Original Research Article

ANALYSIS OF CONSTRAINTS FACED IN THE Bt COTTON SEED MARKET IN DEVBHUMI DWARKA DISTRICT

ABSTRACT

This study provides an in-depth analysis of the constraints affecting the Bt cotton seed market for farmers and dealers in Devbhumi Dwarka district, Gujarat. Although Bt cotton has revolutionized cotton production by increasing yield and reducing pesticide use, numerous challenges persist in seed acquisition and sales. This research investigates constraints related to seed availability, pricing, demand-supply gaps, and competition. Data were collected through structured interviews with 120 farmers and 20 dealers and analyzed using Garrett's ranking method to prioritize the constraints. Results indicate that limited availability of preferred seed brands, high prices, and untimely supply are the primary issues for farmers. Dealers face challenges, including inventory shortages due to demand-supply gaps, high competition, and credit sales pressures. This paper suggests strategies to streamline the seed distribution process and alleviate the constraints faced by stakeholders in the Bt cotton seed market.

Keywords: {Bt cotton, seed market, constraints, farmers, dealers, Devbhumi Dwarka }

1. INTRODUCTION

[Cotton is a vital crop in India, contributing significantly to the economy. The introduction of genetically modified Bt cotton, designed for resistance against bollworms, has reshaped Indian cotton production by reducing reliance on pesticides and improving yields. Despite these advancements, stakeholders in the Bt cotton seed market face considerable obstacles. Farmers report challenges in accessing certified seeds due to brand scarcity and high prices, while dealers encounter issues with market competition and supply constraints.

The study focuses on identifying these barriers in Devbhumi Dwarka district, Gujarat, to formulate effective strategies to enhance market functionality and support stakeholders. This paper aims to provide empirical insights into the operational challenges in the Bt cotton seed market, highlighting areas requiring intervention to ensure the efficient distribution and accessibility of Bt cotton seeds.

2. MATERIAL AND METHODS

This study was conducted in the four talukas of Devbhumi Dwarka district—Bhanvad, Khambhalia, Kalyanpur, and Okhamandal—where Bt cotton cultivation is prominent. A multistage sampling method was used to select 120 farmers and 20 dealers actively involved in the Bt cotton seed market, along with five wholesalers or distributors at the district level. Farmers were selected based on their engagement in Bt cotton production, ensuring

adequate representation across talukas. Data collection involved structured interviews to capture information on the availability, pricing, and market dynamics of Bt cotton seeds.

The interview questions, developed with input from agricultural experts and pilot-tested for clarity, targeted various constraints related to seed purchasing for farmers and market distribution challenges for dealers. Each interview lasted 20-30 minutes and was conducted over three months. Garrett's ranking method was applied to rank the constraints according to severity, providing an ordered list of challenges based on the respondents' perspectives. This approach facilitated a quantifiable understanding of the primary issues in the Bt cotton seed market and identified key areas requiring intervention.

3. RESULTS AND DISCUSSION

3.1 Constraints faced by farmers

Table 1: Constraints faced by farmers during purchasing *Bt* cotton seed

Sr. No.	Constraints	Garrett's score	Rank
1.	Scarcity of particular brand	62.21	I
2.	High price	55.01	II
3.	Timely unavailability	54.10	III
4.	Gap between demand and supply	52.20	IV
5.	Spurious seed	41.02	V
6.	Seed is not available in nearby area	35.23	VI

The results of study showed that*Bt* cotton growers were faced the major constraints as scarcity of particular brand of *Bt* cotton seeds followed by high price of *Bt* cotton seeds and timely not availability of seeds and gap between demand and supply. Other constraints faced by the *Bt* cotton growers were non-available in seed in nearby area, spurious seed. Farmers encounter several challenges in purchasing Bt cotton seeds, impacting their ability to optimize crop yields.

