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Economics and Constraints of Organic Turmeric at Kakching District of Manipur

Cenmichon Khodang[1], Amod Sharma[1]

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ABSTRACT

Background: As the locale of the present study has high potential for production of organic turmeric, so to take the relevant measures for best exploit the resources and to create more income and employment to the rural people.

Methods: The present study is based on 200 turmeric growers drawn by adopting a multistage purposive stratified simple random sampling technique from Kakching district; based on the primary data, collected through personal interview method with the help of pre-tested and well structured questionnaire exclusively designed pertaining for the agricultural year 2020-2022.

Result: The majority (93.00 per cent) of the respondents belonged to semi-medium land holding with an area of 2.01 to 3.00 ha, total gross return was highest (` 1,61,768.44/-) for medium farm size group and benefit-cost ratio was highest (2.64: 1) for small farm size group. The major production constraint was lack of proper inputs, lack of training, lack of irrigation facility, lack of quality planting material *etc*.

Key words: Benefit-cost ratio, Constraints, Economics, Organic turmeric, Spices.

INTRODUCTION

Food and Agricultural Organization, 2002 defines organic agriculture as a holistic production management system which promotes and enhances agro-ecosystems health, including biodiversity, biological cycles and soil biological activity. It emphasizes the use of management practices in preference to the use of off-farm inputs, considering that regional conditions require locally adapted systems. This is accomplished by using, where possible, agronomic, biological and mechanical method, as opposed to using synthetic materials, to fulfil any specific function within the system.

The north-east hilly region, green belt of India which comprises states namely Assam, Arunachal Pradesh, Meghalaya, Mizoram, Nagaland, Tripura and Sikkim harbours rich flora on account of its varied topography, climates and altitudes has great potential for the development of horticultural crops including spices. It is the hub for major spices like cardamom, ginger, turmeric, black pepper, chilly, bay leaf which are in great demand and has tremendous potential (Hnamte *et al*., 2012). The north-east hilly region is home to some niche crop like Lakadong turmeric, Bird's eye chilli, King Chilli and Nadia Ginger which has high market demand for their unique feature (Momin *et al*., 2018).

Turmeric (*Cucurma longa*) is a commercially important spice of India in general and Manipur as it the most extensively cultivated spice. It belongs to the family *Zingiberaceae*. The rhizome has yellow pigments curcumin which is the main active compound and colouring agent. Curcumin has certain therapeutic properties. Traditionally it is also an important ingredient in curry dishes, religious observances, cosmetic and dye. It is extensively used in preparations of indigenous medicines. Turmeric is closely related to ginger since it is the dried rhizome of herbaceous plant (Swain *et al*., 2022). The spice also sometimes called "Indian saffron" attributed to its yellow colour. It has the highest diversity comprising 40 species (Ashraf *et al*., 2017) and some are important varieties exported outside.

Turmeric is an important cash crop in the north-east hill region and shares about 8.30 per cent of the total production in the country. Mizoram, with a total production of 27.82 thousand MT is the leading state in the region followed by Meghalaya (16.63 thousand MT) and Manipur (15.40 thousand MT). The agro-climatic conditions of the region characterized by warm and humid summers with abundant rainfall and cool winters are favourable for turmeric cultivation (SFAC, 2012).

Sharma *et al.* (2018) in their paper and resulted that the investment in education and extension service would greatly improve technical efficiency that contributes to income of the hilly people.

Prasad *et al.* (2010) carried out a study in Chamaranagar district of Karnataka during 2005-2006 to estimate the economics of turmeric production and marketing channels

[1]Department of Agricultural Economics, School of Agricultural Sciences, Nagaland University, Medziphema-797 106, Nagaland, India.

Corresponding Author: Amod Sharma, Department of Agricultural Economics, School of Agricultural Sciences, Nagaland University, Medziphema-797 106, Nagaland, India.
Email: hodsasrd2011@gmail.com

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used by turmeric growers. The result revealed that the cost of cultivation of turmeric from an acre was ` 26,765. The gross return realized by turmeric growers from an area of turmeric crop was ` 53,259 with a return of ` 1.98 per rupee of investment. Majority of the respondents (62.50 per cent) marketed the produce in the regulated market at trade of Tamil Nadu.

