

# “COMMERCIAL CULTIVATION OF” **BLACK TURMERIC**

An Endangered High Value Medicinal Plant



**CLICK-N-GROW**  
Agroventures Pvt Ltd  
Farmer's e-Buddy

## INTRODUCTION:

Black turmeric is an important plant in Ayurveda. Its botanical name is *Curcuma cassia* and this plant belongs to the Zingiberaceae family, and the part used is its tuber. This plant is originated in India, the central and southern regions of our country and Assam are the main states for its production.

Black turmeric is a rare herb. The black turmeric plant is sometimes grown as an ornamental plant, but the root has been used for medicinal and religious purposes for centuries. Black turmeric provides the same benefits as yellow turmeric, but the darker turmeric contains higher amounts of curcumin than any other *Curcuma* species. It is widely used in India for health and medicinal purposes.

## MEDICINAL USES:

The dried tuber of black turmeric contains 76.6% D-camphor, 1.6% essential oil, 8.2% camphene, borniline, 10.5% sesquiterpene, curcumin, ionone and turmerone. Antibacterial and antifungal properties are found in it, for which it is used medicinally as a tonic for brain and heart. It is used in treatment of leucoderma, piles, leprosy, respiratory disease, asthma, tumor, allergy, cancer, fever, wounds, vomiting, menstrual disorders and inflammation. Its other uses are as coloring agent, spices, cosmetics and in religious rituals.

Eucalyptol is the major component of black turmeric rhizome essential oil from NorthEast India and the essential oil sample possess strong antioxidant, anti inflammatory, antimicrobial activity which is even stronger than the standard drugs used. Nowadays the use of herbal medicines is gaining much importance due to its immense benefits and lesser side effects. Black turmeric has much importance in various medicinal fields, so this plant species is on great demand worldwide. However, the production is not up to the demand because of unavailability of high yielding varieties in the public domain as well as standard cultivation package of practices, especially nutrient management.

## PHYTO-CONSTITUENTS

Dried rhizomes of *Curcuma caesia* are reported to contain

- 1.6% essential oil containing 76.6% d-camphor
- 8.2% camphene and bornylene
- 10.5% sesquiterpenes, curcumin, ionone, and turmerone





### CLIMATE REQUIREMENT:

Black turmeric requires a warm and humid climate to grow. This plant can be grown in hot areas in partial sunlight. This plant likes direct or indirect sunlight. When the temperature is 10°C or less than this, the growth of the turmeric plant may be affected.

### SOIL REQUIREMENT:

Cultivation of black turmeric requires fertile land. It is successfully cultivated in light black, red soil, loamy soil, black soil or sandy loam soil. The field should be well drained. In slightly acidic soil also black turmeric can be cultivated successfully. It is necessary to keep the soil moist throughout the period of cultivation and it is considered good to use water soluble fertilizer.

### MANURES AND FERTILIZERS:

The following manures and fertilizers are required-

- **Vermi compost** - Adding this supplies nutrients.
- **Trichoderma Powder** – a fungicide that destroys harmful fungi present in the soil.
- **Neem Cake**- a pesticide which when applied to soil, destroys the insects and egg masses present in the soil.
- **Gypsum** – It is a soil conditioner that makes the soil friable and airy.

### LAND PREPARATION:

Kali Haldi is 9 month crop that is planted in May/June and dug up in March/April. For good farming, it is necessary that the fields should be deeply ploughed in summer, if possible, sow dhaicha, sani, guarfali as green manure.

In the cultivation of black turmeric, good land preparation is required, because it grows inside the ground, hence it is necessary to prepare the soil friable and airy. Plough the soil 1.5 feet deep, spread organic manure in equal quantity and then mix the soil and manure.

Make a 2 feet wide bed in the soil up to 1 foot height. In black turmeric cultivation, using plastic mulching sheets to cover the beds can reduce the cost of weeding. The use of drip irrigation, saves a lot of water and expenses, along with this, 15-25% increase in production has also been seen.



## PLANTING TIME

The right time to plant black turmeric is from the beginning of June to the end of July, but if the land is fertile and water is availability is good, then its cultivation can be done from any month.

