Original Research Article

CONSTRAINTS IN BANANA CULTIVATION AS PERCEIVED BY FARMERS OF THENI DISTRICT

ABSTRACT

Banana (*Musa pradisiaca)* is widely grown in India and are associated with the historical, economic and social fabric of the Indian subcontinent. In the world, India ranks first in producing the largest number of bananas, with 36,614.04 (000 MT), followed by China. In India, Tamil Nadu ranks third in banana production, estimated at 4,522.62 (000 MT), accounting for 12.35 percent of the total production in this country. The research was conducted in two blocks, Theni and Chinnamanur, selecting one village from each block based on their high banana productivity. A total of 60 farmers were interviewed using a pre-tested and structured schedule. The study employed percentage analysis and Garrett's ranking to analyze the data. Key constraints identified through percentage analysis include lack of technical guidance (93.3%), non-availability of labor (91.7%), high incidence of pests and diseases (80%), and high labor wages (80%). Garrett's ranking revealed that, sigatoka leaf spot, high labor costs, labor scarcity, and pest and disease attacks are the top constraints faced by banana growers. Based on these findings, the study suggests prioritizing research in developing pest and disease-resistant banana varieties, enhancing farm mechanization to reduce labor dependency, improving the shelf life of bananas, exploring value addition for increased income, and developing low-cost, environment-friendly storage solutions. Additionally, promoting market-led and farmer-led extension systems can help farmers achieve better remuneration.

Keywords: Banana growers, Constraints, Research prioritization, Garrett's ranking

INTRODUCTION

Fruit plays a unique role in developing countries both in the economic and social spheres in improving the income and nutritional status of the people. Banana (*Musa pradisiaca)* is widely grown in India and are associated with the historical, economic and social fabric of the Indian subcontinent. The banana is called the "FRUIT OT THE WISE MAN"[1]. It is a very popular fruit due to its low price, high nutrition and rich source of carbohydrates and vitamins. It reduces the likelihood of developing heart disease. Therefore, bananas need to have a dignified place at the dinner table of every ordinary home. It is a fantastic and crucial part of Indian medicine, including Ayurveda. Bananas are called the "plant of virtues" (kalpatharu) since the whole plant is used [2]. Banana is the fourth most important food crop in terms of gross value. In the world, India ranks first in producing the largest number of bananas, with 36,614.04 (000 MT), followed by China. In India, Tamil Nadu ranks third in banana production, estimated at 4,522.62 (000 MT), accounting for 12.35 percent of the total production in this country. In India, banana is grown on a large scale in the states of Maharashtra, Tamil Nadu, Andhra Pradesh, Gujarat and Kerala [3]. The important banana cultivars are red banana, poovan, rasthali and karpooravali and they are cultivated in larger areas of Tamil Nadu.

UNDER PEER REVIEW

OBJECTIVE

To identify the problems encountered among the banana growers through personal contact

To prioritize the research area through Percentage analysis and Garett's ranking technique

METHODOLOGY

The present study was mainly focused on the research priority and the constraints encountered by the banana farmers in Theni district. Among the eight blocks in the Theni district, two blocks (Theni and Chinnamanur) were selected purposively, as they have more area and higher productivity. One village was selected from each block viz., Poomalaikundu in Theni block and Veppampatti in Chinnamanur block. These villages were selected purposively based on the higher area and productivity. Thirty respondents were selected randomly from each of the selected village. Pre-tested and well- structured interview schedule was used for collecting information on banana cultivation. The study was conducted during the months of May - July 2023. The collected data was analyzed using the following statistical techniques; 1) percentage analysis and 2) Garrett's ranking.

Percentage analysis: It refers to a special kind of rates, percentages are used in making comparison between two or more series of data collected from the respondents. A percentage is used to show the relationship between the series.

Percentage = (No. of respondents/ Total No. of respondents) * 100

The Percentage was calculated to measure variables. Percentage analysis was used in descriptive analysis for making simple comparison.

Garrett's ranking: Data on problems faced by banana cultivars was assessed using garret ranking method, which was developed by Garret and Woodworth (1969). The respondents' preferences were ranked according to several parameters using this procedure. This approach asks respondents to rank all of the elements, and the results of that ranking are then turned into a score value using the formula below,

$$\text{Percent position} = 100(R_{ij} - 0.5)/N_j$$

Where,

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

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

RESULT AND DISCUSSION

Constraints faced by the banana growers

Table.1. Constraints faced by the banana growers (n=60)

Sr. No	Problems	Yes	Percent	No	Percent
1	Non-availability of quality suckers	37	61.7	23	38.3
2	Incidence of pest and disease	48	80.0	12	20.0
3	Heavy damage by wind	32	53.3	28	46.7
4	lack of technical guidance	56	93.3	4	6.7
5	inadequate credit facility	40	66.7	20	33.3