Sharma and Sharma (2019) on their paper compared between different domains of constraints, despite many privileged in hill farming, Manipur also faced many constraints related to infrastructure, institutional managerial and situational *etc.*

Singh and Sharma (2020) conducted a study on constraints faced by turmeric growers about improved cultivation practices and revealed that (72.22 per cent) majority of turmeric growers faced constraints like low price of turmeric crop. One third of turmeric growers (63.33 per cent) faced constraints like non availability of labour at the time of transplanting and harvesting, one third of turmeric growers (60.11 per cent) faced constraints like irregular supply of electricity and non-availability of storage facilities majority of turmeric growers (50.56 per cent) faced with constraints like inadequate availability of improved seeds, turmeric growers (40.00 per cent) faced high wage of labour and (22.22 per cent) on inadequate source of finance and non-availability of FYM.

Debbarma and Sharma (2024) the study determinant the profitability and sustainability parameter adopted by the farmers under integrated farming systems as well as the constraint faced the farmer during the adoption of different model in the selected area.

MATERIALS AND METHODS

A purposive multistage sampling technique was adopted for selection of districts, block, village and the organic turmeric growers, at first stage Kakching district was purposively selected; in second stage, two blocks *viz*; Kakching and Landmeidong was selected. In third stage five villages from each block was selected, based on the land holdings from the selected village, out of which 12 respondents/cultivators was randomly selected for total of 120 respondents.

The present study was based on both primary and secondary data. Primary data were collected through personal interview method with the help of well-structured and pretested questionnaire exclusively designed for the study pertaining for the agricultural year 2020-2022.

Analytical tools

Estimation of cost and return

The cost of cultivation for species crop was estimated using different cost-concept used in the farm management studies in terms of variables and fixed cost. The commission on Agricultural Costs and Prices (1971); FAO (1992) has categorized the farm cost concepts as follows:

Cost A = It includes all expenses in cash and kind incurred in production by the farmers, such as value of hired human labour+value of hired labour (*e.g.*, Machines) +value of seeds+depreciation of implements and farm building+ marketing transportation cost+miscellaneous charges.

Cost B = Cost A+Rental value of owned land+interest value on fixed capital.

Cost C_1 = Cost B + imputed value of owned land.

Cost C_2 = 10 per cent of total cost C_1 on account of marginal function perform by turmeric growers (It is the total cost or comprehensive cost of cultivation).

$$\text{Cost of production} = \frac{\text{Cost } C_2 + \text{Value of by product}}{\text{Yield}}$$

Variable cost

Variable cost used in the present study includes the cost of labour, seed value, FYM expenditure, marketing cost, interest on working capital incurred for spice cultivation.

Fixed cost

Fixed cost includes the depreciation cost on fixed assets, land revenue and interest on fixed assets incurred for spice cultivation.

Total cost = Variable cost + Fixed cost

Benefit cost ratio (BCR)

Here, the present word of cost is compared with the present worth of gross returns to obtain absolute value of benefit cost ratio BCR. The formula used:

$$\text{Benefit cost ratio} = \frac{\text{Present worth of gross return}}{\text{Present worth of cost}}$$

While selecting the projects using BCR, Project that has ratio more than one was usually preferred.

Income measures formula

Gross return = Economic yield × Price

Net income = Gross income-Cost C_2

Constraints faced by the growers in production of organic turmeric

To analyze the problems encountered by the growers in adopting improved agricultural technology to increase production of spices; Garrett's ranking technique was used. Using the formula:

$$\text{Per cent positoin} = \frac{100\ (R_{ij} - 0.5)}{N_j}$$

Whereas:

R_{ij} = Rank given for i^{th} factor by the j^{th} individual.

N_j = Number of factors ranked by j^{th} individual.

The per cent position of each rank thus obtained will be converted into scores by referring to the table given by Garrett and Wood (1969). Then for each factor the scores of individual respondents will be added together and divided by the total number of respondents for whom the scores added. The mean scores thus obtained for all the factors

Table 1: Cost and return analysis of organic turmeric (`/ha).

