J. Agr. Sci. Tech. (2022) Vol. 24(1): 57-69

Shifting Turmeric Cultivation to Other Crops by Small-Holder Farmers in a Selected Area of India

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ABSTRACT

Tamilnadu is one of the leading turmeric producing states in India. The turmeric productivity of the state has been declining for the last three years. Many small-scale farmers start shifting turmeric cultivation to other crops due to various reasons that need to be explored. The study has identified the reasons for this shifting among the small-scale farmers where the invading gets doing. Data for this study have been collected from 50 farmers randomly selected from Kanjikoil Village of Erode district using a pre-tested interview schedule. The study reveals that the major causes of shifting turmeric cultivation to other crops are competitive producers from other states (90%), lowering of selling price (88%), lack of technological usage (66%), postharvest losses (72%), higher labour and operation cost (70%), and lack of knowledge on pest control (70%). Based on the results, the feasible recommendations are derived to enhance the turmeric crop growth in the state.

Keywords: *Curcuma longa* L., Crop shift, Small-scale farmer.

INTRODUCTION

India is the biggest producer, customer, and exporter of turmeric (*Curcuma longa L.*)(Angles, 2001; Angles and Hosamani, 2005; Kandiamman *et al*., 2002; Lal, 2012; Ganesan, 2015; Pachauri *et al*., 2002) though it is produced in 12 countries in the world (Shivchander, Kandiannan *et al*., 2002). For its best quality with higher curcumin (Dixit *et al*., 2009; Pawar *et al*., 2014), the country shares 80% of turmeric production (Lal, 2012; Karthik and Amarnath, 2014; Ganesan, 2015) and 60% of turmeric export (Angles *et al*., 2011) in the world. The increase of turmeric production by 10% between 1997 and 2017 (National Horticulture Board, 2020) assures the greater demand (Angles, 2001; Lal, 2012; Sowbhagya *et al*., 2005) and expansion potential of turmeric production area in the country. Contemporary Covid-19 outbreak escalates the turmeric sale up to 30% in the country (Sally, 2020). Though Tamilnadu state ranked third among the 25 states of India for the last three decades, the production share is exponentially getting lower in the last three years. In the state, Erode district's contribution is emphasized by its higher productivity rate (5.9× Tonnes per Hectare) than the state's productivity (3.96×10^3 t ha^{-1}) as depicted in Figure 1. For its uniqueness on pest resistance and higher curcumin content, Erode local variety of turmeric has earned Geographical Indication (GI) tag in March 2019 (Geographical Indication Registry of India, 2020) among 20 varieties of turmeric in the country (KAU, 2020). It is noticeable from Table 1 that the Erode district leads in turmeric production, though the other districts, namely, Dharmapuri and Salem had larger turmeric production area. From 2017- 2018 onwards, there is a remarkable decline in

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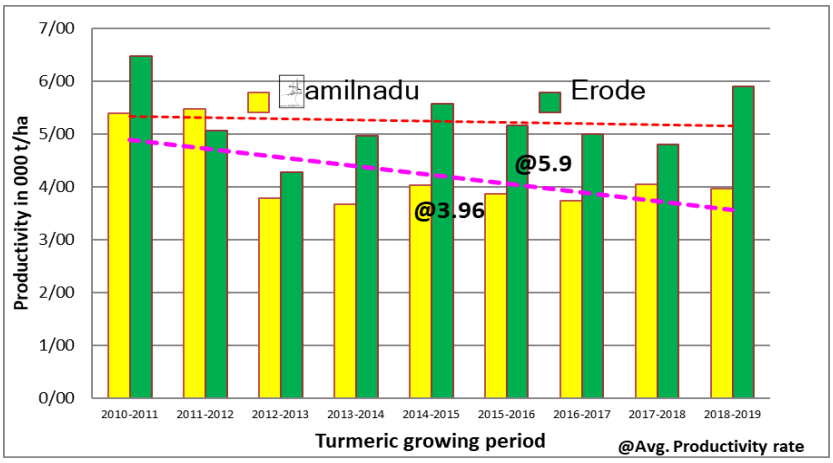

Figure 1. Trend of turmeric production in Tamilnadu and Erode district. Source: https:apeda.gov.in/apedawebsite.

Table 1. Comparative analysis on contribution of Erode district's share on Tamilnadu turmeric crop production and cultivation area.

Year	District	Area (ha)	Production ('000' t)	Yield ('000' t/ha)	Rank		Share to states' turmeric area (%)	Share to states' production (%)
					Area	Production		
	Erode	14299	92564	6.47	1	1	72.21	66.70
2010-11	Dharmapuri	10879	44668	4.11	2	2		
	Tamilnadu	51446	277980	5.40				
	Dharmapuri	14009	80426	5.74	1	1		
2011-12	Salem	13684	57580	4.21	2	3		
	Erode	12857	65108	5.06	3	2	80.88	82.33
	Tamilnadu	67246	368413	5.48				
	Erode	10929	46727	4.28	1	1	76.32	73.26
2012-13	Dharmapuri	10685	30969	2.90	2	2		
	Tamilnadu	46151	174775	3.79				
	Erode	8179	40641	4.97	1	1	74.42	65.39
2013-14	Salem	6230	19849	3.19	2	2		
	Tamilnadu	31968	117416	3.67				
	Erode	6293	35035	5.57	1	1	75.86	66.63
2014-15	Dharmapuri	5098	13066	2.56	2	2		
	Tamilnadu	26074	105002	4.03				
	Erode	7960	41153	5.17	1	1	73.36	64.32
2015-16	Dharmapuri	6933	21042	3.04	2	2		
	Tamilnadu	29877	115351	3.86				
	Erode	9473	47365	5.00	1	1	73.54	64.66
2016-17	Dharmapuri	7906	37747	4.70	2	2		
	Tamilnadu	35795	134010	3.74				
	Dharmapuri	5298	14891	2.81	1	2		
2017-18	Erode	3072	15030	4.80	2	1	83.01	79.45
	Tamilnadu	18080	73134	4.05				
	Dharmapuri	5747	17181	2.99	1	2		
2018-19	Erode	5636	33240	5.90	2	1	75.86	64.01
	Tamilnadu	23351	92361	3.96				
	Lower productivity than Erode				Higher productivity rate than state's productivity			

