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STUDY ON TURMERIC PRODUCTION AND GROWTH IN ERODE DISTRICT

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ABSTRACT

India is the largest producer, consumer and exporter of turmeric in the world. The global production of turmeric is around 11 lakh tonnes per annum. India is the global leader in value added products of turmeric and exports. India shares around 78 per cent of the global turmeric Production. India has 182.04 thousand hectares underturmeric cultivation with a total production of 829.30 thousand tonnes and a yield of 4555 kg/ha (Madan, 2008). The present study was aimed to review turmeric production and growth in erode district of Tamilnadu and the main objective of the present study was to investigate to understand the Area, Production and Productivity of Turmeric in Erode and Study the various Process of Turmeric and to evaluate the Export Marketing of Turmeric in Erode. The principal use of turmeric worldwide is a major ingredient in curry power, but it is also used in other spice mixes. The increasing demand for natural products as food additives makes turmeric as ideal produce as a food colourant, it can be concluded that turmeric powder can be used as an alternative to in-feed-antibiotics for improving gut health in broiler deserters.

KEYWORDS

turmeric, growth, production, export marketing.

INTRODUCTION

According to Indian Census of 2001, the urban workforce participation rate of Erode is 35 percent. Major employment in the city is provided by textile industry, turmeric industry and oil industry. Approximately 68.83 percent of the workforce is employed in tertiary sector. Erode is also known as "Turmeric City" or "Yellow City" on account of production of turmeric in the state and has one of the largest markets for coconut. Turmeric has been used for many conditions in traditional medicine in India, Pakistan and Bangladesh. It can be prepared in various ways and is reputed to alleviate asthma and coughs. Erode District in Tamil Nadu State is very important market centre for Turmeric. Currently, the country has stocks of around 7.5 lakh bags (1 bag = 70 kg) of turmeric, of which Erode region alone has 3.5 lakh bags. Daily Turmeric market rate is updated in the website.

"India exports about 40,000 to 45,000 tons of turmeric per annum. It is shipped in the form of dry turmeric after polishing, fresh turmeric, turmeric powder, dehydrated turmeric powder, oils and oleoresins. In terms of volume, turmeric oleoresin account for about 200 tons per annum and turmeric powder constitutes very small portion. Fresh turmeric arrival in Erode starts from mid-January and continues till June. Stored product is available throughout the year. During January to April, turmeric from Mysore region comes to Erode market regularly. Turmeric prices increased by over Rs. 500 a quintal for almost all varieties on Friday following good domestic and export demand from Malaysia, Sri Lanka and UAE.

- Root variety prices increased sharply due to heavy demand from North India and countries like Malaysia, Sri Lanka and UAE. The hybrid root increased by Rs 650 a quintal to Rs 7,044 a quintal.
- At the Erode Turmeric Merchants Association Sales yard, New crop: the finger variety was sold at Rs 5,695-6,714 a quintal and root variety at Rs 5,499-6,714 per quintal.
- Old crop: The finger variety was sold at Rs 4,868-6,897 and root variety Rs 4,699-6,699 per quintal.

REVIEW OF LITERATURE

Muthuswamy and Shah, in 1982 evaluated the comparative quality of Salem and Erode turmeric types for curcumin content of mother and finger rhizomes of turmeric. Curcumin content was 4.75% compared with 3.9% in Erode.

Turmeric (*Curcuma longa* L.) is one of the vital spice crops and is eminent indigenous herbal medicine. It is utilized for flavouring and colouring of a variety of dishes on domestic scale as well as in food industries. The productivity of turmeric is low in acidic soils due to the presence of exchangeable aluminium and iron, fixation of phosphorus and leaching and runoff losses of nitrogen and potassium in high rainfall areas. Turmeric nutrient requirement is quite high due to shallow rooting and potential to produce large amount of dry matter per unit area. Application of organic and in-organic fertilizers is indispensable as their conjunctive use stimulates the mineralization of nitrogen and sulphur and diminish the fixation of phosphorus and potassium in the acidic soils (Kamat et al., 1982; and Singh et al., 2001). In fact, addition of organic manures has shown substantial augment in crop yield and improved physical, chemical and biological properties of soils (Dudhat et al., 1997). In addition, the application of farmyard manure or organics is useful, since in addition to major nutrients, they also provides the micronutrients that are quite valuable for optimum growth and development of the crop plants. But, its alone use is not ample to meet crop nutrient requirement. Conversely, the use of inorganic fertilizers alone poses serious threat to sustainability of agricultural productivity. Therefore, the best substitute is integrated nutrient management for sustainable production and health of soil. The use of both the organic and chemical fertilizers in required quantity assumes unique significance as complementary and supplementary to each other in crop production. The use of organics in combination with inorganic fertilizer materials enhances the nutrient use efficiency also.