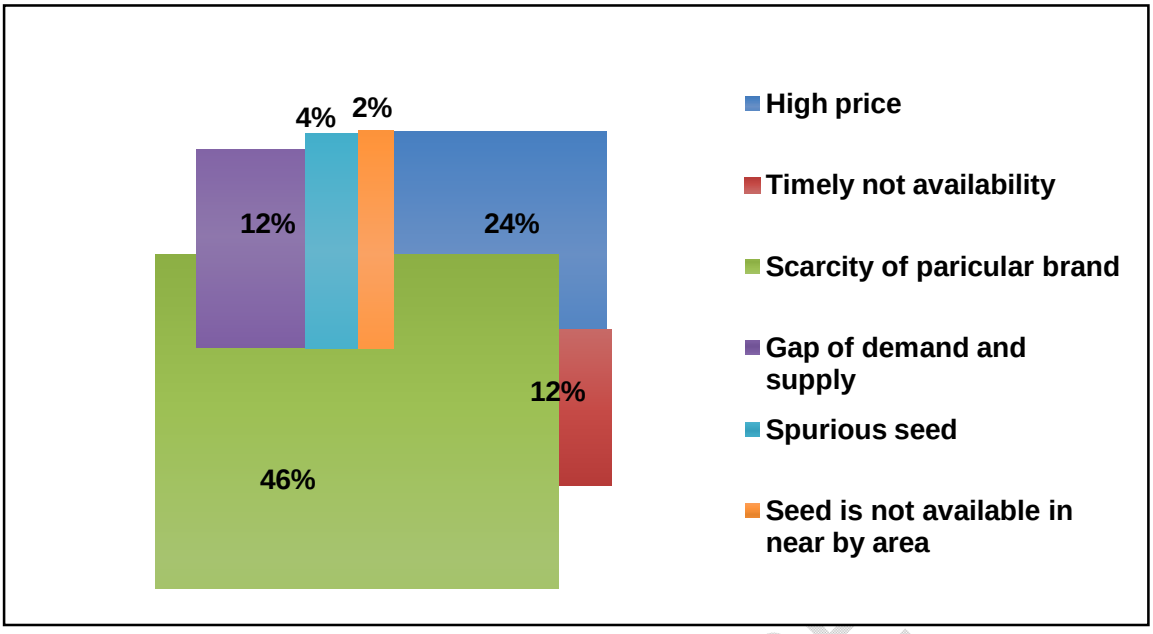

Fig 1: Constraints faced by farmers during purchasing *Bt* cotton seed

3.2 Constraints Faced by Dealers

Table 2: Constraints faced by dealers in selling of *Bt* cotton seeds

Sr. No.	Constraints	Garrett's score	Rank
1.	Gap between demand and supply	57.25	I
2.	Competition among dealer	53.95	II
3.	Credit sales	53.85	III
4.	Management of advertisement	53.25	IV
5.	Lack of awareness of seed by farmer	31.65	V