UNDER PEER REVIEW

6	fluctuation in market price	37	61.7	23	38.3
7	More distance of Market from village	32	53.3	28	46.7
8	Inadequate irrigation facility	16	26.7	44	73.3
9	High labour wages	48	80.0	12	20.0
10	Less fertile and problem soil	39	65.0	21	35.0
11	Non-availability of labour	55	91.7	5	8.3
12	Non-availability of input in time	43	71.7	17	28.3
13	Lack of transport facility	50	8.3	16.7	10
14	Sucker treatment	33	55.07	27	45.0

It could be observed from the above table 1 that, lack of technical guidance (93.3%) is considered as a first major constraint among the banana growers as trainings given by the agricultural department are not informed priorly to the farmers. Non availability of labours (91.7%) is the second major constraint among the banana growers as wage earners prefer MGNREGA rather than weeding and intercultural operations. The high incidence of pests & diseases and higher labour wages (80.0%) are the third major constraint among the banana growers; the pests may develop a resurgence to the chemicals and the scarcity of labour results in a higher wage rate. Non availability of inputs in time (71.7%) is the fourth major constraint among the banana growers, the required quantity of inputs is not purchased by the farmers in time due to high cost. Followed by inadequate credit facilities (66.7%), Less fertile and problem soil (65.0%), Non availability of quality suckers and fluctuations in market prices (61.7%), lack of sucker treatment (55.0%), heavy damage by wind and more distance of market from village (53.3%) and lack of transport facility (8.3%) are the other constraints stated by the respondents in the study area.

Garrett's Ranking

A focused group discussion was conducted for banana farmers in Poomalaikundu village of Theni block. Around 20 farmers were actively involved in the discussion, and they ranked the problems they are primarily facing during the banana cultivation process.

Table 2. Constraints faced by banana growers in Theni district (n=20)

Constraints	Rank													
	1th	**2nd**	**3rd**	**4th**	**5th**	**6th**	**7th**	**8th**	**9th**	**10th**	**11th**	**12th**	**13th**	**14th**
Labour scarcity	15	2	2	1	0	0	0	0	0	0	0	0	0	0
Lack of information	0	16	0	0	2	0	0	1	0	0	1	0	0	0
High cost of labour	18	1	1	0	0	0	0	0	0	0	0	0	0	0
High rate of interest	0	3	1	2	3	4	0	5	2	0	0	0	0	0
Middle man	2	10	1	1	0	0	3	1	0	0	2	0	0	0

UNDER PEER REVIEW

Lack of water facility	0	0	0	0	0	0	0	0	0	0	1	1	3	15
Sigatoka	18	2	0	0	0	0	0	0	0	0	0	0	0	0
Poor quality of inputs	0	0	0	5	2	0	0	10	0	0	1	0	0	2
Lack of transport facility	0	0	0	0	0	0	0	0	0	11	3	2	4	0
Price fluctuation	0	3	0	2	0	1	3	7	2	2	0	0	0	0
Poor quality of banana sucker	0	0	0	0	10	0	8	0	0	0	0	0	0	2
Soil problems	0	0	0	0	0	0	0	0	0	0	2	10	5	3
Pest and diseases attack	10	9	1	0	0	0	0	0	0	0	0	0	0	0
Wind problems	0	0	0	0	0	0	0	0	7	2	6	3	2	0

Table 3. Percent positions and Garret values

Rank	Percent position	Percent value	Garret value
1	100(1-0.5)/14	03.57	85
2	100(2-0.5)/14	10.71	74
3	100(3-0.5)/14	17.85	68
4	100(4-0.5)/14	25.00	63
5	100(5-0.5)/14	32.14	59
6	100(6-0.5)/14	39.28	55
7	100(7-0.5)/14	46.42	52
8	100(8-0.5)/14	53.57	48
9	100(9-0.5)/14	60.71	45
10	100(10-0.5)/14	67.85	41
11	100(11-0.5)/14	75.00	37
12	100(12-0.5)/14	82.14	32
13	100(13-0.5)/14	89.28	26
14	100(14-0.5)/14	96.42	15

UNDER PEER REVIEW

Table 4. Ranking of constraints faced by banana growers in Theni district

Sr. No	Constraints	Total score	Mean score = Total score/20	Rank
1	Labour scarcity	1622	81.10	3
2	Lack of information	1387	69.35	5
3	High cost of labour	1672	83.60	2
4	High rate of interest	1143	57.15	7
5	Middle man	1319	65.95	6
6	Lack of water facility	372	18.60	14
7	Sigatoka	1678	83.90	1
8	Poor quality of inputs	980	49.00	10
9	Lack of transport facility	730	36.50	12
10	Price fluctuation	1067	53.35	8
11	Poor quality of banana sucker	1036	51.80	9
12	Soil problems	569	28.45	13
13	Pest and diseases attack	1584	79.20	4
14	Wind problems	767	38.35	11