Dr. I. Satya Sundaram (2000) Says that India Produces 63 varieties of Spices on Two million hectares with value exceeding Rs.42000 million (two million tonnes a year). However, only a small quantity is exported as the bulk of the produce is meant for domestic consumption our domestic market for spices is big total estimated production in 1997-98 was at 3.0 million tonnes with an annual growth rate of 10 percent and with limited scope for area expansion (2,359 million hectare). The world trade in spices by 2001 is projected to be 6,25,000 tonnes value at 83 billion. But, quantity wise. This is only 15.56 percent of the Indian production envisaged (4.018 million tonnes).

V.A. Parthasara. This pamphlet with India is a leading producer and exporter of turmeric in the world India has produced 837200 tonnes of turmeric from an area of 18600 ha. In session 2006-2007. This paper said about climate and soil, varieties, cultivation, plant protection, harvesting process which include curling, boiling, drying, polishing. Dried turmeric has a poor appearance and a rough dull outer surface with the scale and root bits. They said the yield of polished turmeric from raw material varies from 15-25 percent.

OBJECTIVES OF THE STUDY

- To understand the Area, Production and Productivity of Turmeric in Erode.
- To Study the various Process of Turmeric.
- To evaluate the Export Marketing of Turmeric in Erode.

METHODOLOGY OF THE STUDY

The research study is descriptive in nature. The entire study is based on Secondary sources of data .The Secondary data has been collected from reputed Books, Journals, Reports and Web-sites.

LIMITATIONS

Labour cost has increased drastically due too tedious process in Turmeric.Lack of water availability during summer. Higher realization in other crop grown in the same area.

CULTIVATION PRACTICES INVOLVED**LAND PREPARATION**

While preparing the nursery for turmeric production, at the same time we cultivate a green manure crop (Daincha) in the main field. While preparing the land, the usual tillage operation may be adopted. Farmyard manure (FYM), neem cake, basal fertilizers, and micronutrients are applied to the soil as recommended. Beds should be prepared – 15 cm in height and 120 cm in width, and a convenient length – with at least 30cm spacing between the beds. In the case of irrigated crops, ridges and furrows are prepared, and the seedlings are planted on the top of the bed. Spacing generally adopted is 40 cm between rows and 30 cm between plants, compared with 30 cm by 30 cm with standard methods.

PLANTING MATERIALS

With this new methodology, we use sections of seed rhizomes weighing 20 to 35 grams each. For an acre, 180 kg of seed rhizomes are needed (usually there are 30 to 50 rhizomes per kg, with single rhizomes having a length of 7 to 9 cm, and a perimeter of 7 to 8 cm). Single rhizomes are cut into 3 to 4 pieces, each having 2 rings with a bulged portion. In a single rhizome, 8 to 10 rings are seen. We need about 22,000 pieces per acre (55,000 per ha).

SEED TREATMENT

Fungicide (any type) - 2 gms / one liter of water Insecticide (any type) - 2 mls / one liter of water Urea - 5 gms / one liter of water The fungicide used is organic, so no inorganic fungicides are used. The above materials are soaked in water for half an hour, after which they are kept for warming in air-tight gunny bags for eight days in a protected area. This should initiate the germination, which starts earlier in the bulged portions that protrude outward.

PRO-TRAY FILLING

Farmers fill the trays in which seedlings are to be raised with coco-peat, vermi-compost, some Effective Microorganisms (EM) solution, Trichoderma viridae, Pseudomonas, and a mixer. Then the trays are filled with partially-germinated seed, and the remaining space in the pits is filled with the above mixer of coco peat. Then the trays are kept under a shade net for 40 to 45 days. The usual daily maintenance activities are taken to ensure proper growth.

TRANSPLANTATION

After 40 days, we plant the seedlings in the main field with the support of drip irrigation and fustigation. Spacing between rows for STI is 40 cm between rows, and 30 cm between plants, while conventional spacing is 30 cm by 30 cm, as noted above. We have to protect the crop properly and carefully from pests and diseases through organic and inorganic methods. The materials used are listed in the comparative cost accounting below.

