TURMERIC

CLIMATE, SOIL & SEASON

Climate

- Turmeric is a tropical herb and is grown in both tropics and subtropics
- Turmeric will grow luxuriantly in shade if not too dense, but it produces larger and better rhizomes in the open ground exposed to the sun.
- Turmeric require humid climate.

Season

- Planting season varies with the area of cultivation and variety
- Planting is done during May-June

- 365 DGC:

Sow 9 varieties of seeds viz. pulses, oil seeds, millets, green manure seeds and spices like coriander and mustard and use them for pre monsoon dry sowing in the month of may. It acts as a green cover and also after incorporating into soil, it adds organic matter

SEED

Spacing

Black heavy soils - 45-60 cm X 22.5 cm
Red loamy soils - 30 X 15 cm

Overall the optimum spacing will be 45-60 cm between rows and 22.5 cm within the row. In case of planting in beds rhizomes are planted 25-35 cm apart in each direction.

Seed rate

Mother Rhizomes	800-1000 kg/acre as a sole crop
Primary fingers	600-800 kg/acre as a sole crop

Seed selection and Treatment

It is necessary to store the seed rhizomes for 2-3 months from harvesting to planting. This may be done by spreading them thinly under a cover of turmeric leaves or storing them by treating the rhizomes with Beejamrutham for 30 minutes before storing heaps under a layer of straw and soil.

Well-developed, healthy and disease free rhizomes are selected.

Whole or split mother rhizomes weighing 35 to 44 g are used for planting.

Treat the rhizomes with *Trichoderma viridi* 10 gm/1 liter of water and shade dry for 30 minutes and then go plantation

LAND PREPARATION

- One light ploughing by country plough followed by planking.
- Repeated ploughing is necessary to obtain a good tilth.
- Every effort may be made to secure a pulverized surface
- Apply 400 kgs of Ghanajeevamrutham to the field

CROPPING PATTERN

Onion, Coriander and Fenugreek can be planted as intercrop on the sides of the ridges 10 cm apart.

Inter cropping with Maize (2:1) and Castor (10:1) can also be planted which earns good income. It can also be cultivated in coconut and mango orchards. Weeding can be done as and when necessary.
The plants are earthed up at the time of 2nd and 4th spraying of dhravajeevamrutham

SOIL FERTILITY MANAGEMENT

- Apply 12 to 15 tractor loads of tank silt in the month of April and May
- Apply 5 tons of /Sheep and goat manure per acre and 2.5 tons of NADEP compost (if available) 400kgs of ghanajeevamrutham per acre
- 200 kg of neem cake during final plough
- Later 250 kg of Ghanajeevamrutham at the time of sowing as basal
- Apply 200 liters of Dhravajeevamrutham at every 15 days interval up to 150 days.

WEED MANAGEMENT

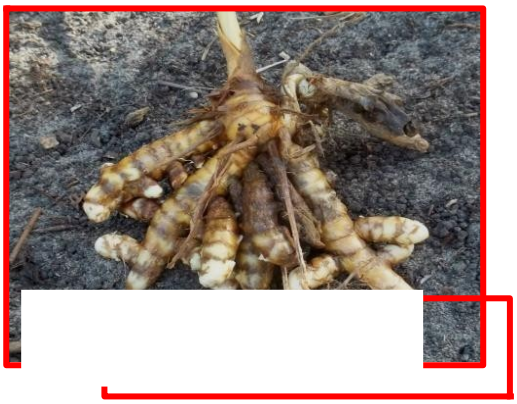
Three or four hoeings are necessary depending on the nature of soil and intensity of weed growth. Weeding may be done thrice at 60, 120, and 150 DAP for better results.
The crop is to be mulched immediately after planting with green leaves or banana pseudostem or sugarcane trash at the rate of 12 to 15 tonnes per hectare. It may be repeated for second time after 50 days worth the same quantity of green leaves after weeding and application of fertilizers.

WATER MANAGEMENT

Till sprouting is completed light irrigations at weekly intervals are essential since it is very susceptible to water logging conditions, and an excess water during rainy season, should be drained out otherwise it may cause rhizome rot.
Number of irrigations will depend upon the soil and climatic conditions.

Depending upon the soils and rainfall 15 to 25 irrigations are given in medium heavy soils and in case of light textured red soils 35-40 irrigations are needed.

PEST AND DISEASE MANAGEMENT



RHIZOME SCALE: *ASPIDIELLA HARTII* (COCKERELL) DIASPIDIDAE)

Symptoms/Damage

Plants look devitalized, pale and withered before drying completely. In such cases at the time of harvest minute yellowish crawlers can be seen moving in large numbers and this is the potential stage of dissemination.

Control Measures:

- Collect and destroy severely infested rhizomes.
- Collect and destroy damaged leaves
- Select healthy rhizomes free from scale infestation for using sowing purpose
- Dung+ urine +hing solution seed treatment

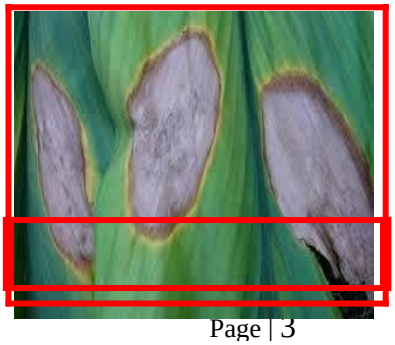
RHIZOME ROT: *PYTHIUM GRAMINICOLUM* OR *P. APHANIDERMATUM* (EDSON)

Symptoms/Damage

It is a common pathogen for *Curcuma longa* roots. It is caused by two kinds of fungus, which are *Pythium graminicolum and P. aphanidermatum.* This disease affects on the whole plant, above the ground and under the ground.If this disease affects *Curcuma longa*, we cant use its rhizome as a kind of adaptation with the environment.

Control Measures:

- Use of resistant varieties to rhizome wilt/ rot.
- Crop rotation with maize, cotton, soybean.
- Planting of disease-free seed rhizomes.
- Use raised beds of 30 cm height.
- Flooding treatment for 30 days, soil solarisation during hottest months for 60 days
- Treat the rhizomes with hot water at 51° C for 10 minutes.
- Use raised beds of 15-30 cm height, 1 m width and of convenient length may be prepared giving at least 50 cm spacing between beds.
- Planting of perennial / seasonal flowering plants like basil, marigold, fennel, sunflower etc. along the border to attract and enhance the population of biocontrol agents for managing pests/disease.



- Application of pine needle and neem cake powder treatments @ 100 kg/ acre (in two splits)
- Application of oil cakes made from *Azadirachta indica* (Neem), *Calophyllum inophyllum*, *Pongamia glabra*, *Hibiscus sabdariffa* and *Brassica campestris* @ 0.8 tonnes/ acre.
- Application of *Trichoderma viridi*

LEAF SPOT: *Colletotrichum capsici* Syd.

Symptoms/Damage

Symptom appears as brown spots of various sizes on the upper surface of the young leaves.
The spots are irregular in shape and white or grey in the centre.
Later, spots may coalesce and form an irregular patch covering almost the whole leaf.
The centre of spots contains fruit head shaped fruiting structures. Disease is soil borne and survives in plant debris.
The disease spreads through rain splashes during intermittent showers. The incidence of the disease is severe in turmeric grown under exposed conditions

Control Measures:

- Pluck and remove the infested leaf and uproot the infested plants and destroy them.
- Use proper green mulching to reduce soil splashes.
- Use of plant extracts such as garlic extracts is effective against foliar pathogens.
- sour butter milk
- Dung + Urine + asafoetida extract

Reference:

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