

Produce more

# sorghum



## Site selection

- Select sites with rainfall 500-1000mm/year but some cultivars are adapted to areas with 1200-1500mm of rainfall.
- Slash unwanted vegetation but in semi-arid zone some trees and shrubs maybe kept.
- Avoid burning plant materials as much as possible as it can lead to land degradation and loss of nutrients.
- Till the land to break crust and hardpans, bury plant residues and to incorporate organic manure and other soil amendments like lime.
- Prepare a good seedbed.
- Reduce water loss from the soil by using practices like contour ploughing, applying mulch, maintaining a crop cover, making stone bunds or live bunds, digging zaï pits.

*Zaï pits are sometimes used in degraded soils in regions where rainfall is poor and erratic. These are planting pits with diameters of about 20-40 cm and depths of 10-15 cm, usually dug in alternate lines from row to row. During the dry season the pits are dug and organic matter is added. After the first rainfall, the pits are covered with a thin layer of soil and the seeds placed in the middle of the pit and covered. Mineral fertilizer can be applied in the pits at planting. These pits collect water during the wet season. Plants benefit from the inputs applied and water collected. The number of zaï pits per hectare varies from 12,000 to 25,000.*

## Variety choice

- Choose the variety according to the needs, market requirements and prevailing conditions e.g. short duration varieties if moisture is limiting.

## Germination test

- Before sowing, carry out germination test by planting for example 100 seeds, after 5-7 days count the number of well emerged or sprouted seed, then adjust the seedrate during planting in the field.

## Planting

- Include legumes in the system to improve soil fertility and productivity.
- Plant crops at the beginning of the rainy season.
- Preferably soak seeds overnight before planting to improve crop establishment
- Establish about 3 sorghum seedlings per hole, and then thin to 2 seedlings per hole. Sow seeds at 0.8-1.5 inches (2-4 cm) depth. In sole cropping, between row spacing can be 40 – 90 cm and within row spacing can be 15- 40 cm. The wider the between row spacing, the smaller the within row spacing. Seed rate is about 7-10 kg seed per hectare. In intercrop, sorghum rows can be 60-90cm apart. Within-row spacing can be 40-60 cm if no other crop will be planted between the sorghum stands in the row or 60-80 cm if another crop will be planted between the sorghum stands in the row.

- If intercropping with cowpeas, the seed rate for cowpea is about 12-25 kg per hectare. Erect cowpea varieties can be planted at inter-row spacing of 50cm and within-row spacing of 20cm. Semi-erect and creeping varieties can be planted at inter-row spacing of 75cm; within row spacing can be 30cm for semi-erect types and 50cm for creeping types. For all types, plant 3 seeds per hole if germination is good, or 4 seeds if germination is poor. Thin to 2 seedlings two weeks after planting.

## Applying fertilizer

*Apply the right fertilizer product, at the right rate, at the right time, in the right place, in the context of integrated soil fertility management (ISFM).*

- Apply phosphorus (P) fertilizers and organic inputs at planting and top dress with nitrogen (N) before panicle initiation.
- Apply fertilizer in a band or spot close to plants, instead of broadcasting, to improve efficiency of fertilizer use.
- Apply a maximum of 60 kg N and 20 kg P per hectare.
- Apply manure at 5 tonnes per hectare per 2 years. Use soil amendments like lime and rock phosphate if soil acidity is a problem and gypsum if alkaline. Manure and other soil amendments, such as lime, are usually applied then worked into the soil during tillage.
- Include agroforestry (trees and shrubs) in the cropping system to improve soil and water conservation.

## Weeds, pests and disease control

- Control weeds especially when the crops are young. The first weeding can be at 2 weeks after planting and the second weeding at 5-6 weeks after planting.
- Control pests using integrated pest management practices. For example, control stem borers by planting at the start of the rainy season instead of later, rogue volunteer plants between cropping seasons, and plough in crop residues.
- To control diseases, plant tolerant/resistant varieties and rotate a cereal crop with a non-cereal e.g. legume.
- To reduce bird damage, scare the birds away when crop is in the field, and harvest as soon as crop is mature.

## Harvesting and seed selection

- Harvest when heads are dry. Cut plants 5-7 cm from ground, do not let heads touch the soil.
- If saving seed from crop, select large disease free heads, dry and store.

## Post-harvest - Drying and Storage

- Dry heads in sun on clean surfaces, thresh, winnow and store grain, or store heads before threshing. Under hot sun, drying can take about 4 days.
- If storing grain in old sacks disinfect the sacks e.g. by spreading the sacks on large black polythene sheets in the hot sun.
- If necessary, disinfect grains before storage e.g. by spreading thinly (2-3 cm depth) - ideally in a single layer in the hot sun.
- Clean and disinfect storage structures, e.g. granaries, before storing the new harvest
- If possible, return stover to the field to reduce nutrient loss - at least half of the N and P, and most of the K taken up by the plants is retained in stover.