Gadam (Sorghum)

Climatic requirements
- It has semi-dwarf small plants that grow 100-130 cm tall with a very uniform plant population
- It is early maturing variety flowering in 45-52 days
- Matures in 85-95 days depending on altitude
- Its grain is grey tending towards chalky with semi hard endosperm
- The potential yield ranges from 1,700 to 4,500 kg/ha or 680-1,800 kg/acre or (8-20 bags/acre)
- This variety matures earlier than the other sorghum varieties making it an ideal variety for food deficient areas
- It does well in low rainfall semi-arid areas and dry warm mid-highlands
- It is tolerant to insect pests, especially the stem borer, shootfly and leaf diseases

Recommended zones
Gadam variety is suitable for cultivation in the drier lowlands of Machakos, Kitui, Mwingi, Makueni, Tharaka, Mbeere, Kilifi, Tana river, Marsabit, Moyale and Kajiado districts. The two varieties grow well in areas with an elevation of 50-1800m above sea level and receiving about 250mm of rainfall per season. The variety recovers fast from a drought.

Management/Breeding Practices

Land preparation
Sorghum requires a fine seedbed. Ploughing can be done either by hoeing, tractor or oxen. It is advisable to harrow in case the field has big soil clods. The planting field should be prepared very early. It is recommended that land be ploughed immediately after harvesting the previous crop.

Planting
Time of planting: Practice spatial planting. Drill or plant in hills half of the field before the rains and plant the remaining half at the onset of rains.
Seed rate: 7-10kg/ha or 3-4kg/acre.
Sole Crop: 60cm X 20cm
Intercrop: 120cm X 15cm and 1 row of legume between
Method of planting: Drill in furrows or plant in hills
Thinning: Leave one seedling per hill 3 weeks after emergence or when plants are 6 inches high. Thinning should be done during the first weeding when the soil is moist.
Depth of planting: When dry planted, the depth should be 5.0cm but in moist soils plant at a depth of 2.5cm - 4.0cm.

Fertilizer Application
Apply 2 bags per hectare or 1 bag per acre of NPK (20:20:0) during planting and when necessary top-dress with one bag (50kg) of CAN per acre.

Weeding
First weeding should be done within two to three weeks after emergence. The second weeding should be done two weeks after the first weeding.

Crop Protection
Insect pests include the shootfly and stem borer. The major diseases include smut, charcoal rot, anthracnose, stem and leaf rust. Marshall or Dipterex should be used to control stem borers and shootfly at 3kg/ha. Seed should be dressed with a combination of fungicide and insecticide to control most of the diseases. Use scaring devices to control birds. It is advisable to have several farmers in a locality growing sorghum in order to share out the bird damage.

Harvesting
Harvest the crop when the grain is hard and does not produce milk when crushed between the fingers. The heads are harvested, threshed and stored in cool dry conditions. To control storage pests the grain should be dusted with super acetillic at 50g per bag or any other effective storage chemical.

Ratooning
Ratooning ensures a farmer gets more than one harvest from a single crop. Two ratooning systems have been identified. One is in the bimodal rainfall zone in the semi-arid lowlands and the other one in the mid-altitude coffee zones. A ratoon crop has an established root system, which utilizes the available water much earlier in the season than a new sown crop, reduces ploughing and planting labour. Ratooning also avoids migratory quelea birds in May and June. Ratooned sorghum avoids male sterility that is caused by cold temperatures by flowering in April rather than in cold month of July.

In bimodal rainfall zones of semi-arid lowlands of eastern province, sorghum is planted during the short rains (October-November). On maturity, sorghum is harvested in February and immediately ratooned to take advantage of the long rain season, which starts in mid-March in order to achieve good yields; the crop is thinned two to three tillers per hill. Weeding and other management practices are similar to those of a newly sown crop. Stalkborer attack can be a big problem in a ratoon crop. It is recommended that dipterex or marshal 250 EG be applied in the plant funnel to control stalkborer. Aphids can infest the crop during a short dry spell between rains. They should be sprayed with Ambush or Thiondan at the rate of 1.5 litres per hectare.

Use
Sorghum grain can be utilized either whole, dehusked or as flour. Sorghum flour makes a wide range of products. These include chapattis, bread, biscuits and cakes. Both opaque and clear bear can be made from it. Utilization and recipes are available from KALRO Katumani.