

TUMERIC FARMING

Introduction

Turmeric is a major rhizomatous spice produced and exported from India. It is used as condiment, dye, drug and cosmetic in addition to its use in religious ceremonies. India is the leading producer, consumer and exporter of turmeric in the world.

Ecological Requirements

Altitude

- Turmeric can be grown from sea level to 1500m, at temperature range of 20 - 35°C with a rainfall of 1500mm or more per annum, or under irrigated conditions

Climate

- Turmeric can be grown in diverse tropical conditions from sea level to 1500m
- It requires annual rainfall of 1500mm or higher. However, it can be grown in the dry zone under irrigation.
- Ideal temperature range is 20 - 35°C

Soils

- Turmeric can grow in many soil types.
- However, well-drained sandy loam soils rich in organic matter are the most suitable. Poorly drained, rocky or clay type soils are not suitable.
- The ideal pH is between 5.5 - 7.8

Land Preparation

- During land preparation broadcast 16tons per acre of farmyard manure or compost and dig it in.
- Field should be ploughed/dug deep up to 35-40cm in depth
- The soil should be brought to a fine filth by digging and harrowing
- Before planting make beds of 1.0 - 1.5m wide, 15cm height and of convenient length. The beds are spaced 50cm from each other.

Planting materials

- Turmeric is grown from rhizomes (root cuttings) much like ginger, not from seed.
- Whole or split mother rhizomes are used for planting.
- There are 2 types of rhizomes as mother rhizomes and finger rhizomes.
- Matured finger rhizomes are the most suitable planting material.
- Planting rhizomes should be 40-50g in weight and be with 1-2 buds.
- Plant well-developed, healthy and disease-free rhizomes. Avoid any that appear to be rotting or diseased

Planting

- Rhizomes are treated with 0.3% Dithane M-45 and 0.5% Malathion for 30 minutes before sowing.
- Plant small rhizomes or pieces with at least 1 or 2 buds (facing up)
- The Rhizomes should be planted 5.0 – 7.5cm deep
- Water and keep the soil moist (but not soaking wet) until they sprout

Spacing

- Planting is done after ridges and furrows have been formed on the beds.
- The spacing in furrows and ridges is 45-50cm.
- Small holes are made with a hand hoe in the ridges 25-30cm along the ridges to plant the crop.
- It is estimated that about 1,00kg rhizomes is required for planting one acre.

Fertilizer application

- At planting use TSP 40kg/acre
- Top-dress 1month later with UREA at 25kg/acre,
- Top-dress again 3months later with UREA at 25kg/acre

Mulching

- The crop is to be mulched immediately after planting.
- It may be repeated for a second time after 50 days after weeding and application of fertilizers.

Weeding

- The first weeding is done one month of planting and the second weeding at three months after of planting. Mulching can be done at weeding to conserve moisture.
- Earth-up also done during the weeding.

Harvesting and Post-Harvest practices

Harvesting

- The crop is ready for harvesting when the leaves turn yellow and start drying up.
- Early varieties mature in 7-8 months and medium varieties in 8-9 months.
- At that time, leaves are cut close to the ground, the and rhizomes are gathered by hand-picking or the clumps are carefully lifted with a spade.

- The picked rhizomes are collected and cleaned. The mother and finger rhizomes are separated before curing.
- Harvesting is done with care not to damage rhizomes and any soil attached to rhizomes is removed with a wooden stick.
- The average yield is 8-10tons per acre of green turmeric.

Processing

- The fresh turmeric is cured in order to get the dry turmeric used in food.
- Curing involves boiling of fresh rhizomes in water and drying in the sun.

Curing

- Fingers are separated from mother rhizomes.
- Mother rhizomes are usually kept as seed material.
- Rhizomes to be cured should be left for about a day for wilting. But they must be cured within 2-3 days after harvesting.
- The rhizomes are boiled well in a closed pot filled with $\frac{3}{4}$ of water. When boiled properly rhizomes become tender.
- The boiling lasts for 45-60 minutes when the rhizomes are soft. Over cooking spoils the color of final product while under cooking renders the dried product brittle.
- Instead of boiling in water, water steam boiling can also be applied. Pressure cookers can also be used to boil a few kilo grams of turmeric.
- Boiled rhizomes should be left in-door for about a day and then put for sun drying.
- Drying in the first 3 days is limited to 3-4 hours at a time
- After this continues drying is a must.
- The whole drying process takes 10-15 days.
- The cured rhizomes are dried in the sun by spreading 5-7 cm thick layers on mats or drying floor. A thinner layer is not desirable, as the colour of the dried product may be adversely affected.
- Dried rhizomes are rubbed on a rough surface to become them to bright yellow in color.

Polishing

Dried turmeric has a poor appearance and rough dull colour outside the surface with scales and root bits. The appearance is improved by smoothening and polishing the outer surface by manual or mechanical rubbing.

- Manual polishing consists of rubbing the dried turmeric fingers on a hard surface or trampling them under feet wrapped in gunny bags.
- The improved method is by using hand operated barrel or drum mounted on a central axis, the sides of which are made of expanded metal mesh. When the

drum filled with turmeric is rotated, polishing is effected by abrasion of the surface against the mesh as well as by mutual rubbing against each other as they roll inside the drum.

Pest and Diseases

Common Insect Pests

- Shoot borer
- Leaf roller
- Rhizome scale

Common Diseases

- Leaf blotch
- Leaf spot
- Rhizome rot

