An Agricultural Extension Initiative
of Dangote Fertiliser Limited

GOOD AGRONOMIC PRACTICES FOR SORGHUM

DANGOTE
FERTILISER

Power to Farmers

Sorghum is one of the most important cereal crops in Nigeria. The country has 65 - 70% of total sorghum production in West Africa. Nigeria ranks as the world's second-largest sorghum producer after the United State of America. It is estimated that over 5.0 million hectares of land in Nigeria is currently occupied with sorghum cultivation which accounts for the production of 6.5 to 6.8 million tons annually.

Sorghum has a wide range of uses, which include food, feed and production of alcoholic beverages and bio fuels. The whole grain may be ground into flour which is then used in various traditional foods. Given its nutritional and increasing industrial demand, many countries in the world are involved in the large scale sorghum production.

CLIMATE REQUIREMENT

Sorghum grows well in hot and dry climate. It requires an average temperature of at least 25°C to produce maximum grain yield in a given year. Maximum photosynthesis is achieved at day time temperature of at least 30°C. Sorghum can be grown with minimal water requirement hence very much suitable for dry land.

SOIL AND SITE SELECTION

Sorghum grows on all types of soils, but it can thrive well on deep, fertile and well-drained loamy soils. Sorghum can tolerate mild acidity to mild salinity under pH 6.0 to 8.5 conditions. In Nigeria, these soils are common in the Northern Guinea and Sudan Savannahs. Sorghum is grown mostly in the North West and North East of the country.

LAND PREPARATION

Good land preparation is essential to get rid of weeds as well as to enable the crop to attain initial growth. One deep ploughing followed by 1 - 2 harrowing is required to maintain weed free condition.

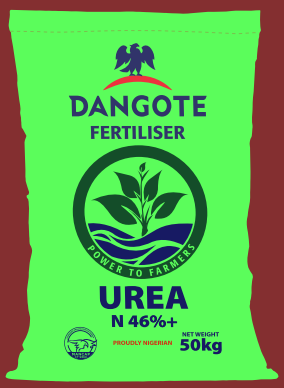
SELECTION OF VARIETY

Good quality seed is a critical input in crop production. Some recently released improved varieties are Samsorg-41, Samsorg-42, Samsorg-47 (Zauna Inuwa), Samsorg-48 (Kaura Bornu), Samsorg-49. Apart from publicly bred varieties, some high performing hybrid sorghum varieties are supplied by reputable seed companies.

PLANTING

Sorghum seeds can be planted by drilling or dibbling on the ridges. The recommended seed rate is 10-15 kg/hectare planted at 2.5 - 3.0 cm depth at 75 cm inter-row and 25-30 cm intra-row spacing maintaining one plant per stand or hill. Treat the seed with 14 ml Imidacloprid (Gaucho) + 2 g Carbendazim (Bavistin) for 1 kg seed, or Thiamathoxam 3 g per kg seed. In dry regions, the crop should be sown as soon as the rain is established.

FERTILISER MANAGEMENT



To maintain soil fertility status, use organic manures @ 3 - 6 ton/ ha in old furrow before splitting the ridges. Fertilisers should be applied based on soil test recommendations. In absence of soil test report, recommended fertiliser rates are 64 kg Nitrogen (138 Kg Dangote Urea), 32 kg Phosphorous (P_2O_5) and 30 kg Potash (K_2O) per hectare for optimum yields. Apply half dose of nitrogen and complete dose of phosphorous and potash at planting time and balance of nitrogen at 30 days after planting.

WEED CONTROL

The sorghum field should be kept weed free and if possible two manual weeding should be carried out. For chemical weed control, apply Atrazine 80% WP @ 2.5 - 3 kg /hectare as pre-emergence selective herbicide immediately after planting.

PEST MANAGEMENT

Aphids: Aphids are tiny insects found under the leaves and shoots. It secrets honeydew that causes fungal infestation and white molds can be seen. Low to moderate population are usually not harmful for crops. Severe infestation can cause leaves and shoots to curl, wilt and stunted growth. Always promote the growth of beneficial insects such as predatory ladybirds, lacewings, soldier beetles and wasps as they are important agents to control aphids. Ants are symbiotic insect and protect aphid from predators which need to be controlled.

Apply 1.5 litre Dimethoate 20%+Lambda-Cyhalothrin 0.5% EC in 200 litres of water for one hectare. If needed repeat the spray after 15 days. However, these chemicals have negative impacts on beneficial predators, parasitoids and pollinators.

Termite: Termites can attack plant at all stages. To confirm the presence of termites, pull out the infested plant and examine the roots and lower stem for live insects or the presence of tunnels. Deep ploughed soil can expose the termite to predators: ants, birds and chicken.

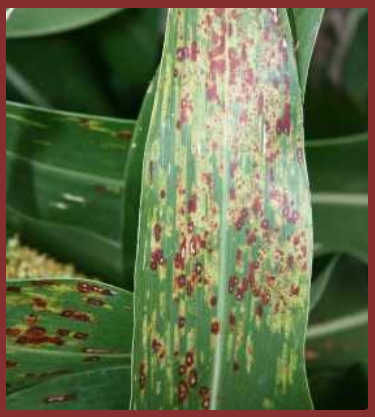
Practice integrated approach with preventive measures. Spray 1.5 litre of Chloropyriphos 20% EC in 200 litres of water per hectare.

Army worm: Larvae cause damage by feeding all plant parts. In severe cases, they fed on growing and reproductive parts of the plants. Frass can be found on leaves. Caterpillar has a Y like pattern on the fore head & 4 dots on the back. Predators like rodents, birds, ground beetles and soldier bugs can reduce the armyworm population. Thiamethoxam 25% WG @ 200 g per hectare is the recommended pesticide for army worm control

Shoot Fly: The maggots bore inside the stem and cut the growing point. Centre shoots dry and produce "dead heart" symptoms. For control measures, early sowing and incresaed seed rate is recommended. Seed treatment with Thiamethoxam 70% WS @ 3g/Kg seed weight mixed together may be used.

Grain Mold: In grain molds, a fungal growth appears due to high humidity during crop harvest. It occurs in the years of prolonged rainfall at the time of grain maturity. It results in discoloration of grain and reduces grain weight and size leading to considerable loss of yield. It affects the seed quality by reducing germination percentage, nutritive value and market price. Effective control of grain mold is done by three sprays with Captan (0.3%) + Dithane M-45 (0.3%) at 10 days' interval from flowering to harvest period.

Downey Mildew: The most visible symptom is the appearance of bright green and white strips on the leaves and white patches of Oospores. Whole leaves may become chlorotic at advance stage and infested plants usually fail to exert panicles. Even if panicles are exerted, they are small, compact or club-shaped and have little or no seed set. For the prevention, remove infected sorghum plants from the field. Seed treatment with Metalaxyl-M 6% @ 4 g/Kg of seed or Ridomil MZ 68 WG @ 6 g/Kg seed before sowing of sorghum. Foliar spray of Ridomil MZ 68 WG @ 2.5 Kg/hectare is recommended if standing crop is infested with downy mildew.



HARVESTING AND STORAGE

The time of harvesting in sorghum will vary with the variety. The golden rule is to harvest promptly after physiological maturity. The heads could be cut using a sharp knife or the stalks could be cut and heaped for sun dry before threshing. Threshing can be done either with a mechanical thresher or by beating with sticks. Threshed grains are winnowed and dried down to reach 12% moisture content for long time safe storage.

DANGOTE FERTILISER

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