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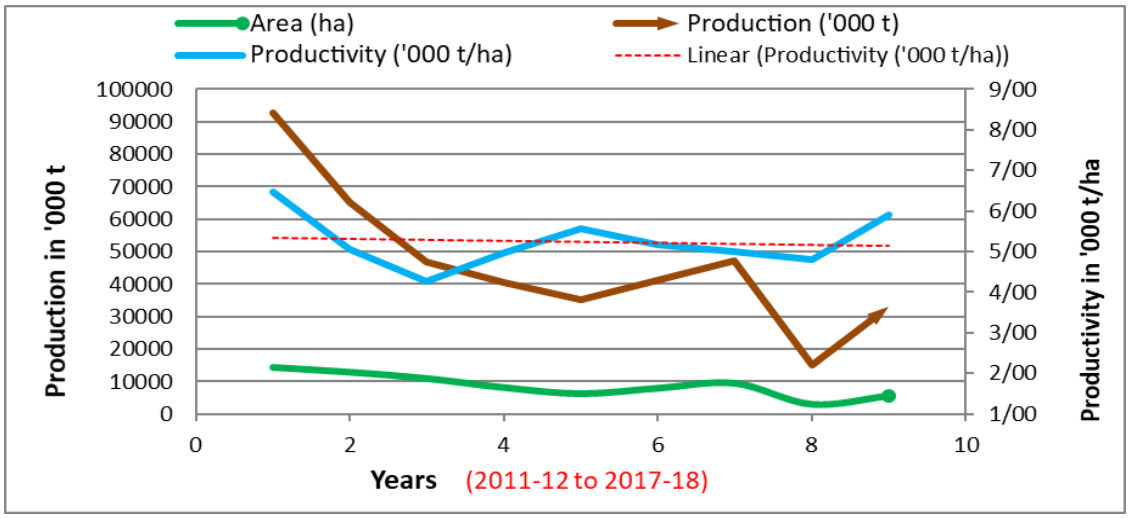

Figure 2. Trend of area, production and yield of turmeric in Erode district. Source: Statistica Webportal.

area and production of turmeric in the district. Figure 2 depicts the decreasing trend of area, production and yield rate of turmeric over the last 9 years in the district. The literatures (Vishwanath Kulkarni, 2019) on this issue claim that the reduction of market price is the main case of crop shift in the district. Hence, this study investigates the reasons behind the reduction in the area and production of turmeric in a selective village of Erode district.

MATERIALS AND METHODS

Based on the problem statement, the following research objectives were framed to undertake the research.

To investigate the farmers on the reason for crop shift from turmeric crop;

To analyze the reason for not preferring the turmeric crop,

To suggest the implementation methods to prevent the crop shift.

The detailed methodology of the study is represented in Figure 3 and discussed below.

Survey Design and Study Area

The Kanjikoil Village is purposively selected based on its heavier reduction (more than 50% of farmer left turmeric production) of turmeric production. The location map of Kanjikoil Village is displayed in Figure 4. Using the random sampling method, 50 small-scale farmers were selected for the study. A well-defined semi-structured and pre-tested interview schedule was used to collect the data and information from the farmers. The selected farmers were questioned on generic information about farmer, crops, soil, turmeric growth and its related factors and responses were recorded manually. The responses were used for deriving the reason for crop shift.

Analytical Tools

Statistical tests can be used for interpreting the results of research data(Council, 1998). Since the related researches and literatures proved that the reduction of turmeric growing area is occurring because of the selling price reduction in the Indian turmeric market, hypotheses are framed to derive a confident conclusion from this study.

H_0: Lower selling price is the only factor for the shifting of turmeric crop ($p= 1$)

H_1: Other factors are influencing the shifting of turmeric crop significantly ($p\neq1$)

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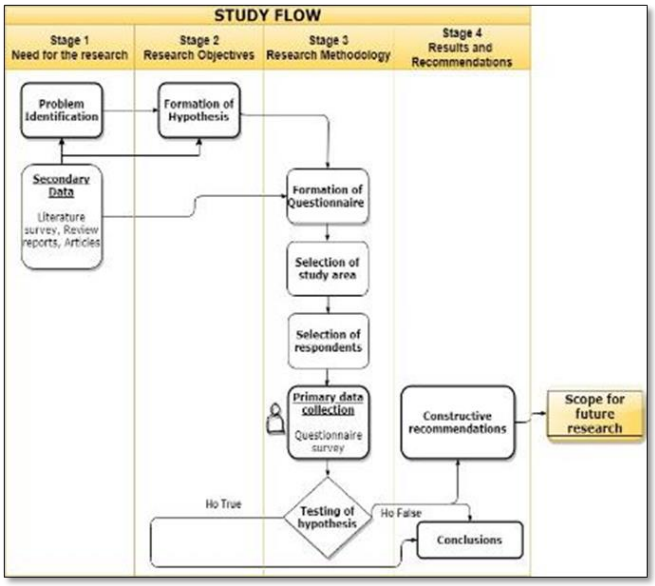

Figure 3. Flow diagram of the methodology of the study.

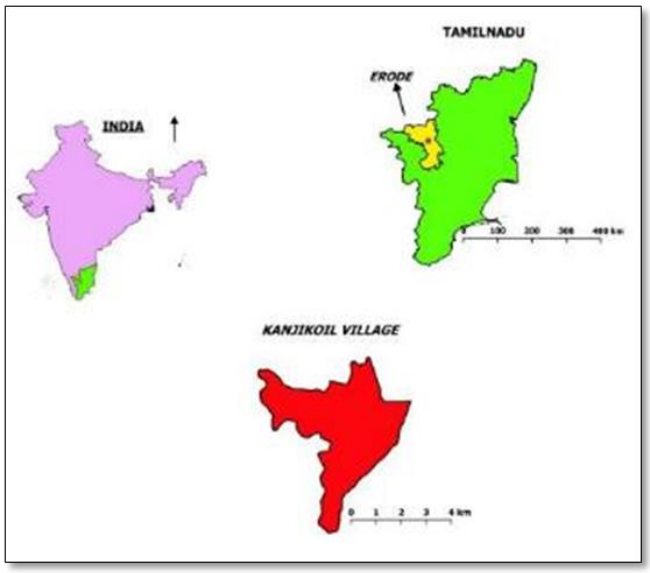

Figure 4. Location map of Kanjikoil Village.

