



A Garrett Ranking Analysis of Constraints in Banana Production as Perceived by the Producers in Kushinagar District of Eastern Uttar Pradesh, India

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Abstract— The present study was conducted in Kushinagar district of eastern Uttar Pradesh to identify the constraints in banana production as perceived by banana growers. Garrett's ranking technique was employed for the analysis. A random sampling method was used to select respondents for this investigation. Two blocks, namely Khadda and Dudahi, were purposively selected for the study. From each selected development block, a list of villages was prepared, and five villages were randomly selected using a random table with replacement method. A total sample size of 50 banana farmers was selected. The study revealed that non-availability of high-yielding varieties of banana was considered the major problem faced by farmers, securing Rank I, followed by non-availability of seed/suckers in time (Rank II), non-availability of loans in time (Rank III), lack of irrigation facilities (Rank IV), non-availability of labor in time (Rank V), high labor charges (Rank VI), lack of knowledge about planting material treatment (Rank VII), and lack of technical knowledge (Rank VIII).

Keywords— *Banana, production, Garrett ranking, constraints.*

I. INTRODUCTION

Banana (*Musa paradisiaca* L.) is among the earliest and most significant fruit crops that humans have cultivated since prehistoric times. They are consumed not only raw but also used in crafting juices, sauces, baked treats, and a variety of meals. Bananas are abundant in Vitamin B6, Vitamin C, manganese, potassium, and dietary fiber. India is the leading country in banana production globally. In 2019, India produced 30.5 million tonnes of bananas, representing 26.02 percent of global banana production. Worldwide, the total banana production is approximately 114 million tons. India holds the leading spot as the largest banana producer globally, generating about 32 million tons, roughly one-fourth of the world's total (FAO, 2019).

India is the leading producer of bananas globally, contributing a considerable portion of total global production (MoA&FW, 2025). Nonetheless, its share in worldwide banana exports is still not fully utilized, although production reached 37.8 million tonnes across 1 million hectares in 2023-24. This discrepancy is primarily due to significant post-harvest losses, insufficient cold chain logistics, variable quality standards, and restricted value addition (APEDA, 2023). Banana farming in India has shown consistent growth from 796 thousand hectares and 28.5 million tonnes in 2011-12 to 1 million hectares and 37.8

million tonnes in 2023-24 (MoA&FW, 2025). Key banana-producing states like Maharashtra, Tamil Nadu, Gujarat, and Andhra Pradesh play a major role in national production. Nonetheless, only around 5-10 percent of overall banana output is turned into industrial goods like chips, puree, and banana flour (NHB, 2022).

Garrett's ranking technique was used with the help of Garrett's table. The percent position estimated is converted into score values. Then for each factor, the scores of each individual farmer are added together to calculate a total Garrett score and Garrett mean score. Garrett ranking technique was used to study constraints for farmers in banana production. The results revealed that major constraints identified included problems of electricity issues, followed by fluctuations in price, and non-existence of co-operative and regulated markets for farmers (Mehazabeen et al., 2021). Similar techniques and findings were also expressed by Priyanka Kumari (2018) in banana studies.

The present study was undertaken with the objective of identifying and prioritizing the constraints faced by banana growers in Kushinagar district of eastern Uttar Pradesh using Garrett's ranking technique.

II. MATERIALS AND METHODS

2.1 Sampling Design

Multistage sampling techniques were used for this study, with the district as the first stage unit, the blocks in the district as the second stage unit, villages in the blocks as the third stage unit, and farmers in the village as the fourth stage unit. Kushinagar district was selected purposively. A list of all 14 blocks was prepared on the basis of banana growing area. Two blocks, namely Khadda and Dudahi, were purposively selected for the study. From each selected development block, a list of villages was prepared, and five villages were randomly selected using a random table with replacement method. A total sample size of 50 banana farmers was selected. The sample farmers were randomly selected from each of the selected villages to obtain required information on banana production using a pre-tested and well-structured schedule.

2.2 Analytical Tool: Henry Garrett's Ranking Technique

Garrett's ranking technique was used to rank the problems faced by farmers in banana production. The orders of merit given by the respondents were converted into rank by using the formula. As per this method, respondents were asked to assign ranks for all factors, and the outcomes of such ranking were converted into score values with the help of the following formula:

$$\text{Percent position} = 100 \times (R_{ij} - 0.5) / N_j \quad (1)$$

Where,

- R_{ij} = Rank given for the i th variable by the j th respondent
- N_j = Number of variables ranked by the j th respondent

With the help of Garrett's table, the percent position estimated was converted into scores by referring to the table given by Garrett and Woodworth (1969). Then for each factor, the scores of each individual were added, and then the total value of scores and mean values of scores were calculated. The factor having the highest mean value was considered to be the most important factor (Dhanavandan, 2016).