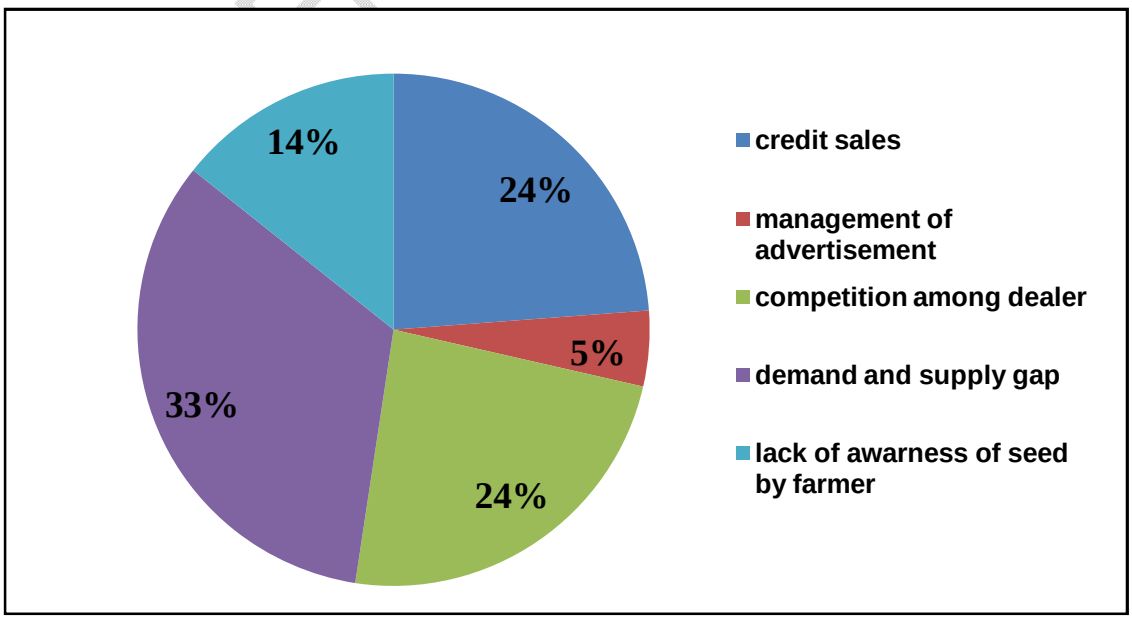

Fig 2: Constraints faced by dealers in selling of *Bt* cotton seed

The result of study reveals that dealers were faced constraints of gap between demand and supply of *Bt* cotton seeds followed by credit sales, competition among dealers, lack of awareness among farmers about use of seed, management of advertisement.Dealers also face critical issues in marketing Bt cotton seeds, mainly driven by supply limitations and competition from unauthorized sellers.

4. CONCLUSION

The study identifies significant constraints in the Bt cotton seed market, affecting both farmers and dealers in Devbhumi Dwarka district. For farmers, the lack of preferred seed brands, high costs, and risks associated with counterfeit products present substantial challenges. Dealers, on the other hand, struggle with inventory management issues, market competition, and financial pressure from credit sales. Addressing these constraints requires coordinated efforts from seed companies, government agencies, and dealers to strengthen supply chains, promote certified seed distribution, and raise awareness of the benefits of certified seeds. Implementing subsidies or financial assistance programs could help alleviate the financial burden on small-scale farmers and encourage a more equitable market structure.

CONSENT (WHEREEVER APPLICABLE)

All authors declare that 'written informed consent was obtained from the patient (or other approved parties) for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editorial office/Chief Editor/Editorial Board members of this journal."

REFERENCES

1. Nakum, M. M. (2020). *An Analysis of Marketing Status of Bt Cotton Seed in Devbhumi Dwarka District*. Sardarkrushinagar Dantiwada Agricultural University.

2. Garrett, H. E., & Woodworth, R. S. (1981). *Statistics in Psychology and Education*.

3. Datt, G. (2001). Market share and marketing strategies of Bt cotton seed companies. *Journal of Seed Technology*, 19(3), 245-259.

4. Manjunath, B.G., &Kiresur, V.R. (2011). Performance of Bt Cotton and Its Impact on Farmers in Northern Karnataka. *Agricultural Economics Research Review*, 24(1), 79-86.

5. Priyadarshini, P. et al. (2022). Socio-economic Characteristics of Cotton Farmers in Telangana. *Indian Journal of Agricultural Research*, 56(2), 240-250.

6. Singh, B., & Sidhu, M.S. (2006). Farmer preferences and challenges in Bt cotton seed marketing in Punjab. *Punjab Agricultural University Journal of Research*, 43(4), 205-215.

7. Kumar, S.; Bharodia, C. R.; Meena, S. and Tyagi, B. S. (2019). Constraints in Bt cotton cultivation as perceived by the farmers and dealers. *Journal of Pharmacognosy and Phytochemistry* .**8**(6): 1986-1989.

8.Padhy, C.; Raju, P. S. and Raj, R. K. (2021). Constraints in Cotton Cultivation Reported by Growers and Suggestive Measures.*Asian Journal of Agricultural Extension, Economics & Sociology.* ***39***(2): 118-125.

9. Satashia, M. and Pundir, R. S. (2018). Analysis on Impact and Constraints of Bt Cotton Cultivation in Middle Gujarat. *International Journal of Forestry and Crop Improvement.* **9**(1): 18-23.

10. Thorat, K. S.; Suryawanshi, D. B. and Ban, S. H. (2012).Technological gap in adoption of recommended cultivation practices of mango growers and constraints faced by them. *Mysore Journal of Agricultural Science.* **46**(1): 160-163.