## PLANTING MATERIAL AND METHOD OF PLANTING-

For sowing black turmeric, 10,000 rhizomes per acre are required. The plant to plant distance should be 2 feet and the distance between two rows should be 2 feet. Before planting the rhizomes, irrigation should be applied in which cow urine of desi cow should be mixed at 10 liters per acre, mixed in 100 liters of water and Trichoderma fungicide powder, 1000 grams per acre, mixed in 100 liters of water is applied through drip irrigation. Due to this, the harmful elements present in the soil will be destroyed.

## SEED TREATMENT

It is important to treat black turmeric rhizomes before planting. Take 10 liters of water in a vessel. Mix 2 liters of cow urine and 100 grams of Trichoderma powder in it. Soak the rhizomes of black turmeric in this solution for 5 to 10 minutes and then take them out and plant them in the soil. Sow the treated rhizomes at a proper distance and at a depth of 2 to 3 inches. Irrigate the entire field immediately after planting turmeric rhizomes.

## IIRRIGATION

Do not allow water to stagnate in the soil during or after irrigation. Drain the excess water out of the field as soon as possible. But keep in mind that it is important to have moisture near the roots of the plant all the time. The water holding capacity of your land and the need for watering may change depending on the season.

## WEEDING

To obtain a good yield, 2-3 weedings are necessary. The first weeding should be done 60-80 days after sowing and the second weeding should be done a month later. But if weeds have already infested in the field, a weeding can be done even before that. Along with this, hoeing should also be done from time to time so that air circulation can be good.





### **VERITIES:**

There is no specific variety developed by any govt or private institution. However, among the collected materials, accession no. IC-319760 (NBPGR) was found to give better rhizome yield.

### **INTERCROPPING:**

Kali haldi is grown as a single crop. But, it may be intercropped beneath widely interrupted canopy trees like Amla, Moringa, etc.

### **IMPORTANT PEST DISEASES AND THEIR CONTROL**

Leaf spot/leaf blotch, rhizome rot, stem borer, rhizome scale and turmeric thrips these pests can be seen in black turmeric. You can contact our organization for control and prevention of these pests.

### **HARVESTING AND YIELD:**

Black turmeric crop becomes ready for harvesting in 9 to 10 months. While digging, take care that the rhizome is not cut, peeled or left in the ground. If cultivated scientifically, the yield of black turmeric is 100 to 120 quintals per acre. Keep in mind that 30-35 percent of raw turmeric is obtained after drying.

### **STORAGE OF RHIZOMES**

After harvesting of black turmeric, the tubers kept for seed material should be covered with turmeric leaves and kept in well-ventilated rooms. Seed tubers can also be kept in pits filled with sawdust, sand, etc. To make these pits ventilated, they should be covered with wooden planks with one or two holes.



## TOTAL COST PER ACRE (10 Months)

Particulars	Work	Total Output
Land Preparation	Ploughing, levelling, etc.	5,000
Seed (Rhizome)	400 kg rhizomes @ Rs.350/per kg	140,000
Organic Fertilizer	Growth boosters, organic fertilizers, etc.	20,000
Irrigation	Proper Irrigation	5,000
Sowing	Sowing	5,000
Other Practices	Weeding, Fertigation etc	5,000
Electricity bill	Irrigation & Other	1,000
Harvesting	Removing rhizomes from soil	5,000
Post- Harvest Activities	Washing & Grading	2,000
<b>Total Expenses (10 Months)</b>		<b>Rs.188,000/-</b>

## TOTAL INCOME PER ACRE (10 Months)

Production	Buyback Price	Total Output
3000 Kg (Mature wet rhizomes, Except White)	Rs.100/- per kg	Rs.3,00,000/-
Total Expenditure		Rs.1,88,000/-
<b>Net Income (10 months)</b>		<b>Rs. 1,12,000/-</b>

# COMPANY PROFILE

## Click-N-Grow Agroventures Pvt. Ltd.



**INTERLINKED FARM SOLUTIONS AT ONE PLACE**

**Click-N-Grow Agroventures Pvt. Ltd.**



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