A simple percentage analyzes is used test the hypothesis.

RESULTS AND DISCUSSION

Socioeconomic Profile of the Farmers

In the sample, 90% of farmers were in the farming for more than 40 years and 40% of the farmers were under the age of 50. This proves the sustainability of farming in the village. Among the 85% of literates, 35% are graduates and the rest are school dropouts. The primary occupation in the village is farming (80%) followed by the agro-product based business like oil mills, saw mills, farm machinery renting and turmeric storage units.

Soil Characteristics

The village is widely (90%) covered with red soil (laterite) and less than 2% of the area is having black (basaltic) soil. The soil fertility is maintained by the crop rotation practice and maize is specifically preferred for turmeric growth. However, the farmers say that fertility is reduced significantly as graphed in Figure 5.

Crop Preferences

The village farmers are practicing multiple cropping. Figure 6 clarifies that 92% of farmers produce turmeric as primary crop and followed by tapioca and paddy. Also, 50% of farmers are growing sugarcane and paddy as secondary crops. Maize and sugarcane are preferred as third crop by 40% of farmers. Overall, 55% of farmers grow 5 to 7 crops and the remaining grow 2 to 3 crops every year.

Turmeric Details

Planting material, post-harvesting losses, machine and labour cost, fertilizers and irrigation water quality have significant influence on turmeric yield (Karthik and Amarnath, 2014). Hence, the remaining part of the survey was focussed on the detailed investigation on the turmeric crop.

Climatic Factors

The village is located in the temperate region of the state and receives 7 to 9 heavy

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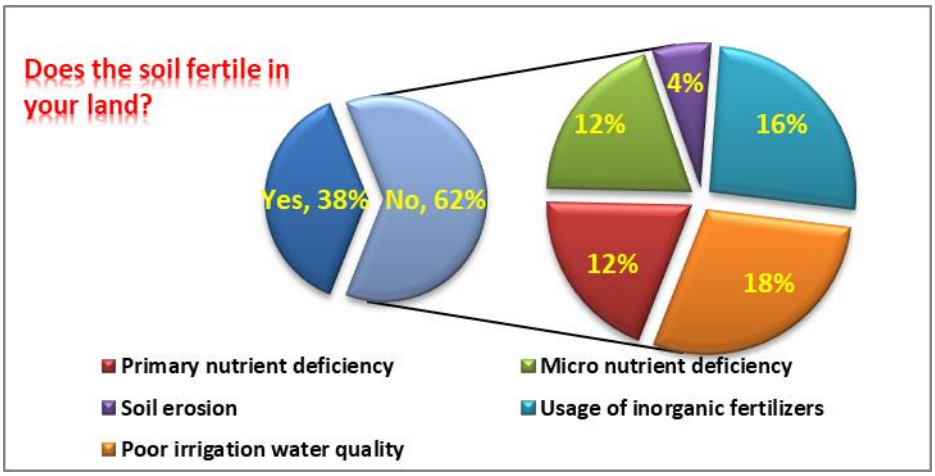

Figure 5. Farmers' reasoning on soil fertility reduction in Kanjikoil Village

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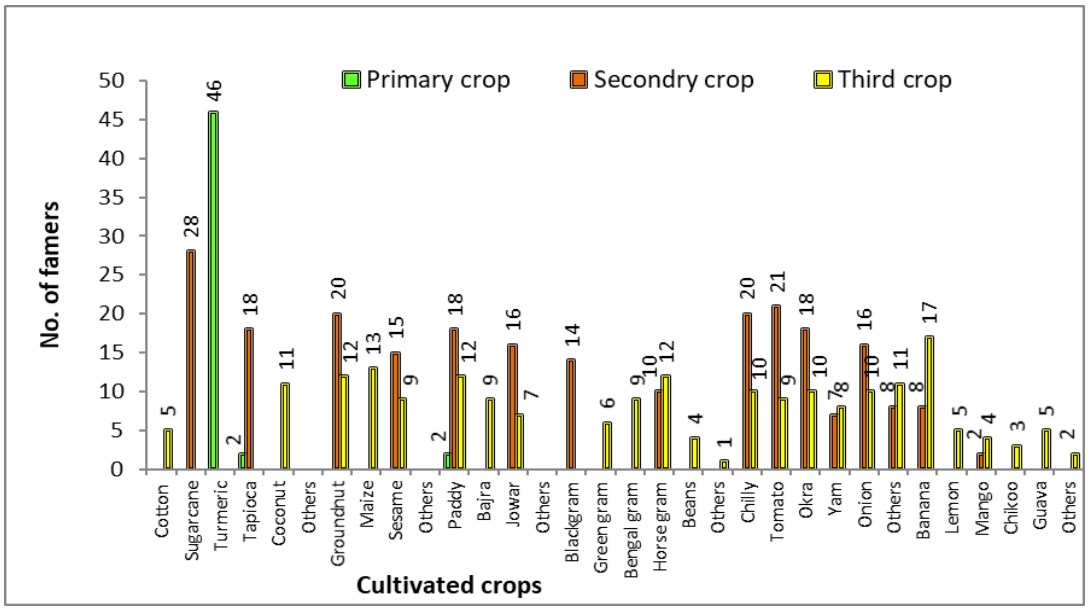

Figure 6. Crops preferred by the farmers of Kanjikoil Village.

rainfall within the crop period. The sowing period varies from April to July and harvested between December and March based on the turmeric variety. September to November is the season for disease and pest attack. The most threatening climatological reason for turmeric crop is the unpredictable rainfall (64%), which results in the occurrence of rhizome rots (90%), excessive weed growth (70%), delayed germination (62%), loss of vigour (22%), and delayed harvesting (38%). Figure 7 depicts the recorded responses on climatic factors controlling turmeric growth.

