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"Obstacles Faced by Turmeric Producing Farmers in Hingoli and Nanded Districts of Marathwada Region"

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Abstract:

Turmeric production in India is about 78% of global turmeric production. Turmeric is used in Indian spices, India cuisines as curry powder. It is used in diversified forms as a flavoring, condiment, and coloring agent as a curry powder in Indian spices. The botanical name of the turmeric plant is *Curcuma longa*, and it belongs to the *zingiberaceae* family similar to the ginger. Turmeric is a part of Curcuma Long botanical group and it is a perennial herbaceous plant of the ginger family. It is used as a seasoning, dye, drug with diverse applications and also used in cosmetics industry. It is used in various religious ceremonies. India is a major producer and exporter of turmeric in the world. The present investigation employs a descriptive and analytical research design to examine the range of problems faced by turmeric (*Curcuma longa*) farmers in the Hingoli and Nanded districts of Maharashtra, India. The region's agro-climatic conditions are generally favorable for turmeric cultivation; however, farmers face multiple challenges related to inputs, irrigation, marketing, and price realization. To maintain fertility and sustainability, turmeric producing farmers should use organic chemical and preferably organic method of cultivation instead of conventional method.

Keywords: Turmeric, Turmeric producing farmers, Turmeric cultivation, *Curcuma Longa.*

Introduction:

Turmeric is also known as "Indian saffron", a valued and traditional spice from India. In India turmeric is an essential commercial crop. Turmeric's dark yellow color gives it the names "Indian Saffron" and "Indian solid Gold". Around 78% of the world's total production of turmeric is grown in India. Curry powder as well as other Indian spices also contains turmeric. As a curry powder in Indian spices it can be used in several ways as a flavoring, spice and food coloring agent. The most significant data regarding turmeric is that it is a prominent commercial spice crop harvested in India and is known as Indian Keshar (*Curcuma Longa*).

Turmeric has anti-cancer and anti-viral properties and therefore it is used in the pharmaceutical industry and beauty industry. Also it is used as *'Kum-kum'*, which is a favorite among all housewives. Also a specific kind of turmeric is being used to extract a kind of starch. Turmeric is a suitable product for using as a food coloring agent because of the increasing demand of natural products as food additives.[1]

Turmeric botanically known as *Curcuma Longa* is a member of the *zingiberaceae* family which also includes ginger. The root or rhizome which can be used for the different functions listed above. The rhizome gives rise to the broad, long and vibrant green leaves of the turmeric plants. The stem of plant is not well defined. Usually shorter than the leaves it is pseudo stem. The flowers grow on spikes and have a pale yellow colour. Turmeric usually gets ready for harvesting in seven to nine months. When leaves start becoming yellow, it is usually ready.

Turmeric is herbaceous perennial that belongs to the ginger family zingiberaceae and is a member of the *curcuma longa* botanic group. It has various kinds of uses in the cosmetic sector as well as a seasoning, colouring and medication. It is utilized in a variety of religious rituals. India is one of the world's largest producer and exporters of turmeric. Andhra Pradesh, Tamil Nadu, Orissa, Karnataka, West Bengal, Gujarat, Meghalaya, Maharashtra and Assam are the major states that produce turmeric. Andhra Pradesh produces simply 35% of the total area and 47% of the productions. Turmeric is grown in India during the months of February through May and August through October. [2]

Ideal Conditions for Cultivation of Turmeric in India:

Climate	There is requirement of humid and warm climate for the growing of turmeric. 20 to 30 degree Celsius temperature and 1500 to 2250 mm rainfall is needed annually for turmeric cultivation farming in India. It can also be grown as an irrigated crop.
Soil	Clayey soil, sandy soil, red soil, ashy loam or light black loamy soil, are suitable for the crop.
Crop Rotation	The rotation of crops is necessary like sugarcane, garlic, onion, pulses, yam (elephant foot), wheat, maize, ragi and some other quickly growing vegetables are rotated with turmeric. It is also cultivated as a subsidiary crop to ginger and chili.
Land Preparation for Turmeric Farming	It is necessary to prepare beds with height of 15 cm and 1m as the width while preparation of land.
Solarization	It is necessary to keep the disease causing organism away and necessary to solarize the bed before cultivation of turmeric.
Planting Method	There are two types of planting methods i.e. flat bed method and ridges and furrows methods. In the system of flat bed method, the land of field is leveled and beds are made in convenient sizes as well as in the ridges and furrow method, the field is harrowed to produce a series of raised ridges.