III. RESULTS AND DISCUSSION

3.1 Constraints in Production of Banana as Perceived by the Producers in the Study Area

The identified constraints were ranked using Garrett score and Garrett mean score techniques. It can be observed from Table 1 that non-availability of high-yielding varieties of banana was considered the major problem faced by farmers, with the highest Garrett score of 3112 and mean score of 62.24 (Rank I). Non-availability of seed/suckers in time secured the second highest Garrett score of 2892 and mean score of 57.84 (Rank II), followed by non-availability of loans in time with a Garrett

score of 2615 and mean score of 52.03 (Rank III), lack of irrigation facilities with a Garrett score of 2453 and mean score of 49.06 (Rank IV), non-availability of labor in time with a Garrett score of 2416 and mean score of 48.32 (Rank V), high labor charges with a Garrett score of 2372 and mean score of 47.44 (Rank VI), lack of knowledge about planting material treatment with a Garrett score of 2175 and mean score of 43.05 (Rank VII), and lack of technical knowledge with a Garrett score of 1772 and mean score of 35.44 (Rank VIII).

TABLE 1
PRODUCTION CONSTRAINTS FACED BY BANANA GROWERS (N=50)

Sl. No.	Constraints	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Rank 6	Rank 7	Rank 8	Garrett Score	Garrett Mean Score	Overall Rank
1	Non-availability of high-yielding variety	24	3	6	0	0	4	13	0	3112	62.24	I
2	Non-availability of seed/suckers in time	3	5	10	7	7	15	0	3	2892	57.84	II
3	Non-availability of loan in time	0	9	2	5	13	5	15	1	2615	52.03	III
4	Lack of irrigation facilities	1	17	7	3	11	1	6	4	2453	49.06	IV
5	Non-availability of labor in time	11	3	8	17	0	8	2	1	2416	48.32	V
6	High labor charges	0	0	8	3	10	11	6	12	2372	47.44	VI
7	Lack of knowledge about planting material treatment	4	3	4	15	1	6	7	10	2175	43.05	VII
8	Lack of technical knowledge	7	10	5	0	8	0	1	19	1772	35.44	VIII

Note: Rankings 1-8 indicate the order of priority assigned by respondents (1 = most important, 8 = least important).

These findings are consistent with similar studies conducted by Priyanka Kumari (2018) in banana cultivation in Bhagalpur district of Bihar, where similar constraints were identified.

IV. CONCLUSION

The study revealed that the major constraints faced by sample farmers in banana production were identified as follows: non-availability of high-yielding varieties of banana was considered the major problem faced by farmers (Rank I), followed by non-availability of seed/suckers in time (Rank II), non-availability of loans in time (Rank III), lack of irrigation facilities (Rank IV), non-availability of labor in time (Rank V), high labor charges (Rank VI), lack of knowledge about planting material treatment (Rank VII), and lack of technical knowledge (Rank VIII). The study suggests prioritizing research on high-yielding varieties and ensuring the availability of quality seed/suckers in the study area. Extension agencies should focus on training programs to address the lack of technical knowledge and knowledge about planting material treatment. Credit facilities should be simplified and made more accessible to farmers in a timely manner.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest regarding the publication of this research paper.

REFERENCES

- [1] Dhanavandan, S. (2016). Application of Garret Ranking Technique, Practical Approach. *International Journal of Library and Information Studies*, 6(3), 135-140.
- [2] FAOSTAT (2020). FAOSTAT database (2019). Retrieved from <http://www.fao.org/faostat>
- [3] Garrett, H.E. & Woodworth, R.S. (1969). *Statistics in Psychology and Education*. Vakils, Feffer and Simons Pvt. Ltd., Bombay, p. 329.
- [4] Kumari, P., Singh, K.M. & Atre, S.K. (2018). Problems and Constraints in Banana Cultivation: A Case Study in Bhagalpur District of Bihar, India. *International Journal of Current Microbiology and Applied Sciences*, 7(7), 1752-1759.
- [5] Mehazabeen, A., Srinivasan, G. & Radhakrishnan, S. (2021). A constraint analysis on production and marketing of banana in Andhra Pradesh, India. *Plant Archives*, 21(1), 2215-2216.
- [6] Ministry of Agriculture & Farmers Welfare (MoA&FW) (2025). *Horticultural Statistics*. Government of India. <https://agricoop.nic.in>
- [7] National Horticulture Board (NHB) (2022). *Horticulture Statistics Database*. Ministry of Agriculture & Farmers Welfare. <https://nhb.gov.in>.