Turmeric Varieties

Three major turmeric varieties grown in the village are Samba (Erode Local), PTS-8 and PTS - 10. About 80% of the farmers prefer Samba for its better return with higher curcumin, pest resistance, and preserve heredity. Along with Samba, either PTS-8 (20%) or PTS-10 (10%) or both (20%) are

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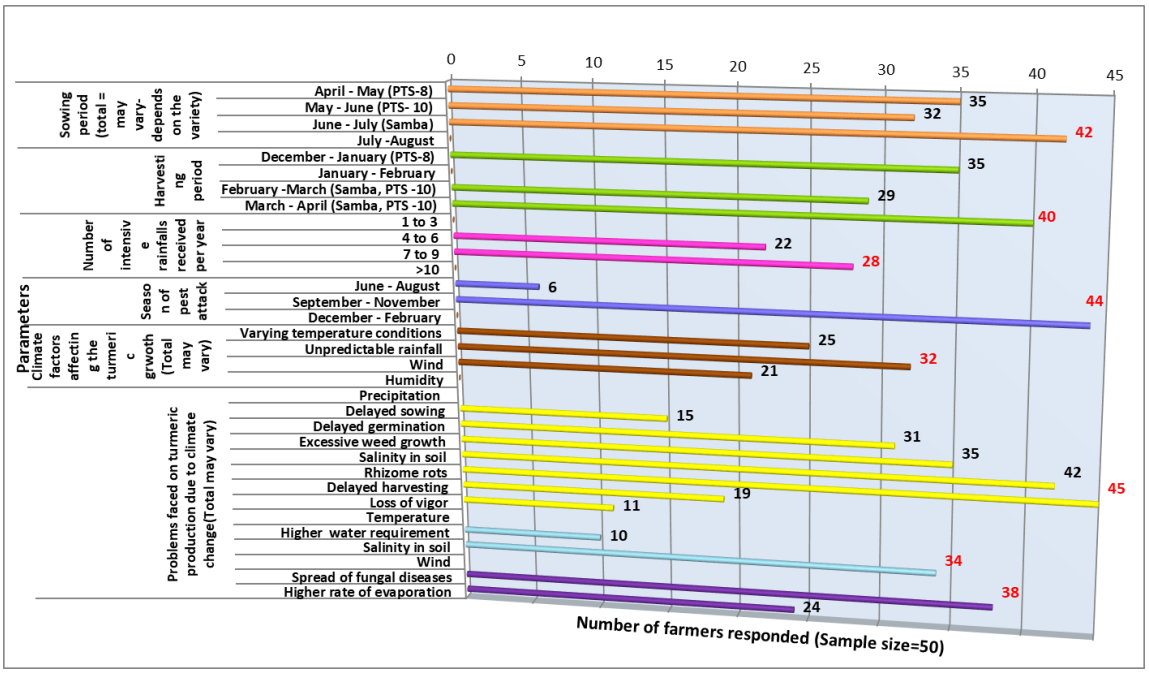

Figure 7. Farmers' response about the climatic factors for turmeric crop production.

planted. PTS-8 is preferred for it short growth period and PTS-10 for higher yield (0.5 to 1.5 ton higher production than other varieties per acre). Based on the water availability, rainfall, crop duration, market selling price, the crop variety is chosen and thus the selection of crop varieties may not have much influence on the decision on crop shift from turmeric.

Seed Selection

The high vigor seeds are selected and preserved naturally from the previous harvest by the farmers shown in Figure 8. Almost 90% of them use their own seeds and 10% rely on the nearby farmers. Seed outsourcing is neglected and the seed quality is preserved and does not have any impact on the crop shift.

Method of Planting

Generally, 70% of the farmers practice ridges and furrow methods for improving the germination and 30% follow flatbed method. Since the common plantation method is practiced, it does not have any

Figure 8. Drying, selection and storage of turmeric seeds in Kanjikoil Village.

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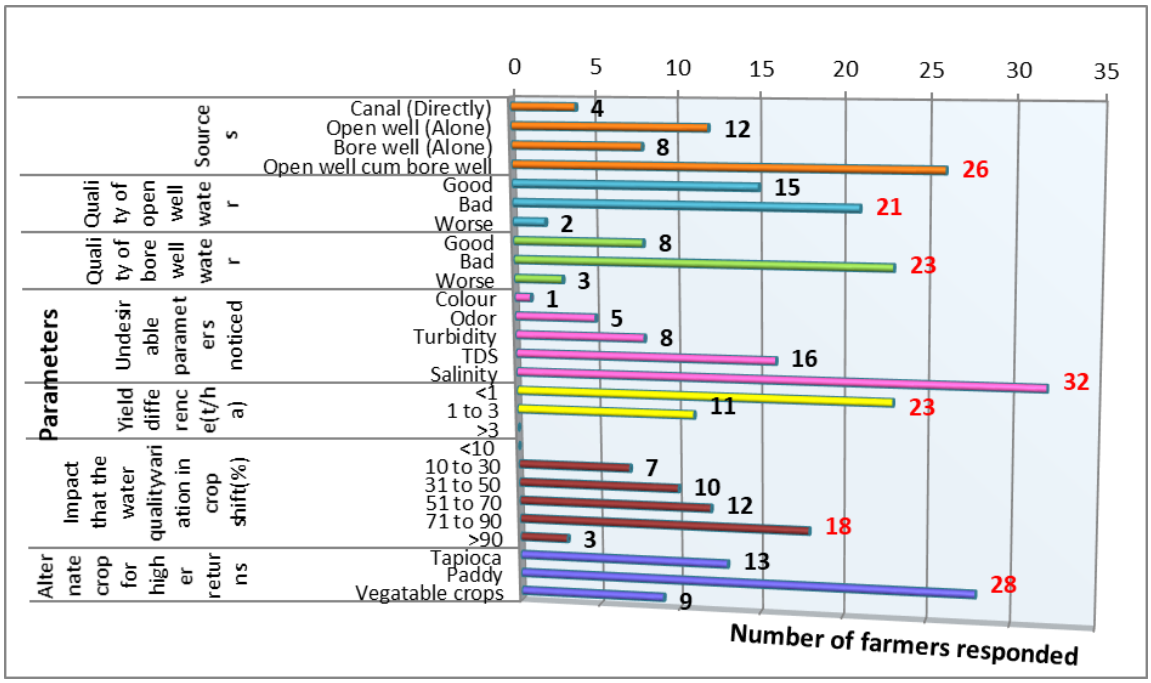

Figure 9. Farmers' responses about the irrigation factors for turmeric crop production.

impact on crop shift.