Review of Literature:

Sasikumar (2015), In order to find possible opportunities for enhancing their standard of living in Erode District, the study investigates the opportunities and difficulties in small-scale turmeric farmers' encounter when trying to market their products. The author gathered information by surveying and interviewing small farmers in the area. The paper addresses a number of problems that farmers face, such as insufficient marketing channels, volatile prices, poor storage facilities, and restricted access to technology and credit. The study emphasises the opportunities for small-scale turmeric growers. According to the author, creating efficient marketing plans, enhancing post-harvest and storage procedures, facilitating access to technology and financial services, and encouraging organic and sustainable farming methods are all necessary to address the issues small farmers face.[5]

Vaideke and Jayanthi (2015) The cultivation methods used by turmeric farmers in the Erode district are the subject of the study. Turmeric growers face challenges in a number of areas, including storage issues, lack of technology, monsoon failures, and issues with private vendors and middlemen. According to the study's findings, the developing nations' agricultural development strategies should focus on raising the productivity of the land under cultivation while lowering costs and improving input efficiency with little to no negative impact on the environment or human health.[6]

Bommaiah et al. (2019) made an effort to determine the factors influencing turmeric farmers' adoption decisions as well as the extent to which they have adopted modern cultivation techniques. Using primary data on a range of turmeric-related topics, the authors surveyed 120 turmeric farmers in the Belagavi district. The survey asked about the socioeconomic traits of farmers, their landholding habits, and their awareness of better cultivation techniques, their adoption of these techniques, and the perceived advantages and difficulties of doing so. The author came to the conclusion that growing

turmeric is an important agricultural practice in the Belagavi district that significantly boosts the local economy. However, only a small percentage of turmeric growers have adopted better cultivation techniques.[7]

Anand Avale and Kiran Kumar (2022) The study's objectives focuses on the methods used by Karnataka's turmeric farmers for cultivation. Among the many difficulties faced by turmeric farmers are a lack of labour, a dearth of agricultural research facilities for the crop, a scarcity of high-quality seed, a lack of technology, and problems with storage. Numerous crucial recommendations have been made to assist turmeric growers in overcoming their obstacles. Including a fair and assured selling price, prompt delivery of high-quality seeds and credits, prompt VEW supervision and farmer show planning, subsidized fertilisers and pesticides, and the creation of an independent turmeric research facility.[8]

Research Methodology:

Research Design

The present investigation employs a descriptive and analytical research design to examine the range of problems faced by turmeric (*Curcuma longa*) farmers in the Hingoli and Nanded districts of Maharashtra, India. This design was considered appropriate as it facilitates the systematic identification and description issues influencing turmeric cultivation.

Study Area

The study was conducted in the Hingoli and Nanded districts of the Marathwada region, Maharashtra. Both districts are recognized for their significant contribution to turmeric production in the state. The region's agro-climatic conditions are generally favorable for turmeric cultivation; however, farmers face multiple challenges related to inputs, irrigation, marketing, and price realization.

Objectives of the Study

The objectives of the study are:

1. To examine the demographics of the turmeric production farmers in Hingoli and Nanded district.
2. To find out the problems perceived by the farmers in turmeric market.
3. To identify the main obstacles for farming of turmeric production farmers.
4. To contribute suggestions for policy implications.

Population and Sampling

The population for this study comprises all turmeric-growing farmers in the Nanded and Hingoli districts. A total of 100 respondents were selected 50 from each district. At the first stage, major turmeric-growing talukas were identified purposively. In the second stage, villages were selected randomly, and finally, respondents were chosen randomly from each selected village. This combination of purposive and random sampling ensured representation of small, medium, and large farmers.