Particulars	Farm size groups				
	Marginal	Small	Semi medium	Medium	Total
Farmer counts	(1)	(23)	(93)	(3)	(120)
Fixed cost	4,070.50	6,366.40	6,829.07	4,123.33	21,389
Variable cost	70,007.95	46,951.75	61,486.97	71,029.52	2,49,476
Total cost	74,078.45	53,318.15	68,316.04	75,152.85	2,70,865
Cost A	58,440.45	46,340.60	58,405.85	62,354.85	2,25,542
Cost B_1	60,228.45	47,523.40	59,932.41	64,019.52	2,31,704
Cost B_2	75,128.45	57,383.88	72,653.77	77,891.74	2,83,058
Cost C_1	77,478.45	58,458.59	75,031.04	80,969.52	2,91,938
Cost C_2	92,378.45	68,318.66	87,752.41	94,841.74	3,43,291
Cost C_3	101,616.30	75,150.53	96,527.65	104,325.92	3,77,620
Yield (kg/ha)	7,089.83	6,591.59	5,788.52	4,152.90	23,622.84
Price (`/kg)	18.15	19.37	18.11	16.38	72.01
Gross income	128,672.50	122,297.83	135,036.06	161,768.44	547,756.68
Net income	54,594.05	68,979.68	66,720.02	86,615.58	276,908.75
BCR	1.74	2.64	2.30	2.18	8.86

Table 2: Constraints in the production of organic turmeric.

Factors	Garrett mean score	Rank
Lack of inputs	74.18	I
Lack of training	74.16	II
Lack of irrigation facilities	72.23	III
Lack of quality	71.23	IV
Ultimate auction	69.27	V
Lack of knowledge regarding market	67.38	VI
Lack of knowledge	67.24	VII
Pest and disease infestation	66.92	VIII
High cost of production	65.49	IX
Lack of storage facilities	62.72	X

will be then arranged in descending order, then ranks will be given all finally the most limiting factor will be identified.

RESULTS AND DISCUSSION

Table 1 reveal that based on the study conducted, it was found that the cost of turmeric production 120 farmers count under the total fixed cost was highest at semi medium farm size group (` 6,829.07/ha) followed by small (` 6,366.40/ha) and marginal (` 4,070.50/ha) farm size group. Total variable cost was maximum marginal farm size group (` 70,007.95/ha) followed by semi-medium (` 6,366.40/ha) and small (` 46,951.75/ha) farm size group. Total cost till running year was (` 74,078.45/ha) for marginal farm size group (` 53,318.15/ha) for small farm size group and (` 68,316.04/ha) for semi-medium farm size group and for medium farm size group (` 75,152.85/ha). Table shows the average yield (kg/ha) 5,788.52 and 4,152.90 for four farm sized categories respectively. The average price (`/kg) was 18.15, 19.37, 18.11 and 16.38. Total gross return obtained was highest for medium farm size group (` 1,61,768.44/-) followed by semi medium farm size group (` 1,35,036.06/-) and marginal farm size group (` 1,28,672.50/-) and small farm size group (` 1,22,297.83/-); similarly the income obtained was (` 86,615.58/-) for medium farm size group followed by semi medium farm size group (` 1,35,036.06/-) and small farm size group (` 1,28,672.50/-) and marginal farm size group (` 1,28,672.50/-). The benefit-cost ratio was highest for small farm size group (2.64) followed by semi-medium farm size group (2.30), medium farm size group (2.18) and marginal farm size group (1.74), respectively. The result is consistence with the similar work of Sharma (2012), Sharma (2016), Mozhvi and Sharma (2020). Table 2 reveal that the production constraints perceived by turmeric growers. The major production constraints were lack of proper inputs rank I with GMS 74.18 while Lack of training, lack of irrigation facility, lack of quality planting material, untimely auction, lack of knowledge on improved cultivation, pest and disease infestation, high cost of production, lack of proper storage facilities got rank II, III, IV, V, VI, VII, VIII, IX, X with GMS of 74.16, 72.23, 71.23, 69.27, 67.38, 67.24, 66.92, 65.49, 62.72. These results are in supported by other having similar types of studies *viz*; Walling and Sharma (2018); Yani and Sharma (2022); Namdew and Sharma (2024).

POLICY FOR RECOMMENDATIONS

The following policy recommendations may be worked out based on the above findings:

- As the locale of the present study has high potential to produce organic turmeric, the concerned authority should take relevant measures; to best exploit the resources to create more employment to the peoples.
- Seminars and demonstrations should be conducted across the prospects and constraints of organic turmeric producing areas, to make the farmers aware of the latest farm practices and introduce new scientific interventions for higher production and productivity.

- Cooled storage facilities should be constructed in the potential growing areas to reduce and prevent losses during peak season.
- Processing units for post-harvest value added products should be established to prevent wastage especially during the surplus season.
- Farmers should be made known about the management and control of insects, pests and diseases as these infestations are the primary reason behind lower productivity.