Method and Source of Irrigation

In the study village, for turmeric crop growth, 95% of farmers are using furrow irrigation method and 5% of farmers are using drip irrigation. Though the subsidies for installing the drip irrigation methods attract the farmers, these farmers do not prefer drip irrigation for its prototype of a reduction in soil fertility. Therefore, the methods of irrigation for turmeric crop do not have an impact on the switch from turmeric to other crops.

In the study area, Lower Bhavani Canal (LBP) acts as the main source of irrigation water either drawn directly through canals or by ground using open and bore wells. Eight percent of farmers directly drawn canal water, 16% of farmers relies purely on bore well, 24% of farmers depend only on open wells and the remaining 54% of farmers have open wells and bore wells. Since most of the open wells are recharged by the canal seepage, the bore wells act as a second alternate source of irrigation almost throughout the village. The dependency of farmers on bore wells has been shoot-up after 2004 during the severe drought occurrence in 2002 to 2004. The farmers' responses are graphically represented in Figure 9. In the case of usage of open well water, 56% of the farmers noticed that the quality of water was bad for the potential growth of crops. Bore well water contains higher salinity than open wells, as reflected in the yield of turmeric crop (1 to 3 ton acre^{-1}) and noticed by 68% of farmers. Here, emerges a need for studying the turmeric yield potential between the usages of bore well, open well, and canal water. Also, a study on soil-water interaction and aquifer characteristics can be made to ensure the clear view on bore well water quality changes. Sixty-five percent of the farmers opt to have a technological solution/instrument to predict and suggest the additional inputs requirement to overcome the yield variations for using the different sources of irrigation. It may be in the form of SMS/mobile applications/web portals.

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Fertilizer Application

Fifty-five percent of farmers in the village are doing inorganic farming followed by 40% on mixed fertigation and only 5% on organic fertigation. Although the fertilizer usage and preferences do not have direct effect on turmeric crop shift, their impact on soil fertility influences crop shift.

Disease and Pest Management

The major turmeric diseases found in the region are rhizome rot and leaf blotch. Although the farmers are experienced enough on facing these diseases, they lack knowledge on the pathogens/bacteria and usage of fungicides. At the time of disease spread, they purely depend on the agro-fertilizer sellers for getting the recommendation on fertilizer usage to treat a particular disease/pest.

Mixed Cropping

Mixed cropping, instead of mono cropping, is practiced in turmeric plantation to fetch additional income to the farmers. Generally, black gram, chilly, tapioca and onion are preferred as supporting crops for turmeric. Amidst, turmeric + onion combination records an average yield of 16 - 20 tons of turmeric and 300 kg of onion per acre. Since the soil in the study region is good for turmeric production, 30% of the farmers practice mono cropping. Seventy percent of famers practice mixed cropping with turmeric as shown in Figure 10. By this method, the farmers gain 4,000 Rupees additionally per acre on an average. It is proved by the acceptance of farmers that the mixed cropping helps for better economic return rather than reducing the turmeric yield.

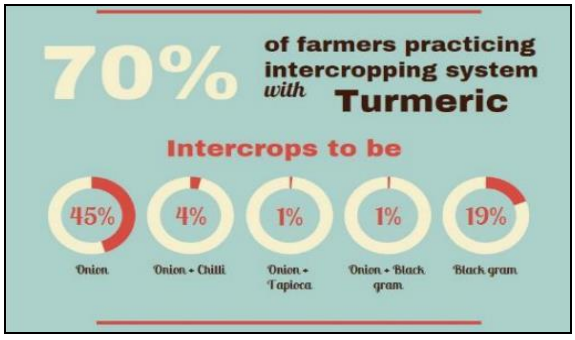

Figure 10. Farmers' response on practicing mixed crops with turmeric crop.

Crop Management

The weeding is done manually every three months of the crop period. Since the turmeric plantation is labor intensive, the percentage of total expenditure for the labor is 30% to 45 %. There is no mechanized method of sowing or weeding followed in the village. The labor wages varied from 500-700 and 250-400 Rupees for men and women, respectively. Compared to the other turmeric producing states, the wages are 40% higher in Tamilnadu, which is a significant cause for higher capital investment on turmeric production.

Post-Harvesting and Storage Factors

The harvesting is done only manually. After the harvesting, the post harvesting is done in the field. Since the conventional boiling is very slow(Sanchavat *et al*., 2012), it is done by the rented boilers and they are dried in the field on direct sun for 15 days in the study area. The fresh and dried yield of turmeric is about 4:1 ratio, i.e. boiling of 400 kg of fresh turmeric, yields100 kg of dried turmeric.

Since the usage of fuel or electricity for drying is very expensive at village scale (Sanchavat *et al*., 2012), sun drying is preferred in the study are. The dried turmeric is stored either in their units or in private storage units. In the village, 36% of them have their own storage facilities with the varying size from 160 to 5,000 Square Feet. The storage may happen up to 8 years. The remaining farmers store their produce in

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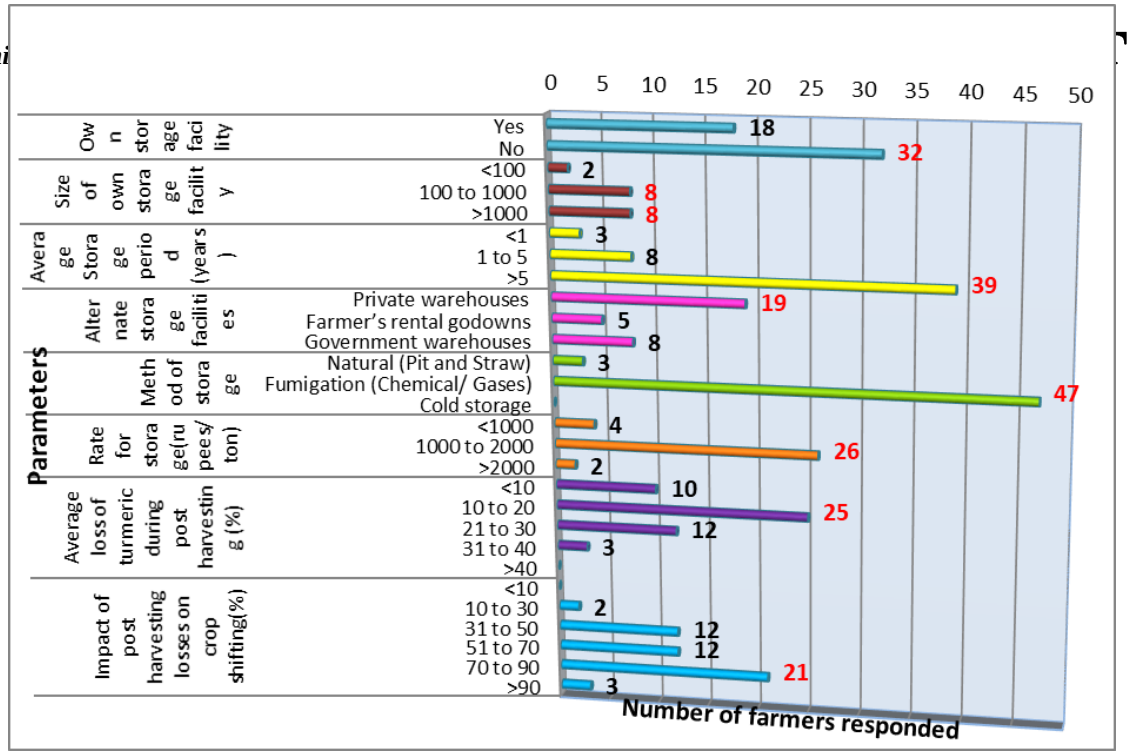