Sources of Data

The present research paper makes use of primary data as well as secondary data. The primary data is collection from the farmers who have cultivating the turmeric crop through the structured questionnaire from Nanded and Hingoli district in Marathwada region, Maharashtra State.

The secondary data was collected from various sources like the books, websites, previous research papers; research articles published articles of various researchers in journals, etc. The researcher has collected the online data from concerned websites.

Limitations of the Study:

1. The geographical scope of the study is confined to the Nanded and Hingoli districts; hence, results may not be generalized to all turmeric-growing areas.
2. The findings are based on respondents' perceptions and may involve subjective bias.
3. The study was conducted within a limited time frame and resource constraints, which restricted the sample size.

Data Analysis and Interpretation:

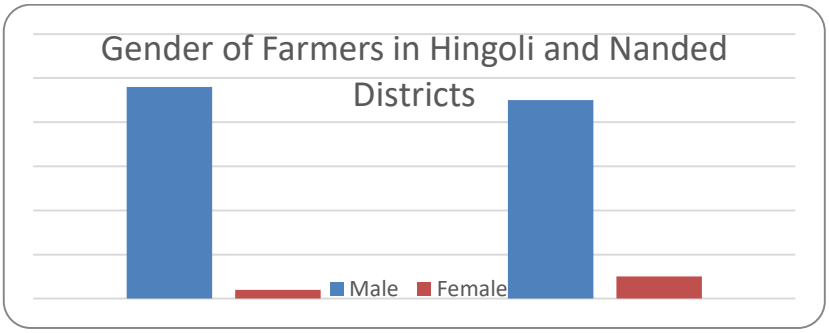
According the subject of the research paper "Obstructions faced by turmeric producing farmers in Hingoli and Nanded districts of Marathwada region" the researcher prepared the questionnaire and collected the data from respondents related the various barriers in the process of turmeric cultivation. The research has collected the question-wise responses from the respondents.

Table No. 1 Classification of respondents according to gender

Gender	Hingoli	Nanded	Total
Male	96%	90%	93.00%
Female	4%	10%	7.00%

(Source: Primary Data)

Figure No. 1 Classification of respondents according to gender



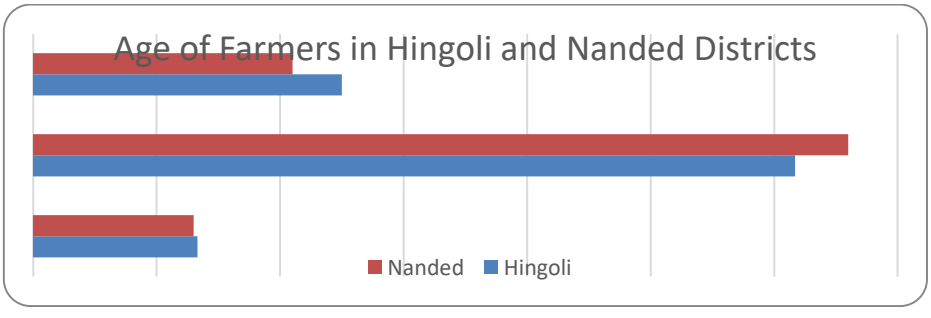
According to the Table No. 1 and Figure No.1 are showing classification of respondents according to their gender, in totality 93% respondents are male and 7% are female in the study. Which includes 96% male respondents and 4% female respondents are from Hingoli district, and 90% male respondents and 10% female respondents are from Nanded District.

Table No. 2 Classification of respondents according to age

Age	Hingoli	Nanded	Total
Up to 30 Year	13.30%	13%	13.15%
30 Years to 45 Years	61.70%	66%	63.85%
Above 45 Years	25%	21%	23.00%

(Source: Primary Data)