CONCLUSION

The area under turmeric crop increases with increase in the size of holdings, per hectare cost C_1, C_2 and C_3 was higher for marginal followed by semi-medium and medium farmers group, respectively. The average yield and gross income per hectare increased with increase in size of farms. There is need to develop labour saving devices such as use of weedicides, improved tools for planting, harvesting *etc*. Appropriate extension method was adopted to evaluate the farmers on optimum use of inputs.

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Conflict of interest

All authors declare that they have no conflict of interest.

REFERENCES

Ashraf, K.A., Ahmad, A., Shah, S., Adnan, Ali. and Mujeeb, M. (2017). Genetic diversity in accessions of Indian turmeric (*Curcuma Longa* L.) using rapid markers. International Journal of Pharmacy and Pharmaceutical Sciences. 9(10): 288-291.

Cost of Cultivation Scheme (1971).www.costocultivationscheme.nic.in. Accessed on 09th April 2024 at 8.20 pm.

Debbarma, T. and Sharma, A. (2024). IFS Model Determinant in Sepahijala District of Tripura. International Journal of Agricultural and Statistical Sciences. 20(2) (Accepted).

FAO, (1992). www.fao.rome.costofcultivationforfieldcropinindia. Access on 23rd April 2024 at 3.45 pm.

FAO, (2002). www.fao.rome.agricultureproblemsfacedbyfarmers insoutheastasia. Access on 23rd April 2024 at 3.45 pm.

Garrett, H.E. and Wood Worth. (1969). Statistics in psychology and education. Vakils, Fiffer and Simons. Pvt. Ltd. Bombay. pp. 1-329.

Hnamte, V.R., Chatterjee, P.K., Chattopadhyay, A. and Pariari, A. (2012). Spices scenario in the north eastern states of India with special reference to production and marketing. Journal of Crop and Weed. 8(2): 109-112.

Momin, K.Ch., Suresh, C.P. Singh, Y.S. and Momin, B.Ch. (2018). The promising spices of North East India: India's Flavourful Contribution to the World. pp. 47-61.

Mozhui, J. and Sharma, A. (2020). Status of extent of technology adoption by the SRI paddy growers in Dimapur District. Journal of the Social Sciences. 48(4): 2543-2548.

Namdew, K. and Sharma, A. (2024). Resource-use-efficiency and Constraints faced by the king chilli growers in peren District of Nagaland. Bhartiya Krishi Anusandhan Patrika. 69(11): 87-92. doi: 10.18805/BKAP652.

Prasad, G.T.S., Manjunatha, B.N. and Nataraju, M.S. (2010). Economics of production and marketing channel used turmeric growers. Mysore Journal of Agricultural Sciences. 44(1): 144-147.

SFAC (2012). Is a financial consortium specialize in agriculture financing, agriculture loan, finance in agriculture and agriculture bank loans in Manipur, India. pp. 1-45.

Sharma, A. and Sharma, A. (2019). Marketing pattern and marketing efficiency of organic large cardamon and ginger spices grown in East District of Sikkim. International Journal of Current Microbiology and Applied Sciences. 8(5): 1359-1368.

Sharma, A. (2012). Inter-state disparities in socio-economic development in North East Region of India. Journal of Agricultural Science. 4(9): 236-243.

Sharma, A. (2016). Sustainable economic analysis and constraints faced by the Naga King chilli growers in Nagaland. Indian Journal Agricultural Research. 50(3): 220-225. doi: 10.18805/ijare.v50i3.10744.

Sharma, A., Bendangjungla and Sharma, R. (2018). Factors influencing entrepreneurial behavior of fishery growers in Dimapur district of Nagaland. Agriculture Science Digest. 38(2): 118-122. doi: 10.18805/ag.D-4721.

Singh, T.H.M. and Sharma, A. (2020). Impact of selected socio-economic variables on the adoption of the organic cultivation in the state of Nagaland and Manipur. International Journal of Current Microbiology and Applied Sciences. 9(7): 2840-2850.

Swian, K.D., Sharma, A. and Kumar, S. (2022). Socio-economic and the trend analysis of tea enterprise in Meghalaya State. Bhartiya Krishi Anusandhan Patrika. 37(4): 369-373. doi: 10.18805/BKAP468.

Walling, I. and Sharma, A. (2018). Impact of agricultural technology management agency on different enterprises for the enhancement of production and income to the rural economy of Nagaland. Economic Affair. 63(2): 331-335.

Yani, P. and Sharma, A. (2022). Prioritization strategies for the resources of traditional paddy-cum-fish culture in lower Subansiri District. Indian Journal of Agricultural Research. 56(3): 357-362. doi: 10.18805/IJARe.A-5015.