Figure 11. Farmers' response about the post harvesting factors for turmeric crop production.

private storage units with additional cost of 1,500 to 2,800 Rupees per year. Based on the storage period, the loss of turmeric may happen from 10% to 20% of their produce. The responses of the farmers about the post harvesting factors of turmeric crop are graphically represented in Figure 11.

Marketing and Economic Factors

After the post harvesting activities, farmers sell their dried turmeric for 5,000 to 7,000 Rupees per quintal. On an average, the revenue from the turmeric is 50,000-75,000 for 70% of the farmers. It shares 51-70% of total annual income for 85% of the farmers in the village. They sell their produce to cooperative societies (23%), regulated markets (48%), private warehouses (19%), and private agents (10%). Due to the lower market price, the percentage of selling the produce is shifting towards private agents rather than the regulated markets. The agents store for longer time to gain better price, thereby losing the quality of the turmeric. The farmers claim that the following reasons are the major threats in the marketing channel of turmeric:

- Higher commissioning (7%)
- Imports from other states (29%)
- Lower minimum supporting price (28%)
- Long term storage (17%)
- Lack of technologies on value addition (19%).

Technology Usage in Turmeric Production

Although the literacy level of the farmers are higher, 94% of the farmers do not use any kind of digital technologies for information gathering/sharing for turmeric crop production. The existing technologies used are shown in Figure 12 and the recommended digital technologies by the farmers are given in Figure 13.

End Usage of Turmeric

Since most of the farmers use a part of their own produce as seed for next cropping, they responded to the end usage as seed. They claim that the marketing channel is not transparent enough to trace their end products usage. The demand of the turmeric is increasing due to higher consumption in medicinal usages (84%). Similarly, the lowering demand may cause shifting to the allopathic medicines (42%) and distrust in

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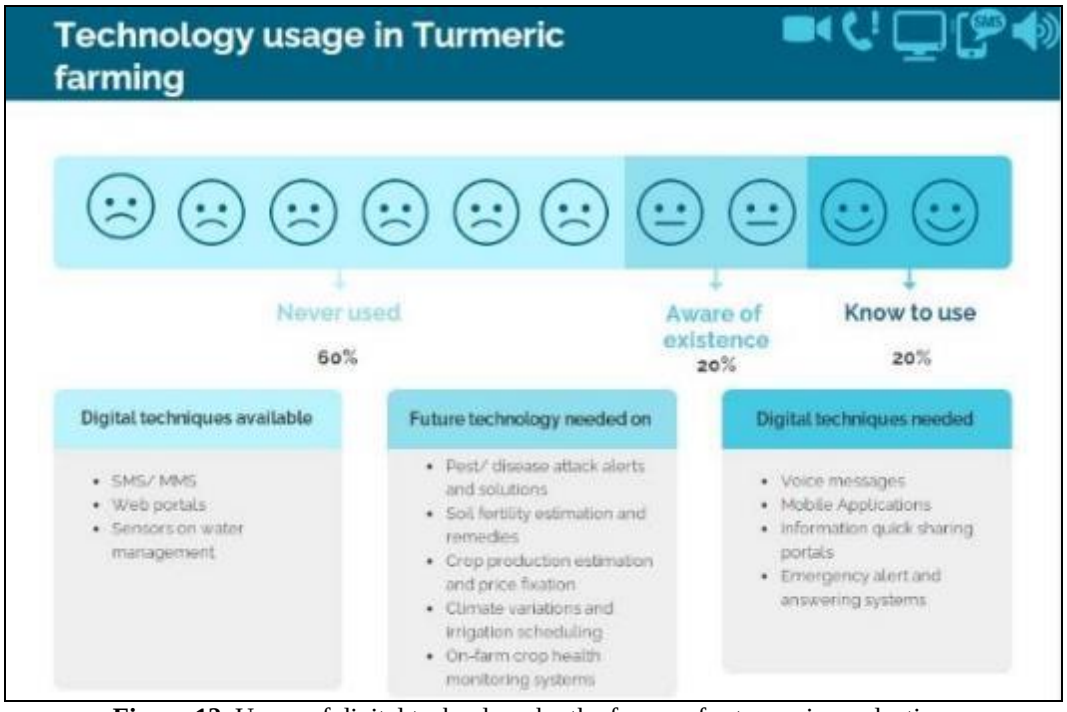

Figure 12. Usage of digital technology by the farmers for turmeric production.