Figure No. 2 Classification of respondents according to age



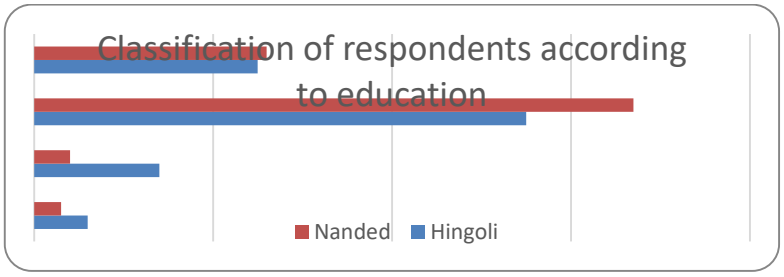
According to the Table No. 2 and Figure No. 2 are showing the classification of respondents on the basis of age. The study consist 13.30% respondents from Hingoli district and 13% respondents from Nanded district belongs to up to 30 years of age group. Where, 61.70% respondents from Hingoli district and 66% respondents from Nanded district falls under 30 years to 45 years of age group, and 25% respondents from Hingoli district and 21% respondents from Nanded district belongs to 45 & above years of age group.

Table No. 3 Classification of respondents according to education

Basis	Hingoli	Nanded	Total
Illiterate	6%	3%	4.50%
Primary Education	14%	4%	9.00%
Secondary Education	55%	67%	61.00%
Graduate & Above	25%	26%	25.50%

(Source: Primary Data)

Figure No. 3 Classification of respondents according to education



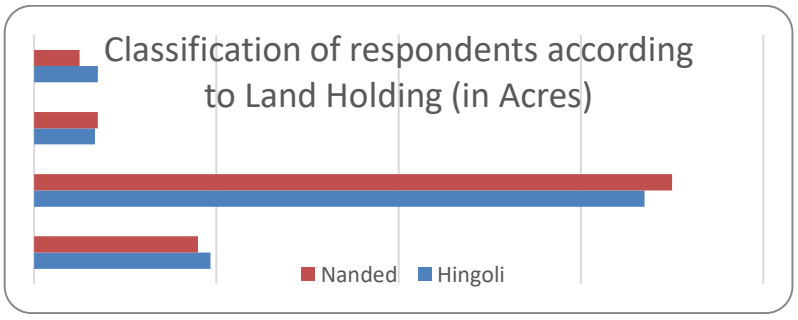
According to the Table No. 3 and Figure No. 3 are showing the classification of respondents on the basis of education level; it is interpreted that 6% respondents from Hingoli district and 3% respondents from Nanded district are illiterate, 14% respondents from Hingoli district and 4% respondents from Nanded district are literate up to primary education, 55% respondents from Hingoli district and 67% respondents from Nanded district are literate up to secondary education, and 25% respondents from Hingoli district and 26% respondents from Nanded district are Graduate & above in the study.

Table No. 4 Classification of respondents according to Land holding (in Acres)

Land Holding (in Acres)	Hingoli	Nanded	Total
Less than 1 acre	19.34%	18%	18.67%
1 acre to 3 acres	67%	70%	68.50%
3 acres to 5 acres	6.66%	7%	6.83%
More than 5 acres	7%	5%	6.00%

(Source: Primary Data)

Figure No.4 Classification of respondents according to Land holding (in Acres)



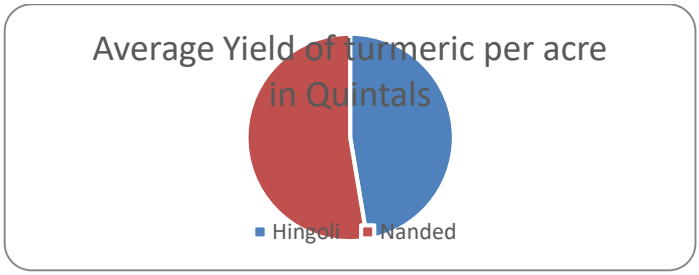
According to the Table No. 4 and Figure No.4 denotes that, 19.34% respondents from Hingoli District and 18% of respondents from Nanded District are having less than 1 acre land, 67% respondents from Hingoli District and 70% of respondents from Nanded District are having land 1 acre to 3 acres, 6.66% respondents from Hingoli District and 7% of respondents from Nanded District are having land 3 acre to 5 acres, and 7% respondents from Hingoli District and 5% of respondents from Nanded District are having more than 5 acres of land.

