

recommended and hence the earthing up operation after 20-30 days of planting is helpful in retaining the moisture. It also avoids the weeds and exposure of growing rhizomes to sun.

Harvesting: Rhizomes require almost 6-9 months to mature after planting. When vegetative growth on soil surface turns yellow and topples down, the rhizomes are uprooted manually using pickaxe or mechanically with tractor mounted implements. Harvested rhizomes are cleaned from adhered soil, sun dried and stored for processing.

Pests

a. Shoot borer: Shoot borer larvae bore into the pseudo stem and feed on tissues. Spray Malathion (0.1 ml/L) @15 days interval could control the infestation.

b. Rhizome scale: Rhizome scale attacks turmeric rhizomes in field and stores. It sucks the sap from rhizome leading to drying of rhizomes. Dip rhizomes in Quinalphos (0.1%) before storing.

c. Rhizome borer: Rhizome borer feeds on rhizome surface resulting in its drying. Harvest at an appropriate time to avoid pest infestation. Dip rhizomes in Quinalphos (0.75%) before storage.

d. Leaf roller: Leaf roller larvae feed on the rolled leaves. Spray Malathion (0.5 ml/L) @15 days intervals.

Diseases

a. Rhizome rot: The lower leaf and collar region show softening and yellowing. Later, this advances to the rhizomes causing their decay. Use disease free planting material; adopt proper drainage and crop rotation (3-5 years interval). Treat rhizomes with Mancozeb (0.3%) for 30 minutes before storage and planting.

b. Leaf blotch: Oval shaped patches are visible that results in yellowing and dark brown leaves. This also affects the rhizome yield. Spraying Bordeaux mixture (1%) at the interval of one month. The crop rotations and sanitation maintained in field can avoid this infestation.

c. Leaf spot: Brown spots appear on leaves and later leaves dry eventually affecting rhizome yield. Spray Bordeaux mixture (1%), Bavistin (0.1%) or Mancozeb (0.2%) at one month interval.

Prepared and compiled by

Dr. Gourish Karanjalkar

Dr. Rachana Kolambkar

Mr. Shambhu Gaunkar

Published by

Dr. Suresh Kunklikar

Principal

Don Bosco College of Agriculture,

Sulcorna, Quepem- Goa

For details contact:

Principal

Don Bosco College of Agriculture,

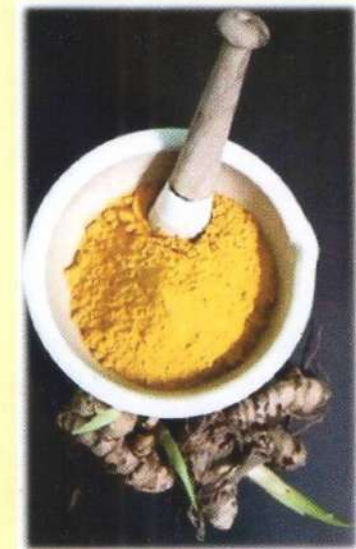
Sulcorna

Extension folder no. 7

Turmeric cultivation



Don Bosco College of Agriculture,
Sulcorna, Quepem - Goa



Turmeric (*Curcuma longa* L.) has been traditionally grown and used in India since ancient times as it has aesthetic, religious, medicinal, nutritional and economical importance. The rhizome contains 'curcumin' pigment that has high potential in dye and pharmaceutical industry. The cultivation of the turmeric has shown to be successful in Goa with high yield and quality. It could be grown as the intercrop in the *kulagar* system of Goa.

Soils and climate: Turmeric grows well in lateritic soils of Goa. Soil with good drainage, rich in organic matter and nutrients and pH of 4-7.5 are suitable for cultivation of turmeric. It thrives well at the temperature range of 20-35°C and annual rainfall above 2000 mm.

Propagation and preparation of planting materials: Turmeric is propagated by rhizomes. About 2500 Kg of rhizomes as seed material are required for one hectare area. Well-developed and disease free rhizomes are selected for planting. There are three types of rhizome viz. mother, primary and secondary rhizomes. Mother and finger rhizomes are used as the planting material. During planting rhizomes are sharply cut into pieces with 2-3 healthy buds (eyes). They are treated with *Trichoderma viridae* (4g/Kg) or 0.3% Mancozeb (3g/L of water) for about 30 minutes and then dried for 3-5 hours before planting.



Rhizomes

Varieties: Many high yielding and quality varieties have been released by ICAR-Indian Institute of Spices Research, Calicut. Among them varieties Pratibha and Pragati have been found suitable for cultivation in Goa.

Variety	Yield (T/ha)	Curcumin (%)
IISR Prabha	37.50	6.50
IISR Kedaram	34.50	5.50
IISR- Pragati	33.50	5.00
IISR- Pratibha	39.10	6.20
Suvarna	17.40	4.30
Roma	20.70	6.10
Suroma	20.00	6.10

Preparation of land: The land is ploughed 2-3 times before monsoon and FYM @25-30 T/ha is applied. The raised beds (height of 15-20 cm) of 1-1.2 m width are prepared for cultivation. In heavy soils ridges and furrows of 30-45 cm spacing and raised to 20 cm could be adopted.



Land preparation

Raised beds

Planting: The planting is done in April-May before onset of monsoon for better germination and to avoid disease infestation. The shallow pits are dug, FYM is applied and rhizomes are placed in the center of the pits maintaining spacing of 30x30 cm and covered with soil.



Sowing of the rhizomes



Growing turmeric plants

After care operations

Fertilizers and manures: NPK - 60:50:100 Kg/ha. The nitrogen fertilizers are applied in two split doses at an interval of 30 days. However, the P and K are applied as the basal dose. Vermicompost, compost, neem cakes etc. are also applied as basal dose. Shallow pits are dug around growing seedlings, filled with fertilizers and covered up with soil for top dressing.

Irrigation: Depending on soil moisture irrigation is provided. About 20-30 irrigations are recommended during the cultivation period. The drip and micro-sprinkler irrigation systems also could be adopted.

Weeding: Weeding is undertaken at an interval of 30 days.

Mulching: Mulching with green leaves could be advantageous to manage weeds and retain moisture.

Earthing up: In heavy soils planting of turmeric by ridges and furrows is