fertile clayey soil that can retain water. Soils must be permeable to water and to roots to a depth of at least 100 cm, preferably over 150 cm

Growth requirements:

- Temperature rang is 25-35 for 150+ days.
- Optimum temperature for germination is 34°C, for the growth of seedlings 24-29°C, and for later continuous growth 34°C.
- Average rainfall is usually 800-1200 mm.
- pH range 5.5-8.5.



### Reproduction and Communication

*Gossypium barbadense* flowers are bisexual. Although they are commonly known as self-pollinating, they are often cross-pollinated. Insects are important natural pollinators due to the presence of floral and extrafloral nectaries. There are three main pollinating insect species, *Allograpta exotica* (Diptera), *Apis mellifera*, and *Melissodes tepaneca*.

### Life span

*Gossypium barbadense* is cultivated as annual crop. It takes about four months to grow and mature into a plant with bolls ripe for picking.

### Size

*Gossypium barbadense* can grow up to 3 metres.

### Parts

Stems are monopodial with internodes decreasing in length from the base to the top, becoming more or less woody

Roots are robust, often with four rows of lateral roots.

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Leaves are long-petiolate, spirally arranged, 3-5 lobed, cordate at base, with stellate hairs and glands on lower surface of main veins.

Flowers are solitary on axillary, branches initially creamy-white and turning pink or red.

Fruits are leathery, spherical or ovoid capsule, 2-6 cm long, 3-5-locular with numerous seeds.

Seeds are contained in the capsules, each seed surrounded by fibers.

## INTRODUCTION

### Shrub

*Gossypium barbadense*, cotton, is a bushy and dense foliage plant with many stems bearing white blooms. There are many wild and cultivated species and varieties distributed in tropical and subtropical regions of the world. Cotton cultivation in Sudan dates back to the nineteenth century when cultivation was first carried out in Tokar in eastern Sudan. Commercial growth began in 1905. After the construction of the Sennar Dam in 1925, which allowed for widespread improvement in irrigation, cotton became a leading cash crop in Sudan.

In Sudan, cotton is the most important non-food crop. It is cultivated mainly in clay and silt soil in Gezira, Rahad, New Halfa, Suki, Blue Nile, White Nile for producing natural fiber, edible oil, and seed cake. Two species of cotton are grown in Sudan – the extra-long staple (ELS) type of the species *Gossypium barbadense* and the medium staple type of *Gossypium hirsutum* species. Cotton is considered as a cash crop for millions of small resource-poor farmers.

## LIVELIHOODS / CULTURE

### Cultivation

There are two types of cotton that are planted at different times known as early planting and late planting. Early varieties are planted in the first week of July until the end of July. Late varieties which are the most commonly grown, are planted in the third week of July until the tenth of August.

**Land preparation:** Since the cotton is cultivated after fallow in the rotation, the fallow should be ploughed soon after the rains. Fields badly infested with perennial weeds start with ploughing early before seeds sowing. The primary cultivation for cotton consists of deep blading or disc-ploughing. Deep blading is carried out to fight *Cyperus rotundus* and *Cynodon dactylon*, perennial grasses which were, and still are, a serious problem. Alternative methods for land preparation include introducing heavy disc-ploughing to replace deep blading and light ploughing. During the period February to March, clod crushing (i.e. harrowing) and levelling when necessary, should be carried out. Re-ridging should be carried out in July prior to sowing.

**Seed sowing:** This step starts with removing the fuzz off the seeds to allow for smooth flow of seeds in the cotton planters. The fuzz also interferes with the absorption of water by the seed coat and so delays germination. Removing the fuzz (delinting) can be done mechanically in the cotton gin, or chemically by immersing the seed in a solution of sulphuric acid. Hand sowing by the use of sowing sticks or **seluka** starts on July 20 and continues without interruption until August. If the land at sowing is considered too dry for germination, a light post-watering is given immediately. The individual **hawashas** are usually planted within a short period to ensure uniformity of crop growth. The spacing between ridges are 80 cm and within ridges (plant holes) are 50 cm for early sowing. If the sowing is delayed, the spacing should be adjusted to 30 cm between plant holes. Number of seed per hole depend on the variety and seed size.

**Thinning:** Four weeks after sowing the crop should be thinned to 5 plants. Final thinning is carried out after re-ridging to leave 3 seedlings per hole. One watering should follow these operations.

**Watering:** Rainfall makes some effective contribution to irrigation needs and this increases from North to the South. When the cotton field is flooded by heavy rainfall, the surplus water must be drained as soon as possible. As is still practiced, at the time of early fruit formation, which coincides with the hottest period of the growing season, heavy watering at shorter intervals is important. The date of the final watering will depend on season, state of the crop and other factors.

**Weeding:** Hand weeding and herbicides are both practiced. Herbicides are usually used to eliminate the Seid and Ngila, the perennial weeds which have caused serious decline in soil quality and cotton yields.

**Picking:** The date of the picking depends on the growing season and the state of the crop. It should continue at 14 days intervals until there are no more green bolls to open. This operation should be well supervised to ensure clean cotton. The picking season will be long if a mixture of medium and extra-long staple varieties is planted. After the end of the picking, cotton plants are grazed over, and thereafter cotton plants uprooted, heaped, and after drying, burnt. All cotton debris (bolls, leaves, broken branches etc.) should be swept up and burnt. This clean-up operation is usually completed by May 31st each year.

### Cultural Value

Cotton crops provide natural fibres, which are mainly used in the manufacture of a large number of textiles like **farda**, **jalabia**, **aragi**, **tirga**. Low-quality fibres can be used for mattress filling. Spinning and weaving by hand spindle or **mutrar**, used by women for making cotton threads. Handmade textile production using wooden looms is usually done by men. Seeds oil is used for human consumption while the remainder is used as fodder, locally known as **ombas**.

### Medicinal and health uses

Cotton is used as protective material in surgery and dressings, filtering medium in pharmacy and as insulating material. The oil is used as solvent for injections and manufacturing of soaps.

### Cultural Expressions

Villages named after it: Al Gitaina.

Song:

<https://www.facebook.com/watch/?v=544984663551060>

## THREATS

Several wild cotton species are now critically in danger of extinction due to climate change. Cultivated cotton is also subjected to regional threats such as:

- Pesticide use and agronomic practices are the main reasons for the decline of pollinators in cotton-growing areas.
- High price of pesticides and fertilizers.
- Perennial weeds which caused serious decline in soil quality and cotton yields.

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