Table No. 5 Average Yield of turmeric per acre in Quintals

Average Yield of turmeric per acre	Hingoli	Nanded
in Quintals	18-22	12-15

(Source: Primary Data)

Figure No. 5 Average Yield of turmeric per acre in Quintals



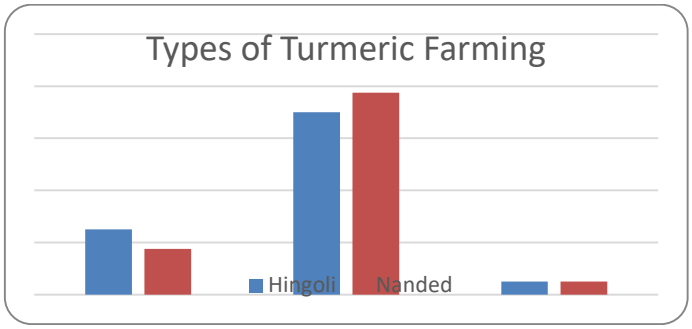
According to the Table No. 5 and Figure No.5, Average yield of turmeric per acre in quintals in Hingoli district is 18 to 22 quintals and in Nanded district it is 12 to 15 quintals. Hingoli district is having higher production capacity of turmeric according to the above data collected by researcher.

Table No. 6 Types of Turmeric Farming

Types of Turmeric Farming	Hingoli	Nanded
Organic	25%	17.50%
Conventional	70%	77.50%
Mixed (Both)	5%	5%

(Source: Primary Data)

Figure No.6 Types of Turmeric Farming



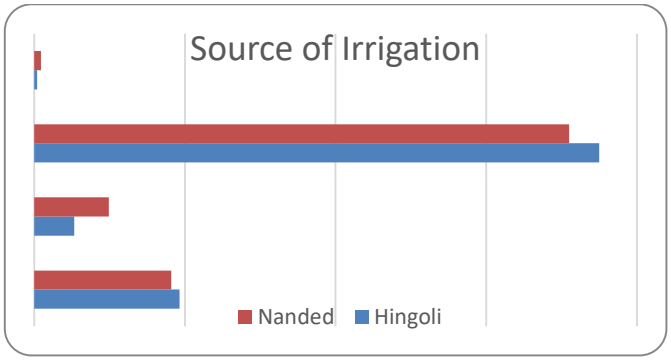
According to the Table No.6 and Figure No.6 are showing the data of types of turmeric farming, 25% of respondents from Hingoli District and 17.50% from Nanded district are using organic farming techniques, 70% of respondents from Hingoli District and 77.50% from Nanded district are using Conventional farming techniques, and 5% of respondents from Hingoli District Nanded district are using both organic and conventional farming techniques.

Table No.7 Source of Irrigation

Source of Irrigation	Hingoli	Nanded
Bore well	19.30%	18.20%
Cannol	5.30%	9.90%
Rain Fed	75%	71%
Other	0.40%	0.90%

(Source: Primary Data)

Figure No.7 Source of Irrigation



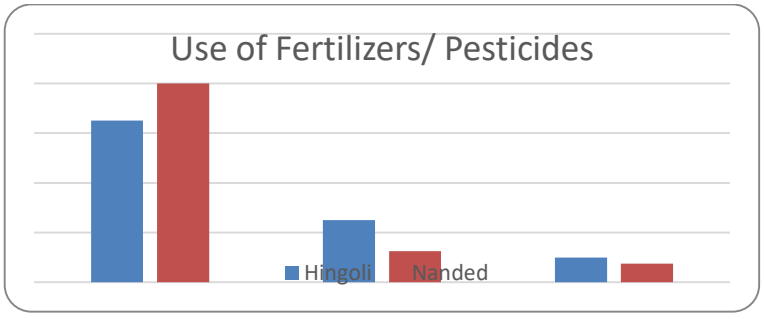
According to the Table No. 7 and Figure No. 7 are showing the source of irrigation used for turmeric producing, 19.3% respondents from Hingoli district and 18.2% of respondents from Nanded district are using bore well, 5.3% respondents from Hingoli district and 9.9% of respondents from Nanded district are using canal water, 75% respondents from Hingoli district and 71% of respondents from Nanded district are depend upon rain fed, and 0.4% respondents from Hingoli district and 0.9% of respondents from Nanded district are depend upon other sources of irrigation.