The constraints faced by the banana grower's were ranked through Garette ranking technique. it could be observed from the table 4, that, "sigatoka leaf spot" disease is the major constraint faced by banana cultivars with highest Garette score of 1678 and a mean score of 83.9. "High cost of labour" with second highest Garette score of 1672 and a mean score of 83.6. The calculation with a mean score of 81.1 and Garette score of 1622 ranked "labour scarcity" third. The Garette score of 1584 and mean score of 79.2 ranked "pest and disease attack" fourth. The Garette score of 1387 and mean score of 69.35 ranked lack of information fifth. The mean score of 65.95 ranked "exploitation by middlemen" sixth. The mean score of 57.15 ranked "high rate of interest" seventh. The mean score of 53.35 ranked "price fluctuations" eighth. The mean score of 51.8 ranked "poor quality banana sucker" nineth. The mean score of 49 ranked "poor quality inputs" tenth. Wind problems ranked 11th followed by lack of transport facility , less fertile and problem soils and a lack of water facility.

Prioritisation of the research

The following areas may be given priority for research,

- As pests and diseases is the Major problem, research can be done to introduce pest and diseases resistant varieties.
- Research on farm mechanisation can be improved to introduce many labour-saving machineries to overcome the problem of labour scarcity and high wage rate.
- Research to enhance the shelf life of perishable fruits for better profit.
- Research on value addition of products in banana will increase the income of the producers.
- Research on low-cost environment, friendly cool chamber helps in on farm storage of fruits.

UNDER PEER REVIEW

- Market led extension and Farmer led extension system will help the farmers to get higher remuneration

CONCLUSION

The study revealed that, the major constraints faced by banana farmers in banana cultivation and marketing were problem of sigatoka leaf spot, high labour wages, labour scarcity, pest and disease attack, lack of market information, price fluctuation, poor quality of input and banana suckers, exploitation by middlemen and lack of transport facility. The study suggests prioritizing research in developing pest and disease-resistant banana varieties, enhancing farm mechanization to reduce labour dependency, improving the shelf life of bananas, exploring value addition for increased income and developing low-cost environment-friendly storage solutions. Additionally, promoting market-led and farmer-led extension systems can help farmers achieve better remuneration. Addressing these prioritized issues through targeted research and interventions will be essential to improving the economic viability and sustainability of banana farming in the region.

DISCLAIMER (ARTIFICIAL INTELLIGENCE)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc) and text-to-image generators have been used during writing or editing of manuscripts.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Angles S, Sundar A. Variability and decomposition analysis of banana in India and Tamil Nadu in post green revolution era. Economic Affairs. 2012;57(4): 389-393.
2. Saravanapandeeswari V, Vanitha B. Marketing efficiency of the channels of distribution: a study with special reference to banana cultivation in Theni district. Shanlax International Journal of Commerce. 2017;5(1): 35-40.
3. Mungalpara KU, Viraja CV, Thumar VM. Constraints faced by the banana growers in production and marketing in Bharuch district in South Gujarat. Trends in Biosciences. 2017;10(23): 4891-4892.
4. Beulah S, Henry Pandian S. A study on problems of banana cultivators in Tiruchendur taluk, Thoothukudi district. Shanlax International Journal of Economics. 2018;6(1): 123-127.
5. Hassan SN. A study on technological gap in banana cultivation technologies in southern district of Tamil Nadu. International Journal of Scientific and Research Publications. 2016;6(7): 388-394.
6. Mahalakshmi C, Kumar SV, Maneesh P, Fathima JSA. An analysis of banana cultivation in Theni district, Tamil Nadu. Indian Journal of Economics and Development. 2016;4(9): 1-8.

UNDER PEER REVIEW

7. Mehazabeen A, Srinivasan G, Radhakrishnan S. A constraint analysis on production and marketing of banana in Andhra Pradesh, India. Plant Archives. 2021;21 (Supplement-1): 2215-2216.
8. Narmatha A, Priyadharshini M. Marketing constraints faced by the banana growers in Theni district. International Journal of Current Microbiology and Applied Sciences. 2021;10(09):314-318
9. Sakthiganesh M, Dineshkumar S. A study on constraints faced by the banana growers in the production and marketing of banana. EPRA International Journal of Agriculture and Rural Economic Research. 2022;10(11): 15-17.

UNDER PEER REVIEW