Serena (Sorghum)

Climatic requirements
- The mature plant leaf and mid rib has tainted red coloration
- The plant height ranges from 150 to 160cm depending on the altitude
- The variety has a thinner stem, many straight erect tillers and smaller compact head type when compared with Seredo
- Flowers in 69-78 days
- Matures in 110-120 days
- Grain color is brown with a testa flourly and endosperm
- Potential grain yield of 1800-2300 kg/ha or 1700-900 kg/acre
- It is tolerant to striga weed and grain mould
- Less prone to bird damage than the others because of its bitter taste.

Recommended zones
Serena variety performs well in agro-ecological zones III and IV especially in the hilly masses and wetter areas of the semi arid lands between 1150m and 1750m above sea level and receiving 250-500mm rainfall per season.

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 actelic 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 KARI Katumani.