



A STUDY ON MARKET SHARE OF PEARL MILLET (BAJRA) SEED COMPANIES AND SALES PROMOTION STRATEGIES ADOPTED BY CRYSTAL CROP PROTECTION LTD. IN AGRA DISTRICT OF UTTAR PRADESH

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ABSTRACT

The present study was conducted to assess the market share of different pearl millet (bajra) seed varieties and companies and to examine the sales promotion and marketing strategies adopted by Crystal Crop Protection Ltd. in the Agra district of Uttar Pradesh. The study was undertaken during the agricultural year 2025–2026 using a combination of purposive and random sampling techniques. A total of 100 pearl millet growers, 10 wholesalers, 5 retailers, and 10 consumers were selected from Akola block for data collection. Primary data were collected through personal interviews using a structured schedule, while secondary information was obtained from relevant publications and official records. The collected data were analysed using mean scores, ranking techniques, and Likert scale analysis. The findings revealed that Crystal Crop Protection Ltd. occupied the leading position among pearl millet seed companies with a mean score of 3.50, followed by Pioneer Seeds and Syngenta India Ltd. Among the various sales promotion activities, field demonstrations of bajra varieties emerged as the most effective strategy with a mean score of 3.96. Demonstrations also exerted the strongest influence on farmers' seed purchase behaviour, obtaining a mean score of 4.01. The study further indicated that dealer influence played a crucial role in seed selection decisions, followed by seed availability through local agri-dealers. Farmers expressed a generally favourable level of satisfaction towards the marketing strategies adopted for bajra seeds, particularly regarding seed availability and dealer guidance. The results highlighted that practical demonstrations, effective dealer networks, and accessible distribution channels significantly enhanced market penetration and farmer acceptance of bajra seeds. The study concluded that well-designed promotional and marketing interventions contributed substantially to strengthening the competitive position of seed companies and improving the adoption of quality pearl millet seeds among farmers.

Keywords: Pearl Millet (Bajra), Market Share, Sales Promotion, Marketing Strategies, Farmer Satisfaction



INTRODUCTION

Pearl millet (*Pennisetum glaucum* L.), commonly known as bajra, is one of the most important cereal crops cultivated in arid and semi-arid regions of the world. It is believed to have originated in Africa and has been widely adopted across Asia, particularly in India, due to its remarkable adaptability to harsh climatic conditions, poor soil fertility, and limited water availability. As a drought-tolerant and climate-resilient crop, pearl millet plays a significant role in ensuring food and nutritional security in regions prone to erratic rainfall and high temperatures. The crop possesses a short growing period and can thrive under adverse environmental conditions where many other cereals fail to perform satisfactorily. Pearl millet is recognised for its high nutritional value, containing substantial amounts of carbohydrates, proteins, dietary fibre, vitamins, and essential minerals such as iron, zinc, magnesium, and phosphorus. Owing to its superior nutritional profile, it is increasingly regarded as a nutri-cereal and has gained prominence in efforts aimed at combating malnutrition and promoting healthy diets. In India, pearl millet occupies a prominent position among coarse cereals and constitutes an integral component of the agricultural economy, particularly in the states of Rajasthan, Uttar Pradesh, Haryana, Gujarat, and Maharashtra. Besides serving as a staple food for rural populations, the crop is extensively utilised as fodder for livestock, thereby contributing to mixed farming systems and enhancing farm income. The increasing awareness regarding the health benefits associated with millet consumption, coupled with supportive government initiatives and policy interventions, has further stimulated its production and market demand.

Moreover, pearl millet contributes significantly to sustainable agriculture by requiring comparatively fewer external inputs and exhibiting greater resilience to climate variability. Consequently, the crop has emerged as an economically viable and environmentally sustainable option for farmers, while also playing a crucial role in strengthening agricultural livelihoods, nutritional security, and rural development in developing economies.