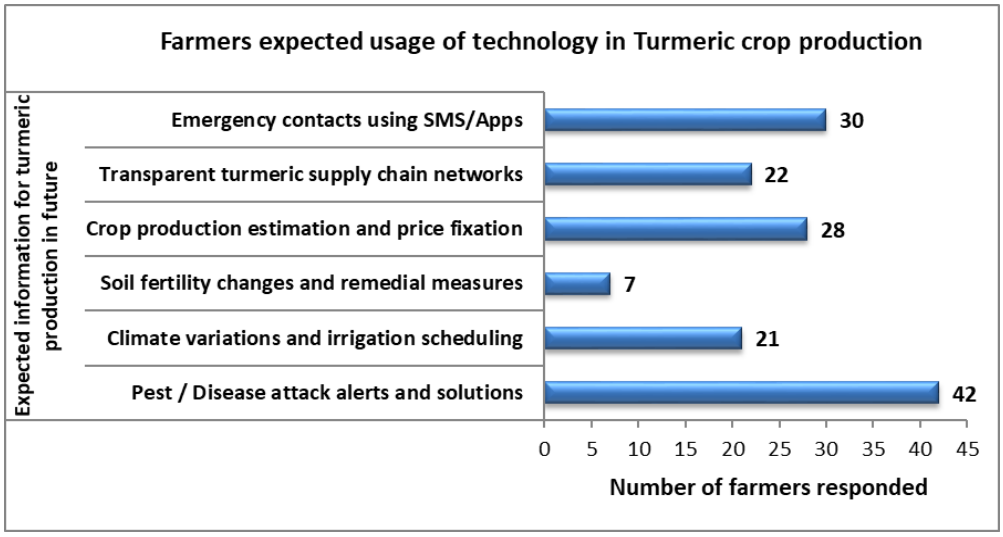

Figure 13. Recommended digital technologies by the farmers for turmeric crop production.

traditional usages (21%). Ninety percent of the farmers agree that the lowering demand of turmeric has a significant impact on the crop shift.

Testing of Hypothesis

The above results derived from the questionnaire survey analyzed each parameter involved in the turmeric crop production and marketing in detail. At the end, the impact of each parameter for the turmeric crop shift was received from the respondents in percentage. Then, the simple percentage analysis was carried out to test the formed hypotheses. In this study, the null hypothesis states that the lower selling price is the only reason for shifting from turmeric to other crops. However, Figure 14 clearly

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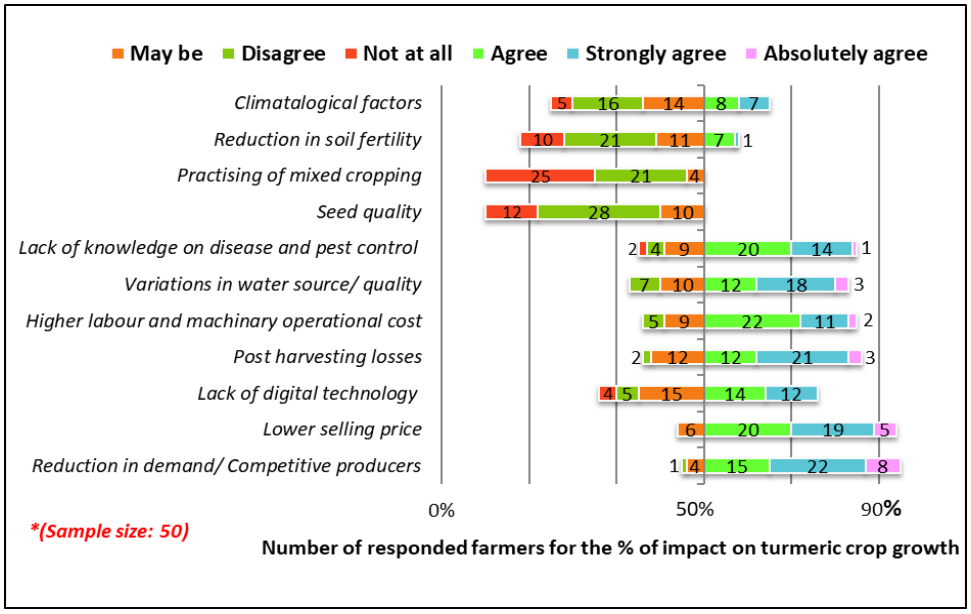

Figure 14. Percentage of impacts of various factors on crop shift from turmeric to other crops.

indicates that other influential parameters are also being the reasons. More than 90% of farmers declared that the competitive producers and reduction in demand is the major reason for crop shift, followed by the 88% on lower selling price ($p \neq 1$), 60% on lack of digital technology usage, 72% on post harvesting losses, 70% on higher labor and operational cost, 66% on variation in water quality, 70% on lack of knowledge on disease and pest control, 16% on reduced soil fertility, and 34% on climatic factors. Practicing mixed cropping and seed quality did not have much impact on the turmeric crop shifting. By analyzing the above factors, null Hypothesis (H_0) earned $p= 0.88$, which does not satisfy the condition $p= 1$. Hence, the null hypothesis can be rejected and alternate Hypothesis (H_1) ($p \neq 1$) is approved, i.e. the other factors are influencing the shifting from turmeric crop significantly.

CONCLUSIONS

Erode district is one of the leading districts in India for its turmeric production. For the last few years, the turmeric production area has been slowly decreasing in the district. Hence, this study focused on finding out the proper reason behind the shifting of turmeric production to other crops. From the detailed and well defined questionnaire, the different parameters were analyzed and the proper conclusion was made. Apart from the lowering of selling price, increase in competitive producer and reduction in demand, post harvesting losses, increasing labor and operational cost, lack of knowledge on pest and diseases control, handling different water quality issues, and soil fertility and climate factors contribute significantly to this shift. From the discussions with the farmers, the following points are identified as recommendations to reducing the turmeric crop shift.

- The soil fertility can be maintained or improved by practicing the crop rotation. Continuous usage of organic fertilizers may reduce the hardness of soil and improve the soil fertility in longer terms.
- To generate more income along with turmeric plantation, onion and black gram are preferable for mixed cropping.

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- There is a need for frequent technological inputs from agro-experts on handling the pest and disease attacks. Building the digital network for information sharing is still a challenging issue.
- Economic support for mechanization in the farming activities can be provided from the government in the form of subsidies similar to drip irrigation.
- Mechanization of farming operations will reduce the labor cost and it indirectly lessens the farmers' expenditure.
- Losses of dried turmeric during the longer storage can be reduced by establishing the new cold storage units in its supply chain.
- Usage of digital technologies like mobile applications, information sharing web portals, pest/ disease attack alert and guiding systems can boost confidence on handling the pest and diseases among the farmers.
- Providing reasonable Minimum Supporting Price (MSP) for turmeric to support the farmers during emergency situation is helpful.