Table No. 8 Use of Fertilizers/ Pesticides

Use of Fertilizers/ Pesticides	Hingoli	Nanded
Chemical	65%	80%
Organic	25%	12.50%
Both	10%	7.50%

(Source: Primary Data)

Figure No.8 Use of Fertilizers/ Pesticides



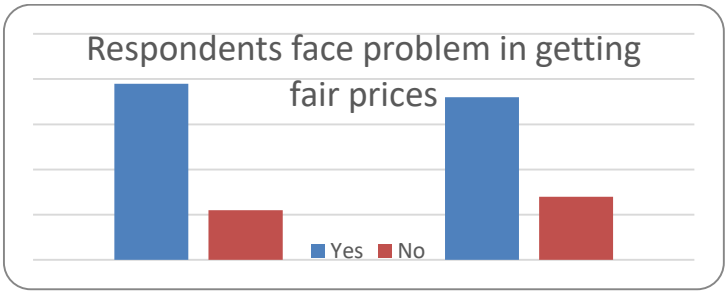
According to the Table No.8 and Figure No.8 are showing use of fertilizers/ pesticides while farming, 65% of respondents from Hingoli District and 80% of respondents from Nanded districts are using chemical fertilizers/ pesticides for farming, 25% of respondents from Hingoli District and 12.5% of respondents from Nanded districts are using organic fertilizers/ pesticides for farming, and 10% of respondents from Hingoli District and 7.5% of respondents from Nanded districts are using both chemical and organic fertilizers/ pesticides for farming.

Table No.9 Respondents face problems in getting fair prices

Respondents face problems in getting fair prices	Hingoli	Nanded
Yes	78%	72%
No	22%	28%

(Source: Primary Data)

Figure No. 9 Respondents face problems in getting fair prices



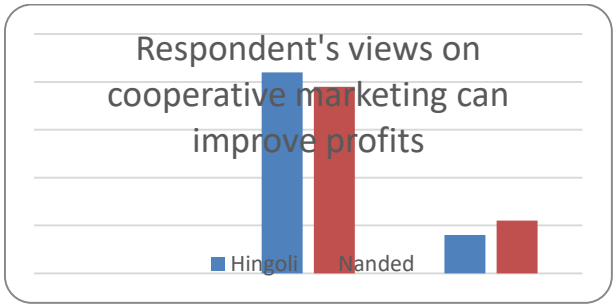
According to the Table No.9 and Figure No.9 shows that, 78% respondents from Hingoli district and 72% respondents from Nanded district said yes that they are facing problem in getting fair prices, and 22% respondents district and 28% respondents from Nanded district said no that they don't face problem in getting fair prices. The researcher asked question about facing problem in getting fair prices so majority of respondents said yes they face problems.

Table No. 10 Respondent's views on cooperative marketing can improve profits

Respondent's views on cooperative marketing can improve profits	Hingoli	Nanded
Yes	84%	78%
No	16%	22%

(Source: Primary Data)

Figure No. 10 Respondent's views on cooperative marketing can improve profits



According to the Table No.10 and Figure No. 10 shows that, 84% of respondents from Hingoli district and 78% respondents from Nanded district said yes to the researcher cooperative marketing can improve profits, and 16% of respondents from Hingoli district and 22% respondents from Nanded district said no to the researcher cooperative marketing cannot improve profits.

