

Organic Package of Practices for Turmeric

		The collar region of the pseudo stem becomes soft and water soaked, resulting in collapse of the plant and decay of rhizomes. <ul style="list-style-type: none"> • Application of <i>Trichoderma</i> at the time of planting can check the incidence of rhizome rot.
9	Harvesting	The crop becomes ready for harvest in 7-9 months after planting during Jan-March. Early varieties mature in 7-8 months, medium varieties in 8-9 months and late varieties after 9 months. The land is ploughed and the rhizomes are gathered by hand picking or the clumps are carefully lifted with a spade. The harvested rhizomes are cleared of mud and other extraneous matter adhering to them.
10	Drying and storage	It is dried in the sun by spreading them in 5-7 cm thick layers on bamboo mats or drying floor. During night time, the rhizomes should be heaped or covered with material which provides aeration which may take 10-15 days for complete drying. Artificial drying, using cross-flow hot air at a maximum temp. of 60°C also gives a satisfactory product. Rhizomes for seed purpose are generally stored by heaping in well ventilated rooms and covered with turmeric leaves. The seed rhizomes can also be stored in pits with saw dust, sand along with leaves of <i>Stychnos nuxvomica</i> (kanjiram).
11	Yield	The average yield of green turmeric per hectare varies from 20-25 tonnes.



Common Insects and Diseases of Turmeric Crop



Shoot borer



Rhizome scale



Leaf blotch



Rhizome rot



Leaf spot



International Competence Centre For Organic Agriculture (ICCOA),
Bangalore

International Competence Centre for Organic Agriculture

951C, 15th Cross, 8th Main, Ideal Homes Township, Rajarajeshwari Nagar, Bangalore - 560 098. INDIA.
Ph: +91-80-28601183, 28607200 Tel. Fax: +91-80-28600935 E-mail: info@iccoa.org, Web: www.iccoa.org

Organic Turmeric Cultivation

S.No.	Organic Activity	Details
1	Selection and preparation of land	<p>It thrives best in well drained sandy or clay loam soils with a pH range of 4.5-7.5 and more than 1% of organic carbon are well suited for turmeric cultivation. It is required to test the soil once a year to check the levels of pH, organic carbon, macro nutrients (NPK) and microbial population in the field.</p> <p>If the organic carbon content is less than 1%, apply 30-40 tons/ha of FYM and plough the field 2-3 times to mix the manure thoroughly.</p> <p>Adequate buffer zone must be provided between certified organic fields and non-organic fields at a distance of about 25 meters from non-organic fields to prevent drift of prohibited materials on to certified organic fields.</p> <p>The land is prepared with the receipt of early monsoon showers. The soil is brought to a fine tilth by giving about four deep ploughing. Hydrated lime @ 500kg/ha has to be applied for laterite soils and thoroughly ploughed. Immediately with the receipt of pre-monsoon showers, beds of 1.0m width, 15 cm height and of convenient length are prepared with spacing of 50 cm between beds.</p>
2	Sowing season and time	<p>Turmeric crop can be sown during May-July with the receipt of pre-monsoon showers. The short duration varieties are sown during 2nd fortnight of May. medium duration types are sown during 1st fortnight of June, while the long duration cultivars between 2nd fortnight of June to 1st fortnight of July.</p>
3	Variety Selection	<p>Seed/ rhizome selection is an important step in organic turmeric production. Seeds/rhizome should be carefully selected from certified organic farms or from farmers' own field which is raised organically. The seeds (which are not treated with chemicals) from local high yielding varieties can also be used in the absence of organically produced seeds. Select disease resistant and locally demand varieties. Some of the commonly grown varieties are: Duggirala, Tekkurpet, Sugandham, Amalapuram, Erode local, Alleppey, Moovattupuzha and Lakdong.</p> <p>Based on maturity groups, turmeric cultivars are classified into three groups: Short duration (matures 7 months after planting) varieties are Sugandham, Sugana, Suvarna, IISR Probha, Sudarsana. Medium duration (matures 8 months after planting) varieties are Lakadong, Suroma, Roma, Rasmi, Krishna. Long duration (matures 9 months after planting) varieties are Armor, Duggiala, Tedurpeta, Co-1, Kanthi.</p>
4	Seed rate and Spacing	<p>A seed rate of 2,500 kg of rhizomes is required for planting one hectare of turmeric.</p> <p>The optimum spacing in furrows and ridges is 45-60 cm between the rows and 25 cm between the plants.</p>
5	Soil fertility management	<p>Farmyard Manure (FYM) or compost @ 30-40 tonnes/ ha alongwith vermin-compost @ 5-10 tonnes/ha and mulching with green leaves @ 12-15 t/ha at 45 days interval is applied by broadcasting and ploughing at/from the time of preparation of land or as basal dressing by spreading over the beds or in to the</p>

