# PRODUCTION GUIDE FOR TOMATOES

**Introduction**

Tomato is one of the most popular vegetable crops in Nigeria. Tomato (*Lycopersicon esculentum* Mill) is an herbaceous plant belonging to the Solanaceae family. The growth habit ranges from determinate to indeterminate type, bearing fruits of different shapes and sizes. Tomatoes are consumed fresh or used as important ingredients in soups and meat or fish dishes. It can also be processed into paste, sauces, juices and ketchup. In view of its wide variety of usage, the demand for good quality tomato fruits is high and the returns to growers are quite substantial.

**Varieties**

There are numerous cultivars or varieties of tomato in the country, ranging from local cultivars to introduced or exotic varieties with big fascinating fruits and elongated or pear shaped fruits respectively. Some of the available improved varieties are:

- NHLe158-3: local indeterminate big red fruits, suitable for planting in both South and North zones of the country.
- Ife No 1: determinate round red fruits suitable for planting in both south and North zones of the country.
- Ibadan Local: Indeterminate plant with big pink fruits. Well adapted to humid rainforest zone.
- NHLy11: small to medium (30g) sized fruit. Highly firm fruit with food keeping quality suitable for backyard garden.
- Roma VF: Determinate pear shaped red fruits. Suitable for planting in the north during dry season.

  Other varieties are Ronita, UC82B, Moneymaker, Sautana etc

**SOURCES OF SEEDS**

Tomato seeds can be obtained from different sources such as:

- Research Centres (NIHORT)
- Government agencies (Ministry of Agriculture, ADPs etc)
- Private seed companies
- Farmer's plots, local markets

**CLIMATE AND SOIL REQUIREMENTS**

Tomato requires a cool dry climate for optimum production, with a temperature range of 21-25$^{o}$C, while a temperature of between 15-21$^{o}$C during fruit formation increases yields. Tomato grows best in well structured soil, but it performs best on sandy loan to loamy soil with a PH of 6.0-6.5

**SEED BED PREPARATION**

- Seed beds are usually prepared with a 50cm width to any convenient length.
- Cover seed beds with palm fronds to prevent the scorching effect of the sun
- Pulverize and mix soil with well decomposed animal manure or well decomposed plant residues
- Sterilize the soil by burning rice hull or rice straw on top of the seed bed for close to 5 hours to reduce damping off disease and insect pest damage. Where this is not possible a combination of insecticide could be drenched into the soil at recommended dosage.

**NURSERY PRACTICES**

- Plant tomato seeds on a well prepared seed bed or plastic trays filled with top soil mixed with animal manure.
- Sow on a row when planting on a seed bed at a spacing of 5cm apart, cover thinly with fine soil.
- Cover with palm fronds or elephant grass to reduce the rate of evaporation / water loss from the soil.
- Water the beds or trays early in the morning and late in the evening or when necessary.
- Seeds will germinate 3-5 days after sowing depending on the soil temperature. Harden seedlings one week before transplanting through the gradual removal of shade of covered plants.
- Seedlings are ready for transplanting between 4 to 5 weeks after sowing.

**ADVANTAGES OF NURSERY PRACTICES**

- Affords easy management of the tender seedlings
- Timely and careful plant protection measures
- Enables the provision of the most favourable growth medium
- Economy of land and seed

- Gives more time for field operation

**LAND PREPARATION**

Land to be used should be cleared at least four weeks before planting especially if itis a virgin land. Other operations include stumping, ploughing and harrowing. Field should be harrowed once and bedded where necessary. Planting can be done at two weeks interval to give room for weed seeds to germinate between each operation.

**TRANSPLANTING**

Tomatoes are usually transplanted when the seedlings are about 4-5 weeks old or about 10cm tall.

- The seedlings are arranged on prepared beds 50cm x 75cm within and between rows respectively. This gives a plant population of 26,667 plants per hectare.
- Organic or inorganic fertilizer can be used to improve the soil nutrient. Organic fertilizer should be applied two weeks before transplanting, while NPK 15:15:15 compound fertilizer can be applied at the rate of 200 – 250 kg ha in two equal doses using the ring method.
- The first dose at about 3 weeks after transplanting and second dose at fruit set is advocated
- Stake tomatoes when sown in the rainy season.

**STAKING**

Tomato seedlings are usually staked at the peak of rainy season and this is done using canes which are at least 1m high, preferably bamboo. Advantages of staking include:

- Exposing fruit to light and air circulation
- Reducing the alternate heating and cooling of the fruit by the soil which enhances the rate of fruit damage
- Reducing the incidence of diseases and pests
- Providing good quality clean fruits

**WEED CONTROL**

It is advantageous that the soil be weed free from planting to early fruit set. If weeding is not done in time, the weeds will serve as alternate hosts of plant diseases, and parasitize the root systems thereby affecting the yield quantity and quality.

- Weed two or more times before harvesting is completed.
- Weeding3-5 weeks after transplanting is desirable.

- Increase in plant density also helps to control weed by casting a sense shade on the undergrowth
- Alternatively, apply Metribuzin (herbicide) at the rate of 1.0 – 1.5 kg ai ha two days before transplanting for effective weed control.

**PEST AND DISEASE CONTROL**

Spray with 5ml of Cypermetrin in 10 Litres of water every week in case of insect pest control. Spray Dithiane M45 at 20g / 10 litres of water to control nematodes. The method of application depends on the type and mechanism of action of the pesticide.

Mode of application can be through:

- Using motorized sprayer
- Knapsack sprayer
- Spot treatment

Complexity of pests and diseases in the environment often determines the frequency of pesticide application.

**HARVESTING AND HANDLING**

- Fruits are ready for harvesting 12-18 weeks after sowing
- Fruits are recommended for harvesting when half ripe or with a tint of colour change to ensure firmness and prevent damage during transportation.
- Tomato fruits for processing must however be fully ripe before it is harvested.
- Harvest at least once a week. If tomato is cultivated under irrigation, good agricultural practices are ensured especially in the dry season. Yields of between 20-30ha could be obtained.
- Studies have shown that under crop management, the tomato crop can be on the field for 17-23 weeks before harvesting is terminated.

**Yield**

Yield of between 20-40 tons / ha are obtainable under intensive cultivation. The enterprise is profitable, and based on the cost profile above every naira invested in tomato production is expected to yield #2.93 within 4 months.

Note: Yield per hectare will depend on the agro-ecological zones. Yield in the Northern part of the country can be up to 20 tonnes per hectare. Also, during the dry season, provision of irrigation facilities may be required to facilitate increase in yield.

**NOTE: Feasibility report on Tomato production is available on request.**

For further information, contact

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