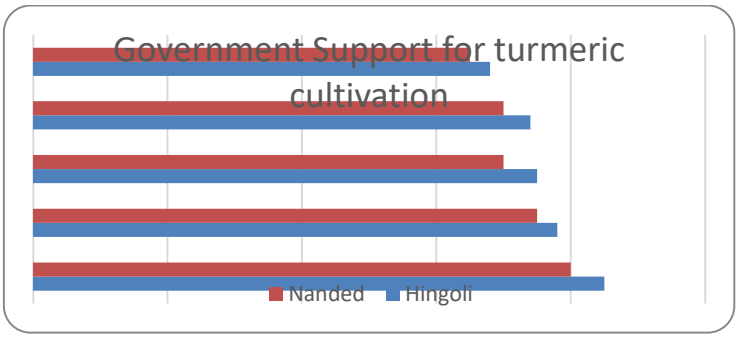
Table No.11 Government support for turmeric cultivation

Basis	Hingoli	Nanded
i) Subsidy on fertilizers & Seeds	85%	80%
ii) Easy availability of crop loan or kisan credit card	78%	75%

iii) Crop Insurance for turmeric	75%	70%
iv) Development of Storage and Processing Unit	74%	70%
v) Supporting irrigation facility	68%	65%

(Source: Primary Data)

Figure No. 11 Government support for turmeric cultivation



According to the Table No. 11 and Figure No.11 shows that, 85% of respondents from Hingoli district and 80% respondents from Nanded district need government support in subsidy on fertilizers & seeds of turmeric, 78% of respondents from Hingoli district and 75% respondents from Nanded district want easy availability of crop loan or kisan credit card from government, 75% of respondents from Hingoli district and 70% respondents from Nanded district want crop insurance for turmeric cultivation from government, 74% of respondents from Hingoli district and 70% respondents from Nanded district want development of storage and processing unit from government, and 68% of respondents from Hingoli district and 65% respondents from Nanded district want support for irrigation facility from government.

Findings:

1. The majority (74%) respondents from both the districts having land holding 1 Acres to 5 Acres and 6% respondents are holding more than 5 acres of land holding.
2. Hingoli district producing highest capacity of turmeric which was 18 to 22 quintals per acre comparatively Nanded it is much higher.
3. The majority (73.75%) of respondents from the both district are using conventional method of farming and very few around 5% of farmers using both or mixed method of farming which means they are using conventional and organic method.
4. The majority (73%) of respondents are depend upon rain fed as a source of irrigation and only 0.65% respondents depend upon others sources of irrigation.
5. The majority (80%) of respondents use chemical based fertilizers or pesticides whether in Hingoli district 65% of respondents use chemical fertilizers or pesticides. Also in Hingoli district majority (25%) of respondents use organic fertilizers or pesticides comparatively Nanded district.
6. The majority (75%) of respondents face problem while getting fair prices for turmeric in the market in the both Hingoli and Nanded district. In Table No.10, majority (81%) of respondents agrees on cooperative marketing can improve profits in both of the districts and only 19% of respondents disagree on it.
7. Both the Hingoli and Nanded district 82.5% respondents agrees that they need subsidy on fertilizers & Seeds from government, 76.5% respondents agrees on they should get Easily availability of crop loan or kisan credit card for cultivation of turmeric, 72.5% respondents agrees on that the government should avail Crop Insurance for turmeric, 72% of respondents agrees that government should provide support for Development of Storage and Processing Unit, and 66.5% respondents agrees for government should support for irrigation facility.

Suggestions:

1. It is suggested to the farmers of both the Hingoli and Nanded district should go with organic farming method to get fruitful results for upcoming years, so they will earn more profit.
2. It is suggested to the farmers from Nanded district to use more organic based fertilizers or pesticides to maintain fertility of soil.
3. Also, farmers can build cooperative society to get more income from turmeric cultivation and then they will get fair price for turmeric in the market.
4. It is suggested to government that, they should encourage turmeric producing farmers with the facility of subsidy for fertilizers and seed, crop loan, crop insurance for turmeric, and development of Storage and Processing Unit.
5. Also, one of the common problems in Hingoli and Nanded district is lack of irrigation sources so, it is suggested to government to increase and enhance turmeric cultivation they should support to the farmers to get irrigation facility.

Conclusion:

To maintain fertility and sustainability, turmeric producing farmers should use organic chemical and preferably organic method of cultivation instead of conventional method. Government should support to the schemes mentioned above that plays vital role in turmeric production in Hingoli and Nanded district. The farmers of Hingoli district are agrees on the government policy implementation like subsidy for fertilizers and seed, crop loan, crop insurance for turmeric, development of Storage and Processing Unit and sources of irrigation.

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