

Cultivation Technology of Sorghum

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ABSTRACT

Sorghum is very important yield for fodder and grain purpose. It is a highly nutritive cereal yield. It is commonly called as jowar, great millet camel yield and scientifically known as *Sorghum bicolor*. Its belong to the family Poaceae (FAO,s 2019) *Sorghum* is self-pollinating plant and their height above 60-460 cm. and their sowing is mainly the start of the monsoon September to mid-October and climate requires for growth and development (27 to 30 degree celcius) temperature and relative humidity requires at least 80% and some important varieties for highly production of fodder and grains such as - M.P. Chari (*Sorghum bicolor*) PC-1, PC-6, PC-23, HC-136, HC-171, PSC-1, Pant Chari-5, Pant Chari-6 and *Sorghum* Sudan hybrid (Akram *et al.*, 2007)

INTRODUCTION

Sorghum bicolor, a member of the Poaceae family, is the scientific name for the yield that is usually referred to as jowar, giant millet, or camel yield. Ranking fifth in importance among cereal yields worldwide, *Sorghum* follows wheat, maize, rice, and barley. This yield is indigenous to Africa. *Sorghum* plants are self-pollinating and grow to a height of 60–460 cm. *Sorghum* seeds have a tiny, rounded shape. Strong grass,



Sorghum typically reaches a height of 0.6 to 2.4 meters (2 to 8 feet), while it can occasionally reach 4.6 meters (15 feet). Certain cultivars have juicy and delicious pith, or the center section of the stalks, and leaves covered in a white wax. The leaves are 76 cm (2.5 feet) in length and 5 cm (2 inches) in width (Rashwan *et al.*, 2021)

Nutritional value of *Sorghum* grain in 100 grams

Nutrient	Amount
Energy	360 kcal
Protein	12 g
Fat	5g
Carbohydrates	67g
Fiber	1g
Calcium	42mg
Phosphorus	242mg
Iron	8mg

Climate

Sorghum yield can be grown on tropical region. It is the warm weather yield which requires for high temperature for germination of seed and its growth. The optimum temperature for growth and development (27 to 30 degree celcius) and relative humidity requires at least 80%.

Important varieties-

M.P. Chari (*Sorghum bicolor*) PC-1, PC-6, PC-23, HC-136, HC-171, PSC-1, Pant Chari-5, Pant Chari-6 and *Sorghum* Sudan hybrid.

Land Preparation- First of all one-time deep ploughing by disc harrow then 2 to 3-time cultivator harrow after that the land should be explored and leveled.

Sowing method and Sowing Time

As directed below, use a seed cum fertilizer drill to sow the hardened seeds at a depth of 5 cm to guarantee consistent sowing and

fertilizer treatment prior to the start of the monsoon September to mid-October.

Fertilizer Management

Apply two different doses of 100 kg N/ha. First dose should be applied on day fifteen after cutting, and second dose on day forty-fifth. Apply N together with 50 kg of P₂O₅/ha on the 45th day.

Seed rate

15-20 kg seed will be required for 1 hectare.

Irrigation management

First irrigation in during 15-16 days. After cutting the main yield, immediately start irrigation. After cutting, irrigation shouldn't be postponed for longer than 24 hours. After cutting, sprinkle on the third or fourth day. Then, water once every seven to ten days. After ratooning, stop irrigation 70–80 days later.

Weed Management

A backpack, knapsack, or roller sprayer with a flat fan nozzle and 500 liters of water per hectare can be used to manage major weeds of *Sorghum*, which include *Cyanodon dactylon*, *Dactyloctenium aegypticum*, *Euphorbia hirta*, *Phyllanthus niruri*, *Cyperus rotundus*, and *Solanum nigrum*. On the soil surface, apply PE Atrazine at a rate of 0.25 kg/ha on DAS 3-5 and 2,4-D at a rate of 1 kg/ha on DAS 20–25. On DAS 10-15 and 30-35, manually weed twice if herbicides are not being utilized. Apply PE Atrazine at a rate of 0.25 kg/ha on DAS 3-5. Do a hand weeding on DAS 30-35.

Disease and Pest Management

Sorghum yield generally affected by diseases such as *Sorghum* grain mould, *Sorghum* charcoal rot, *Sorghum* downy mildew, *Sorghum* anthracnose, Loose smut, Rust and Ergot.

Management

- Use of resistant varieties such as Hybrid SPH 1705 had resistance against downy mildew and ICSA 300, ICSA 369, ICSA 403 and ICSA 404 had resistant to several grain mould.
- Follow the yield rotation.
- Downy mildew disease management by seed treatment with Apron XL or Allegiance fungicide, which protects germinating seedlings from oospore infection and other disease such as rust, smut anthracnose and ergot manage by spraying of Mancozeb fungicides @ 2g/litter of water during 2 to 3 times in severe condition.
- Smut disease can be managing by use of clean seed from disease free cobs from smut sori.
- Seed treatment with Benelate @2.5 g/kg of before sowing.

Sorghum yield is mainly affected by many insects such as shoot fly, stem borer, shoot and ear head bug and aphid are serious pest that bring loss in the yield.

Management

The following method are important to prevent pests from *Sorghum* yield:

- Early informing planting.

- Shoot fly controlled with spraying of Duduthirn and Bulldog.
- Stem borer, shoot borer and ear head bug and aphid controlled by the using of carbofuran 3 G OR Phorate 10g @ 20 kg/ha seed furrow.
- Cultural control may be following as early sowing, use resistant variety when available, Transplanting, yield rotation and field sanitation.
- Biological method is very ecofriendly management so that shoot fly insect managing by *trichogramma* species.

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