REFERENCES

1. Angles, S. 2001. *Production and Export of Turmeric in South India-An Economic Analysis.* University of Agricultural Sciences GKVK, Banglore.
2. Angles, S. and Hosamani, S. 2005. Instability in Area, Production, and Productivity of Turmeric in Selected South Indian States. *Madras Agric. J,* **92:** 271-278.
3. Angles, S., Sundar, A. and Chinnadurai, M. 2011. Impact of Globalization on Production and Export of Turmeric in India–An Economic Analysis. *Agric. Econ. Res. Rev.,* **24:** 301-308.
4. Council, N. R. 1998. Statistics, Testing, and Defense Acquisition: New Approaches and Methodological Improvements, National Academies Press.
5. Dixit, S., Purshottam, S. K., Khanna, S. K. and Das, M. 2009. Surveillance of the Quality of Turmeric Powders from City Markets of India on the Basis of Curcumin Content and the Presence of Extraneous Colours. *Food Addit. Contam.,* **26:** 1227-1231.
6. Ganesan, R. 2015. Growth and Instability in Area, Production and Productivity of Turmeric in Selected States in India. *J. Manag. Sci,* 5.
7. Geographical Indications Registry of India. 2019. *GI Search Version 2.0*. Accessed on Oct 27, 2020.
8. Kandiamman, K., Chandaragiri, K., Sankaran, N., Balasubramanian, T. and Kailasam, C. 2002. Crop–Weather Model for Turmeric Yield Forecasting for Coimbatore District, Tamil Nadu, India. *Agric. For. Meteorol.,* **112:** 133-137.
9. Karthik, V. and Amarnath, J. 2014. An Economic Analysis of Turmeric Production in Tamil Nadu, India. *Direct Res. J. Agric. Food Sci.*, **2:** 66-76.
10. KAU 2020. *Improved Turmeric Varieties-Spices in Agriculture*. Agri-Infotech Portal, Centre for e-Learning, Kerala Agricultural University. Accessed on Oct 28, 2020.
11. Lal, J. 2012. Turmeric, Curcumin and Our Life: A Review. *Bull. Environ. Pharmacol. Life Sci.*, 1: 11-17.
12. National Horticulture Board. 2020. *Area and Production Estimates of Horticulture Crops: Years (2010-2019)*. Government of India. Accessed on 06.11.2020.
13. Pachauri, G., Pandey, V., Rai, S., Katiyar, R., Dixit, B., Banerji, R. and Singh, S. 2002. Curcumin Content in Relation to Date of Harvesting in Turmeric (*Curcuma longa* L.). *Indian Journal of Plant Genetic Resources,* **15**: 72-73.
14. Pawar, H., Karde, M., Mundle, N., Jadhav, P. and Mehra, K. 2014. Phytochemical Evaluation and Curcumin Content Determination of Turmeric Rhizomes Collected from Bhandara District of Maharashtra (India). *Med. Chem.,* **4:** 588-591.
15. Sally, M. 2020. *Turmeric's Domestic and Export Demand Rising*. E-Paper, The Economic Times Market.
16. Sanchavat, H., Kothari, S., Sharma, D., Jain, N. and Sharma, G. 2012. Performance and Economic Evaluation of Biomass and Solar Energy System for Turmeric Processing. *Indian Journal of Hill Farming,* **25:** 1-5.
17. Shivchander, P. 2007. A Study on Turmeric Trading on NCDEX Platform. MSc. Thesis,

[DOR: 20.1001.1.16807073.2022.24.1.8.8]

Agricultural Business Management, Available at: http://krishikosh.egranth.ac.in/handle/1/72151

18. Sowbhagya, H., Smitha, S., Sampathu, S., Krishnamurthy, N. and Bhattacharya, S. 2005. Stability of Water-Soluble Turmeric Colourant in an Extruded Food Product during Storage. *J. Food Eng.*, **67:** 367-371.
19. Spice Board of India. 2020. *Major State-Wise Area and Production of Spices in India*. Accessed on Oct 26, 2020.
20. Statista. 2020. Volume of Turmeric Produced across India in Financial Year 2018 by State. Accessed on 06.11.2020.
21. Vishwanath Kulkarni, G. 2019. *Fall in Turmeric Prices on Low Demand, Higher Crop*. Commodities-The Hindu Business Line, Available at: https://www.thehindubusinessline.com/markets/commodities/fall-in-turmeric-prices-on-low-demand-higher-crop/article26251780.ece, Accessed on Oct 28, 2020.

تغییر کشت زردچوبه به گیاهان دیگر در مزارع کشاورزان کوچک در یک ناحیه انتخابی در هندوستان

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چکیده

ایالت تامیل‌نادو یکی از تولید کنندگان اصلی زرد چوبه در هندوستان است. باردهی زردچوبه در طی سه سال اخیر درحال افول بوده است. به علت دلایل مختلف که نیاز به بررسی دارد، بسیاری از کشاورزان کوچک تغییر کشت زردچوبه به سایر محصولات را آغاز کرده اند. این بررسی، دلایل این تغییر را در بین کشاورزان کوچک-مقیاس که درمزارع آنها این تغییر رواج یافته است شناسایی کرد. داده‌های این بررسی با استفاده ازیک برنامه مصاحبه پیش‌آزموده از بین ۵۰ کشاورز که به طور اتفاقی از روستای Kanjikoil واقع در بخش Erode ا نتخاب شده بودند جمع آوری شد. نتایج آشکار ساخت که عامل‌های اصلی تغییر کشت زردچوبه به محصولات دیگر عبارتند از تولیدکنندگان رقیب(۹۰٪)، کم شدن قیمت فروش (۸۸٪)، نداشتن و به کار نبردن فناوری‌های (۶۶٪)، تلفات بعد از برداشت (۷۲٪)، افزایش هزینه‌های کارگری وعملیاتی (۷۰٪) و آگاهی نداشتن از دانش مربوط به کنترل آفات (۷۰٪). بر پایه این نتایج، به منظور ارتقای رشد و تولید گیاه زردچوبه در این ایالت، توصیه‌های قابل اجرا و مناسب ارایه شده است.

[DOR: 20.1001.1.16807073.2022.24.1.8.8]