TOMATO

Designed by:

Crop Manager Team

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Varieties

Choice of variety is based on Fruit Quality, Adaptability and Reliability, Susceptibility to diseases and pests, and market demand. Tomatoes can be classified into two types Determinate and Indeterminate with over 10,000 varieties those most common in Uganda include - Money maker, Bonny Best, Marglobe, Rio Grande, Tengeru 97, Amateur Rodade, Heinz, New fortune maker F1

Soil Requirement

Tomatoes grow on practically all soils from light sandy to heavy clay. Light soils are good for an early crop, while clay loam and silt-loam soils are well suited for heavy yields. Tomatoes do best in a soil that has a soil reaction from pH 6.0 to 7.0. If the soil is acidic liming is required.

Climatic conditions

Tomatoes are a warm-season crop. The crop does well under an average monthly temperature of 21 to 23degrees Celsius. Temperature and light intensity affect the fruit-set, pigmentation and nutritive value of the fruit. Long dry spell and heavy rainfall both shows detrimental effect on growth and fruiting.

Land preparation

Land is prepared to a fine tilth by thorough ploughing or digging 2 - 3 times. At the last ploughing organic manure and 10 kg carbo-furan granules or 200 kg neem cake has to be applied.

Planting

Seedlings should be raised in a nursery bed 300 - 400 g/ha seeds are required, make a square portion of a raised site meant for a bed, and then make a fine tilth. Broadcast the seeds on the bed and lightly cover with soil also add manure to enhance the nutrients. Cover the nursery bed with fine nylon net to escape the damage by virus transmitting insects.

After sowing the seeds, mulch with green leaves and irrigate with a rose-can daily in the morning until seedlings reach a height of 5 to 7 cm. Remove the mulch immediately after germination of the seeds. Restrict irrigation one week before transplanting and irrigate heavily on the previous day of transplanting. Seedlings are

usually ready for transplanting 3-4 weeks after sowing, and they should be transplanted on moist soil.

Recommended spacing between plants is 24-36 inches.

Weed control

There is need of light hoeing during first four weeks in the field which encourage the growth but also remove the weeds from the field. The surface soil is loosened by hand hoeing as soon as it is dry enough after every irrigation or shower. All weeds should also be removed in this process

Disease management

Early Blight

Symptoms

- This is a common disease of tomato occurring on the foliage at any stage of the growth.
- The fungus attacks the foliage causing characteristic leaf spots and blight. Early blight is first observed on the plants as small, black lesions mostly on the older foliage.
- Spots enlarge, and by the time they are one-fourth inch in diameter or larger, concentric rings in a bull's eye pattern can be seen in the center of the diseased area.
- Tissue surrounding the spots may turn yellow. If high temperature and humidity occur at this time, much of the foliage is killed.
- Lesions on the stems are similar to those on leaves, sometimes girdling the plant if they occur near the soil line.
- Transplants showing infection by the late blight fungus often die when set in the field. The fungus also infects the fruit, generally through the calyx or stem attachment.
- Lesions attain considerable size, usually involving nearly the entire fruit; concentric rings are also present on the fruit.

Management

- Removal and destruction of crop debris.
- Practicing crop rotation helps to minimize the disease incidence.
- Spray the crop with Mancozeb 0.2 % for effective disease control.

Tomato Bacterial wilt

Symptoms

- This is one of the most serious diseases of tomato crop. Relatively high soil moisture and soil temperature favour disease development.
- Characteristic symptoms of bacterial wilt are the rapid and complete wilting of normal grown up plants.
- Lower leaves may drop before wilting. Pathogen is mostly confined to vascular region; in advantage cases, it may invade the cortex and pith and cause yellow brown discolorations of tissues.
- Infected plant parts when cut and immersed in clear water, a white streak of bacterial ooze is seen coming out from cut ends. This spreads through wounds, soil and implements.

Management

- Crop rotations, viz., cowpea-maize-cabbage, okra-cowpea-maize, maize- cowpea-maize and finger millet-egg plant are reported effective in reducing bacterial wilt of tomato.
- Damage to seedling while transplanting
- Apply bleaching powder @ 10kg/ha and inrate.

Bacterial Leaf Spot

Symptoms

Moist weather and splattering rains are conducive to disease development. Most outbreaks of the disease can be traced back to heavy rainstorms that occur in the area.

- Infected leaves show small, brown, water soaked, circular spots surrounded with yellowish halo.
- On older plants the leaflet infection is mostly on older leaves and may cause serious defoliation.
- The most striking symptoms are on the green fruit. Small, water-soaked spots first appear which later become raised and enlarge until they are one-eighth to one-fourth inch in diameter.
- Centers of these lesions become irregular, light brown and slightly sunken with a rough, scabby surface.
- Ripe fruits are not susceptible to the disease. Surface of the seed becomes contaminated with the bacteria, remaining on the seed surface for some time.

The organism survives in alternate hosts, on volunteer tomato plants and on infected plant debris.

Management

- Disease-free seed and seedlings should always be used and the crop should be rotated with non-host crops so as to avoid last years crop residue.
- Seed treatment with mercuric chloride (1:1000) is also recommended for control of disease.
- Spraying with a combination of copper and organic fungicides in a regular preventative spray program at 5 to 10 day intervals or Spraying with Agrimycin-100 (100 ppm) thrice at 10 days intervals effectively controls the disease.

Tomato mosaic virus

Symptoms

- The disease is characterized by light and day green mottling on the leaves often accompanied by wilting of young leaves in sunny days when plants first become infected.
- The leaflets of affected leaves are usually distorted, puckered and smaller than normal. Sometimes the leaflets become indented resulting in "fern leaf" symptoms.
- The affected plant appears stunted, pale green and spindly.
- The virus is spread by contact with clothes, touching of infected plants with healthy ones, plant debris and implements.

Management

- Seeds from disease free healthy plants should be selected for sowing. Soaking of the seeds in a solution of Trisodium Phosphate (90 g/litre of water) a day before sowing helps to reduce the disease incidence. The seeds should be thoroughly rinsed and dried in shade.
- In the nursery all the infected plants should be removed carefully and destroyed. Seedlings with infected with the viral disease should not be used for transplanting.
- Crop rotation with crops other than tobacco, potato, chilli, capsicum, brinjal, etc. should be undertaken.

Spotted wilt

Symptoms

- It causes streaking of the leaves, stems and fruits. Numerous small, dark, circular spots appear on younger leaves.
- Leaves may have a bronzed appearance and later turn dark brown and wither.
- Fruits show numerous spots about one-half inch in diameter with concentric, circular markings. On ripe fruit, these markings are alternate bands of red and yellow.
- The spotted wilt virus is transmitted through thrips (Thripstabaci, Frankliniellaschultzi and F. occidentalis).

Management

- The affected plants should be removed and destroyed.
- Alternate or collateral hosts harboring the virus have to be removed.
- Raise barrier crops – Sorghum, Maize, Bajra 5-6 rows around the field before planting tomato.
- Spray Imidachloprid 0.05% or any systemic insecticide to control the vector.

Harvesting

Tomato harvesting is mainly done by hand. The activity is dependent to the end use of the produce and distance to the market. Pick fruits meant for transportation to long distances when they are at a less mature stage, and those meant for the local market at a mature ripe stag