HEALTHINESS OF TURMERIC

- Turmeric has been in use since antiquity for its anti-inflammatory (painkiller), carminative, anti-flatulent and anti-microbial properties.
- The herb contains health benefiting essential oils such as termerone, curlone, curumene, cineole, and p-cymene.
- Curcumin, a poly-phenolic compound, is the principal pigment that imparts deep orange color to the turmeric. In vitro as well as in laboratory animal studies have suggested that the curcumin may have anti-tumour, antioxidant, anti-arthritis, anti-amyloid, anti-ischemic, and anti-inflammatory properties.
- This popular herb contains no cholesterol; however, it is rich in anti-oxidants and dietary fiber, which helps to control blood LDL or "bad cholesterol" levels.
- It is very rich source of many essential vitamins such as pyridoxine (vitamin B6), choline, niacin, and riboflavin, etc. 100 g herb provides 1.80 mg or 138% of daily-recommended levels of pyridoxine. Pyridoxine is employed in the treatment of homocystinuria, sideroblastic anemia and radiation sickness. Niacin helps prevent "pellagra" or dermatitis.
- Fresh root contains very good levels of vitamin-C. 100 of root compose of 23.9 mg of this vitamin. Vitamin C is a water-soluble vitamin and a powerful natural anti-oxidant, which helps the body develop immunity against infectious agents, and remove harmful free oxygen radicals.
- Turmeric contains very good amounts of minerals like calcium, iron, potassium, manganese, copper, zinc, and magnesium. Potassium is an important component of cell and body fluids that helps controlling heart rate and blood pressure. Manganese is used by the body as a co-factor for the antioxidant enzyme, superoxide dismutase. Iron is an important co-factor for cytochrome oxidase enzymes at cellular level metabolisms and required for red blood cell (RBC's) productions.
- Research studies have suggested that Curcumin, a poly-phenolic compound, found in this herb may inhibit the multiplication of tumor cells, including multiple myeloma, pancreatic cancer, and colon cancer.
- It contains health benefiting essential oils such as termerone, curlone, curumene, cineole, and p-cymene. These compounds have applications in cosmetic industry.
- Curcumin, along with other antioxidants, has been found to have anti-amyloid and anti-inflammatory properties. Thus; it is effective in preventing or at least delaying the onset of Alzheimer's disease.
- The root herb contains no cholesterol; however, it is rich in anti-oxidants, and dietary fiber. Together, they help to control blood cholesterol levels, offer protection from coronary artery disease and stroke risk.
- Early laboratory studies have been suggestive that turmeric is liver protective, anti-depressant, anti-retroviral effects.
- It has been in use since a very long ago as an important ingredient in traditional Chinese and ayurvedic medicines for its anti-microbial, anti-inflammatory, carminative, and anti-flatulent properties.

Source:<http://www.nutrition-and-you.com/turmeric.html>

GRADE SPECIFICATION

The following table elucidates the stringent trade specifications for whole and ground turmeric.

Important turmeric trade requirements

After harvesting proper care should be taken in consideration with the trade requirements. The major important attributes which should be kept in mind at the time of harvesting and storing are as follows:

Grade specifications

Grade designations and definitions of quality of Turmeric Finger

TABLE 1

SPECIAL CHARACTERISTICS						
Grade Designation	Flexibility	*pieces % by weight (max)	Foreign % by weight (max)	Chura and defective bulbs % by weight (max)	%of bulbs by weight (max)	Admixture varieties of turmeric (%)
Special	Should be hard to touch and break with metallic twang	2	1.0	0.5	2.0	-
Rajapure special	-	3	1.0	3.0	2.0	2.0
Allepey good	Should be hard to touch	5	1.0	3.0	4.0	-

* Pieces are fingers, broken or whole, 15 mm. Or less in length.

Grade designation and definition of quality of Turmeric Ground:

TABLE 2

SPECIAL CHARACTERISTICS						
Grade designation	Moisture % by weight (max)	Total ash % by weight (max)	Lead as (Pb) parts per million (max)	Starch % by weight (max)	Chromate test	Acid insoluble ash, % by weight (max)
Standard	10.0	7.0	2.5	60.0	Negative	2.5

Per Capita Consumption

After allowing for exports, the per capita consumption works out to about 300-320g head per year, barring small quantities used for medical, cosmetic and religious purposes.

