



# SORGHUM



Sorghum is a versatile and drought-tolerant cereal crop with various uses, including as a food grain, fodder, and raw material for biofuel. Sorghum, also known as *Sorghum bicolor* L., is a cereal grain that belongs to the grass family Poaceae. It is one of the top five cereal crops in the world. Sorghum is a nutritious grain, rich in carbohydrate, protein, fiber, and various vitamins and minerals, including B vitamins, iron, and

magnesium. It is gluten-free, making it suitable for individuals with gluten intolerance or celiac disease. Sorghum is valued for its ability to grow in marginal lands with limited water resources, making it a sustainable option for farming in arid and semi-arid regions. Its deep root system helps improve soil structure, reduce erosion, and enhance soil fertility.

## Crop requirements

### Variety selection

Choose a sorghum variety that suits your specific requirements, considering factors such as grain yield, disease resistance, and intended use (grain, forage, or dual-purpose).

### Climate and soil preparation

Sorghum can be grown on a wide range of soils: from clay to light sand, but light- to medium-textured soils are best suited for sorghum cultivation. Sorghum requires warm temperatures throughout growth. Temperatures from 25 to 30 °C are best for seed production. Low temperatures (< 15 °C) or high temperatures (>35 °C) during flowering and seed formation lead to poor seed set, problems with ripening, and diminished yield.

## Crop cultivation and management

### Planting

Rows can be 45-75 cm apart (with wider spacing where water is in short supply), with plant-to-plant distance about 15 cm in the row. The depth of sowing should be 3-4 cm. The required seed rates vary from 12 to 15 kg/ha, depending on spacing.

### Isolation

Sorghum is a self-pollinated crop but cross pollination can occur up to 5-6% depending upon variety and environment. Therefore, a distance of 200 m is preferable to obtain pure seed.

### Water management

Sorghum is drought-tolerant, but adequate moisture during critical growth stages enhances yield. Irrigate as needed, especially during dry periods.

### Fertilization

Sorghum typically requires nitrogen, phosphorus, and potassium.

1. Nitrogen (N): 150 kg/ha in three splits:

- a. Basal dose at the time of sowing at 60 kg/ha
  - b. First topdressing at 45 kg/ha at tillering stage
  - c. Second top dressing at 45 kg/ha at the time of booting/just before flowering. Urea is a better option for the topdressings.
2. Phosphorus ( $P_2O_5$ ): Basal dose at 60 kg/ha
  3. Potassium ( $K_2O$ ): Basal dose at 50 kg/ha
  4. Sulfur (S): For S-deficient soils (<10 ppm available S), the application of 40-60 kg S/ha is advantageous
  5. Organic fertilizers (compost or farmyard manure): An application of 15-30 t/ha of well-decomposed organic matter satisfies the crop's nutrient requirements.

### Weed control

Implement effective weed control measures, particularly during the initial stages of sorghum growth. Mulching can help suppress weed growth and conserve soil moisture.



## Harvest, postharvest, and storage

### Harvesting

Harvesting should be done when the seed hardens and moisture content falls below 15%. Sorghum is very prone to sprouting on the ear in wet weather, so harvest the crop at the first opportunity.

### Threshing and cleaning

Thresh harvested sorghum to separate seeds from panicles. Clean seeds thoroughly to remove any debris and chaff. A good yield under irrigation is 3.5-5.0 t/ha.


### Storage


Store sorghum seeds in cool, dry conditions to prevent mold and insect infestations. Use appropriate storage containers or facilities.


For details, please refer to the quality seed production manual ([resade.biosaline.org/sites/default/files/2021-06/Quality\\_Seed\\_Production\\_Manual\\_RESADE.pdf](https://resade.biosaline.org/sites/default/files/2021-06/Quality_Seed_Production_Manual_RESADE.pdf)).




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