

Good seedbed preparation and fertilizer application for sorghum production

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Introduction

Sorghum is a small seeded crop and therefore require a fine seedbed for better seed germination. Seedbed preparation should begin after the previous crop is harvested to allow time for weed control, decay of crop residue and soil structure improvement for increased rainwater retention and soil firming.

Seedbed preparation

Stalks of the previous crop are cut and heaped together, the land is ploughed using either the ox-plough (Fig. 1) or the tractor. If tractor is used to open up the field, it is advisable to harrow it once in order to break the large soil boulders. When hand-hoes are used for land preparation, the large soil boulders should be reduced by breaking them to provide a moderately smooth seed bed.



Land preparation using ox plough



Tractor ploughing



Tractor ploughing should be followed by harrowing

Soil fertility management

Most soils in sorghum and millet production areas are deficient in macronutrients such as nitrogen and phosphorus which are essential for adequate crop growth. This can be managed through application of organic manures, and inorganic or chemical fertilizers.

Use of inorganic fertilisers

This requires use of the right type of fertilizer placement and rate. At planting apply one bag (50 kg) per acre of compound fertiliser like NPK (20:20:0, 23:23:0), DAP or 17: 17:17). Top dress with one bag (50 kg) of CAN per acre. The fertilizer is normally drilled along the planting furrows and mixed with soil; the seed is planted and then covered with soil.

Use of manure

Manure improves soil organic matter, which improves soil structure and moisture retention. Well-decomposed manure should be placed in the furrows before onset of rains and mixed with the soil before seed planting. Two tons per acre is recommended.



Mixing soil and manure and a smooth seedbed



Manure at correct rates for proper plant growth

Recommended sorghum spacing, and seed rates

Crop	Spacing (cm)	Seed rate (kg/ acre)
Sorghum (sole crop)	Oxen (90 × 20) Manual (75 × 20)	3-4
Sorghum/legume (intercrops) single alternate rows	90 × 20 and one row of legume between sorghum rows	3-4
Sorghum and double rows of legumes	Sorghum 120 × 20 with two rows of legume between sorghum rows	2-3
In semi-arid areas the ox-plough yoke is fixed at 90 cm so the spacing is 90 × 20 cm but in manual planting the spacing is 75 × 20 cm		

Planting

Dry planting before or at onset of rains is recommended. Plant by either drilling in the furrows made by ox plough or tractor, or hill plant in the holes made by *Jembe* or *Panga* at depth of 5 cm when dry planted. After onset of rains, plant shallow (2.5 to 4 cm) but press the soil so that the seed may be in contact with moist soil.



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