

PRODUCT DATA SHEET

Sorghum

Botanical name	Sorghum bicolor x Sorghum sudanense
Seeding rate	As main/second crop 1 unit/ha (for target stand density of at least 45-55 plants/m ²); as catch crop 2 units/ha (for target stand density of at least 90-110 plants/m ²)
Distance between rows	10-30 cm; larger distances in some trials
Sowing period	Beginning when soil temperature >12 °C, generally from early/mid May (cold damage at <4 °C, yield loss if sown too early); as second crop by mid June (after whole-crop cereal silage or failed maize); as catch crop by early August
Sowing depth	Approx. 3 cm
Sowing method	Precision seeding possible (but not necessary); seed drill normally used (seed drill machine with alternating rows)



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Botany

- Sorghum is a separate genus within the grass family (Poaceae)
- Annual C4 plant
- Germination and development are extremely slow due to the need for optimum temperature and warmth; once the plant reaches a height of 25 cm, growth speeds up until the plant reaches a height of up to 2.5-3 metres
- Ability to form tillers
- Allows multiple cuts if sown early
- Not to be confused with the small-grained proso millet (*Panicum milaceum*), which belongs to a different genus

BOTANICAL CLASSIFICATION



- **Sorghum sudanense:** currently used primarily as a catch crop; highly capable of forming tillers, narrow leaves and thin stalk
- **Sorghum bicolor:** increasingly used as fodder and substrate for biogas production in Germany and Central Europe; globally, grain-focused cultivars of *S. bicolor* are the most prevalent, though dual types are available that can be used flexibly (either for grain or fodder/substrate)
- **S. bicolor x S. sudanense hybrids:** are also suitable for use mainly as fodder/substrate; these mature faster than their pure plant parent; various habits are possible depending on parent plant selection



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Possible uses

- Cereal production by threshing grains: most common use globally, key growing areas are Asia and Africa
- As fodder and energy source through whole-crop harvest and silage: predominant in Germany
- For green manuring and soil cover as catch crop: niche

Climate requirements

- Requires higher temperatures (higher than maize and proso millet)
- Very good drought tolerance (higher than maize)

Soil requirements

- Low demands in terms of soil quality
- Does well in sandy, humus-rich soils that warm up easily as well as in deep loamy soils
- Does not do well in cold, fallow, wet and clayey sites
- Requires level, fine and crumbly seedbed for uniform shoot emergence and good stand development; a stale seedbed technique may be used to encourage germination of seed-borne weeds
- Soil preparation similar to maize and sugar beet

- Not too demanding on the preceding crop (high nutrient acquiring ability)
- Currently believed to be autotolerant
- Possibility: resowing by early June after damage by hail or capping in May

Crop protection

- Should be planted only on fields with low weed pressure (unable to withstand competition in early development stage)
- Mechanical weed control using harrows is not recommended before the five- to six-leaf stage is reached
- Since only small areas have been cultivated so far, no noteworthy incidence of pest infestation has been reported
 - Sorghum is not a host plant for Western corn rootworm (*Diabrotica virgifera*)
- Measures against damage by birds may be required

Fertilisation

- 80-180 kg N
- 100-150 kg P₂O₅
- 150-250 kg K₂O
- 20-30 kg Mg
- 20-30 kg Ca
- Sorghum absorbs and converts organic manure well (two applications: at the time of sowing and row closure)



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Harvest, treatment, processing, utilisation

- ▶ Extreme lignification after panicle formation
 - Lignification is acceptable for biogas production, so multiple cuts are possible but not necessary (trials indicate better cost-effectiveness with only one cut at the end of the season)
- ▶ Possible uses: for fodder and energy
 - Harvest with row-independent maize choppers from mid-September to late October, before the start of night frost to the extent possible, when dry matter content in the whole crop is 28-32%.
 - Yield level: 8,000–17,000 kg DM/ha; under favourable trial conditions with new variety: up to 28,000 kg DM/ha
 - 10 t DM yield, 4500 m³ gas with around 53% methane content
 - Substrate is rich in carbohydrates; components rich in fat and protein should be mixed to optimise gas output
- ▶ Possible use: threshing
 - Risk of threshing losses due to grain spillage (may therefore be better to thresh while the grains are a little moist rather than too dry)
 - Main yield components: number of grains/panicles
 - Grains need to be hulled for further processing
 - Harvested crop is gluten-free and rich in vitamins, minerals and silicic acid
 - Can be milled and is excellent in mixed flours, though it cannot be baked on its own



If you have questions, please feel free to contact us!

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