GROUNDNUTS

Designed by:

Crop Manager Team

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Varieties

Serenut (14R, 13T, 12R, 5R, 4T) and Igola are present in East Africa.

Climatic conditions

Moderate rainfall that is well distributed and relatively low altitude below 1500mm.

Optimum temperature of about $27^{O}C$ and $37^{O}C$

Soil requirements

All soils other than the heavy soils are suitable for growing ground nut.

The best are however the well drained sandy, sandy loams, or loamy sandy soils.

Groundnuts also require adequate levels of phosphorus, potassium, magnesium, and calcium.

Groundnuts should be planted at the onset of the rains.

Sow the seeds at the depth of 5-6cm.

Thairum should be dusted on to the seeds so as they are protected from soil fungi and bacteria.

Fertilizer application

The most limiting nutrients for ground nuts are phosphorus, potassium, calcium and Sulphur.
Calcium is required during pod filling.

Seed Handling.

Groundnut seed is extremely susceptible to physical damage and should be handled with care at all times. Damaged or split kernels will not germinate and grow. It is also important to plant high quality seed. Better seed will produce more healthy. Poor quality kernels should not be kept for seed for the following season.

Planting

Success or failure is determined at planting. Warm soil at the time of planting is recommended. It is also generally recommended not to plant too early in the morning, but rather to let the soil warm up. When planting in irrigated soil, the soil must first be moistened prior to planting. Groundnuts which are planted in dry soil and then irrigated normally germinate slower than groundnuts which have been planted in moist soils. If the soils should dry out too soon, an irrigation after one or two days can be considered.

The correct planting depth of 50-75 mm ensures that the plant develops and produces optimally. Seed which germinates slowly as a result of deep planting, takes longer to emerge and a substandard plant will be produced.

Seed germination is rapid if the soil moisture and temperature are optimal (above 18°C). Shallow planting of seed (less than 50 mm) can only be considered when enough moisture is available and the climate is moist. In situations where moisture is not limiting 50 mm is the ideal planting depth.

Spacing

Generally 150 000 plants per hectare are recommended for dry land production, while 300 000 plants per hectare are ideal for irrigation. Various plant patterns can be followed, namely single row, double row, tram lines, etc. The particular pattern selected is not important, as long as the growing space of plants is adequate

Weeding.

Weeds compete with the crop for moisture, nutrition, light and space. Effective weed control implies good control of weed throughout the growing season. Weeds can be controlled chemically, mechanically or with a combination of the two. However, the ultimate choice depends on the species of weeds involved and the level of infestation. Weed in the first 3-6 weeks after planting as groundnuts can't compete with weeds effectively during this period.

Diseases

Ground nut diseases involve Foliar, viral, Bacterial and nematodes.

Early Leaf Spot

Symptoms

- Spots are sub-circular, dark brown on the upper leaf surface.
- Chlorotic halo commonly surrounds the spot on the upper surface.
- Spots/lesions are also produced on petioles, stems.
- Shedding of leaflets for severe cases.

Management

- Remove and destroy the infected plant debris.
- Eradicate the volunteer groundnut plants.
- Keep weeds under control.
- Treat the seeds with Carbendazim or Thiram at 2g/kg.
- Spray Carbendazim 500g or mancozeb 2 kg or Chlorothalonil 2 kg/ha and if necessary, repeat after 15 days.
- Grow moderately resistant varieties like ALR

Rust

Symptoms

- Small brown to chestnut dusty pustules appear on the lower surface of leaves.
- The epidermis ruptures and exposes a powdery mass of brown substance.
- Small brown spots appear on the upper surface of leaves.
- The rust pustules may be seen on petioles and stem.
- In severe infection lower leaves dry and drop prematurely. The severe infection leads to production of small and shriveled seeds.

Management

- Avoid mono-culturing of groundnut.
- Remove volunteer groundnut plants and reservoir hosts.
- Spray Mancozeb 2 kg or Wettable Sulphur 3

Collar Rot/Seedling Blight/Crown Rot

Symptoms

- The seeds are covered with black masses of spores and internal tissues of seed become soft and watery.
- Circular brown spots on the cotyledons, collar.
- The affected portion become soft and rotten, resulting in the collapse of the seedling.
- Large lesions develop on the stem below the soil and spread upwards along the branches causing drooping of leaves and wilting of plant.

Management

- Crop rotation.
- Destruction of plant debris.
- Remove and destroy previous season's infested crop debris in the field
- Seed treatment with *Trichoderma viride* / *T.harzianum* @ 4 g/kg of seeds and soil

Fusarium Wilt

Symptoms

- Infected plants may wilt suddenly or gradually.
- When plants wilt suddenly all their leaves turn grayish-green, and in dry weather the entire plant becomes bleached and dry.
- When slow wilting occurs the foliage becomes chlorotic, and leaflets are shed before the plant dies.

Management

- Seed treatment with systemic fungicides like Carbendazim at 2g/kg seed.

Anthracnose

Symptoms

- Small water-soaked yellowish spots appear on the lower leaves which later turn into circular brown lesions with yellow margin 1 to 3 mm in diameter.
- In some cases lesions enlarge rapidly become irregular and cover the entire leaflet, and extend to the stipules and stems.
- Brownish grey lesions occur on both the surfaces of leaflets. Infection spreads to stipules, petioles and branches.

Management

- Deep summer ploughing.
- Use healthy certified seeds.
- Removal of plant debris.
- Seed treatment with copper oxychloride at 3g/kg seed or carbendazim at 2g/kg seed.

Groundnut bud necrosis disease

Symptoms

- First symptoms are visible 2-6 weeks after infection as ring spots on leaves.
- The newly emerging leaves are small, rounded or pinched inwards with varying patterns of mottling and minute ring spots.
- Necrotic spots and irregularly shaped lesions develop on leaves and petioles. Stem also exhibits necrotic streaks.
- Plant becomes stunted with short internodes and short auxillary shoots.
- Leaflets show reduction in size, distortion of the lamina, mosaic mottling and general chlorosis.
- In advanced conditions, the necrosis of buds occurs. Top bud is killed and necrosis spreads downwards.
- Drastic reduction in flowering and seeds produced are abnormally small and wrinkled with the dark black lesions on the testa.

Management

- Adopt plant spacing of 15x15 cm.
- Remove and destroy infected plants up to 6 weeks after sowing.
- Application of Monocrotophos 500 ml/ha, 30 days after sowing either alone or in combination with AVP (Anti Viral Principle) extracted from sorghum or coconut leaves.
- Spray the crop with 10 per cent AVP at 500

Groundnut Rossette.

Symptoms

- The affected plants are characterized by the appearance of dense clump or dwarf shoots with tuft of small leaves forming in a rosette fashion.
- The plant exhibits chlorosis and mosaic mottling. The infected plants remain stunted and produce flowers, but only a few of the pegs may develop further to nuts but no seed formation.

Management

- Practice clean cultivation.
- Use heavy seed rate and rogue out the infected plants periodically.
- Spray Monocrotophos or Methyl demeton at 500 ml/ha.

Harvesting

Bunchy groundnuts mature after 115-120 days depending on variety.

The semi spreading types mature between 125-135 days.

Leaves for mature groundnuts turn yellowish and most will drop off.