		<p>pits at the time of planting. Based on soil test, application of lime/dolomite, rock phosphate and wood ash has to be done to get required quantity of phosphorus and potassium supplementation. Fertilizers @ 60 kg N, 50 kg P₂O₅ and 120 kg K₂O per hectare are to be applied in split doses. Zinc @ 5kg/ha may also be applied at the time of planting and organic manures like oil cakes can also be applied @ 2 ton/ha. In such case, the dosage of FYM can be reduced. Integrated application of coir compost (@2.5ton/ha) combined with FYM, biofertilizer (Azospirillum) and half recommended dose of NPK is also recommended. Further supplementation of oil cakes like neem cake (2 ton/ha), composted solubilising bacteria will improve the fertility and yield.</p>
6	Irrigation and water requirement	<p>Turmeric needs irrigation at frequent intervals, depending upon the soil and climatic conditions. Usually, 15-23 irrigations are to be given in clayey soils and 40 irrigations in sandy loams. Water conservation measures can be done by making conversion pits in the inter spaces of beds across the slope have to be followed to minimize the erosion and runoff. Water stagnation has to be avoided in the low lying fields by taking deep trenches for drainage.</p>
7	Cultural practices and weed management	<p>Weeding has to be done thrice at 60, 90 and 120 days after planting depending upon weed intensity. Turmeric can be grown as an intercrop in coconut and arecanut plantations. It can also be raised as a mixed crop with chillies, colocasia, onion, brinjal and cereals like maize, ragi, etc.</p>
8	Crop Protection	
a)	Insect management	<p>Shoot borer</p> <p>The larvae of shoot borer (<i>Conogethes punctiferalis</i>) bore into pseudo stems and feed on internal tissues through which frass is extruded and the withered central shoot is a characteristic symptom of pest infestation.</p> <ul style="list-style-type: none"> • Spraying Neemgold 0.5% or neem oil 0.5% during July-Oct at 21 day interval is effective against the shoot borer. The spraying has to be initiated when the first symptom of pest attack is seen on the inner most leaf. • If shoot borer incidence is noticed, cut open the shoots and pick out the larvae and destroy them. <p>Rhizome scale</p> <p>The rhizome scale (<i>Aspidiella hartii</i>) infests rhizomes in the field (at later stages of the crop) and in storage. They feed on sap and when the rhizomes are severely infested, they become shrivelled and desiccated affecting its germination.</p> <ul style="list-style-type: none"> • Regular field surveillance and adoption of phytosanitary measures. <p>Turmeric thrips</p> <p>The turmeric thrips (<i>Panchaetothrips indicus</i>) infests the leaves causing them to roll, turn pale and gradually dry up. The pest infestation is more common during the post monsoon period especially in drier regions of the country.</p> <ul style="list-style-type: none"> • Spray neem oil @ 0.5% at fortnightly intervals if found necessary.
b)	Disease management	<p>Leaf blotch</p> <p>It appears as small, oval, rectangular or irregular brown spots on either side of the leaves which soon become dirty yellow or dark brown. In severe cases the plants present a scorched appearance and the rhizome yield is reduced.</p> <ul style="list-style-type: none"> • The disease can be controlled by spraying Bordeaux mixture 1%. <p>Leaf spot</p> <p>It appears as brown spots of various sizes, irregular in shape and white or grey in the centre. Later, these spots may coalesce and form an irregular patch covering the whole leaf which eventually dries up.</p> <ul style="list-style-type: none"> • The disease can be controlled by spraying Bordeaux mixture 1%. <p>Rhizome rot</p>