Source: http://turmericworld.com/grade_specification.php

Yield: From 15 tonnes of fresh turmeric, he was able to get 9 tonnes of dried turmeric. The costs he incurred are given below:

TABLE 3

SL.NO	DETAILS OF CULTURAL OPERATIONS	COST(Rs.)
1.	Ploughing (4 times)	700.00
2.*	Cost of FYM (own farm) and its transport	6600.00
3.	Making Ridges & Furrows , maintaining bunds	450.00
4.*	Cost of seed rhizomes @ Rs. 5/- per kg	4000.00
5.	Planting of turmeric -10 women labourers @ Rs. 40/-	400.00
6.	Cost of Weedicide (2 rounds)	400.00
7.	Weedicide application cost 2 rounds (1 labour per round @ Rs.40/-	160.00
8.	Hand weeding and earthing up operations -25 female labours @ Rs.40/-	1000.00
9.	Cost of fertilizers	2150.00
10.	Fertilizers application cost – 4 labours @ Rs.80/-	320.00
11.	Irrigation cost (15 rounds) (1 labour per round @ Rs. 80/-	1200.00
12.	Harvesting – Cutting of plants at base level – 8 women labours @ Rs.40/-	320.00
13.	Digging and collecting of rhizomes – 20 men @ Rs.120/- and 40/- women @ Rs. 50/-	4000.00
14.	Boiling cost Rs.20. per trough (100 kg capacity trough)90 times	1800.00
15.	Drying & packing (10 female labours @ Rs. 40/-)	400.00
16.**	Polishing cost (Rs.1.25 per kg)	1875.00
17.**	Marketing cost including transport, Commission etc. (20 bags each 75 kg) Rs.20 /- per bag	400.00
	Total cost (for one acre)	26575.00

From the Rs 26, 575 invested in the turmeric planting, he anticipated selling the produce at Rs 33 per kg.

Source: <http://turmericworld.com/a-farmers-experience.php>

NUTRIUTRITIVE VALUES

Indian cooking attributes a lot of nutritive value to this spice. Apart from being used as a part of daily cooking, turmeric is believed to have many curative values that work differently on the organs of the body.

Given below, is a detailed list of nutritive values that turmeric has:

TABLE 4

CURED TURMERIC COMPOSITION / 100 GRAM	
Moisture	5.8 g /100 g
Protein	8.6 g /100 g
Fat	8.9 g /100 g
Carbohydrates	63.0 g /100 g
Fibre	6.9 g /100 g
Mineral Matter	6.8 g /100 g
Calcium	0.2 g /100 g
Phosphorus	0.26 g /100 g
Iron	0.01 g /100 g
Sodium	0.5 g /100 g
Potassium	175 IU /100 g
Vit.A	0.09 mg /100g
Vit.B	0.09 mg /100g
Vit.B2	0.09 mg /100g
Vit.C	49.8 mg /100g
Niacin	4.8 mg /100g
Calorific value	390 calories per 100g
Essential Oil	Dried Rhizomes 5-6% Fresh Rhizomes 0.24%

Source: <http://turmericworld.com/nutritive-values.php>

CONCLUSION

Turmeric is one of the oldest spices and had been used in India since ages. That is why it is said that this spice belongs to India and also called 'Indian Saffron'. Turmeric after harvest undergoes the process of turmeric is cleaning, boiling, drying, polishing, colouring and packaging. The annual demand for turmeric of the country is around 75 lakh bags (70 kg per bag) but at present trade sources indicated there were 40-45 lakh bags of stocks, of which Tamil Nadu accounted for

20 lakh bags and the rest from Andhra Pradesh, Karnataka and Maharashtra. Turmeric is planted with the onset of monsoon in the months of May to July. Erode; Salem and Coimbatore are major turmeric trading centres in the country along with Nizamabad, Sangli and Duggirala. Turmeric varieties such as Erode local, Salem local and PTS 10 are mostly cultivated in Tamil Nadu. India accounts for about 80 per cent of world turmeric production and 60 per cent of exports. Production of turmeric was 971 thousand tonnes in 2012-13, 17 per cent less than the previous year. Though the production declined, yield remained stable at five tonnes a hectare. This is because of those bonding only that India is the largest producer, consumer and exporter of this spice. The world production of turmeric stands at around 800 thousand tones in which India hold as have of approximately 75-80%. India has monopoly in turmeric trade at world level. Export of turmeric to various countries was 67000 tons and total value of export was Rs.643.76 crores. But the turmeric prices are more flexible. India has been potential to become a major player in the world trade of turmeric exported are dry turmeric, fresh turmeric turmeric powder and even through the production in India is high surplus is less because of higher domestic consumption.

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