RESEARCH METHODOLOGY

The selection of the district, block, villages, and respondents was undertaken through a combination of purposive and random sampling techniques. Agra district was purposively selected for the study in order to minimise logistical difficulties and time constraints encountered during the investigation. Among the various blocks within the district, Akola block was chosen purposively due to the predominance of farmers engaged in pearl millet cultivation. Subsequently, a comprehensive list of villages within the selected block was prepared, from which five per cent of the villages having a comparatively higher concentration of pearl millet growers were selected through random sampling. Thereafter, a complete list of pearl millet cultivators in the selected villages was compiled and classified into five categories on the basis of operational landholding size, namely marginal (below 1 hectare), small (1–2 hectares), semi-medium (2–4 hectares), medium (4–10 hectares), and large (above 10 hectares). From this sampling frame, a total of 100 farmers were selected by employing proportionate random sampling techniques. In addition, 10 wholesalers, 5 retailers, and 10 consumers were selected to facilitate the assessment of market share and to examine



the sales promotion and marketing strategies adopted within the study area. Primary data were collected through a well-structured interview schedule administered by means of direct personal interviews, whereas secondary data were obtained from published literature, including books,

journals, reports, and official records available at the district and block headquarters. The data thus collected were analysed using appropriate statistical tools and techniques, and the results of the study pertained to the agricultural year 2025–2026.

Analytical Tools

- **Likert scale:** Likert scale (2, 4, 5, or 7) is a common classification format used in studies. Respondents rank a product or service's quality (data) from highest to lowest, and from better to worse.
- **Market Share:** $\frac{\text{Company's Revenue (Sales)}}{\text{Entire Market Revenue (Sales)}}$

RESULTS AND DISCUSSION

Table 1: Assessment of Market Share of Different Pearl Millet (Bajra) Seed Varieties and Companies Based on Farmers' Perception

S. No.	Company Name	Very High	High	Moderate	Low	Very Low	Mean Score	Rank
1	Crystal Crop Protection Ltd.	30	25	20	15	10	3.50	I
2	Pioneer Seeds	25	20	25	15	15	3.25	II
3	Syngenta India Ltd.	20	22	18	20	20	3.02	III
4	Bayer Crop Science	20	18	22	20	20	2.98	IV
5	Kaveri Seeds	18	15	20	22	25	2.79	V
6	Rasi Seeds	15	12	18	25	30	2.57	VI

(Scale: 5 = Very High, 4 = High, 3 = Moderate, 2 = Low, 1 = Very Low)

Table 1: The assessment of market share of different pearl millet (bajra) seed companies based on farmers' perception indicated that Crystal Crop Protection Ltd. secured the highest position with a mean score of 3.50, ranking first, reflecting its strong presence and preference among farmers. Pioneer Seeds followed with a mean score of 3.25, ranking second, indicating a comparatively favourable

market position. Syngenta India Ltd. obtained a mean score of 3.02 and ranked third, suggesting moderate acceptance among respondents. Bayer Crop Science ranked fourth with a mean score of 2.98, closely following Syngenta. Kaveri Seeds and Rasi Seeds occupied the fifth and sixth positions with mean scores of 2.79 and 2.57 respectively, indicating relatively lower perceived market share.



Table 2: Effectiveness of sales promotion activities for Bajra seeds by Crystal Crop Protection Ltd.

S. No.	Sales Promotion Activity (Bajra Seeds)	HA	A	N	DA	HDA	Mean Score	Rank
1	Field demonstrations of Bajra varieties	46	28	10	8	8	3.96	I
2	Farmer meetings on Bajra cultivation	36	30	14	10	10	3.72	II
3	Distribution of Bajra seed samples	34	25	18	13	10	3.60	III
4	Discounts on Bajra seed purchase	35	28	17	10	10	3.68	IV
5	Field days for Bajra crop performance	32	26	20	12	10	3.58	V

{Scale: Highly Agree (5), Agree (4), Neutral (3), Disagree (2), Highly Disagree (1)}

Table 2: The effectiveness of sales promotion activities for pearl millet (bajra) seeds by Crystal Crop Protection Ltd. indicated that field demonstrations of bajra varieties were the most effective activity, securing the highest mean score of 3.96 and ranking first, reflecting strong farmer agreement on their usefulness. Farmer meetings on bajra cultivation ranked second with a mean score of 3.72,

suggesting their importance in knowledge dissemination. Discounts on seed purchase and distribution of seed samples obtained mean scores of 3.68 and 3.60, ranking fourth and third respectively, indicating moderate effectiveness. Field days for bajra crop performance were ranked fifth with a mean score of 3.58, showing comparatively lower influence.

Table 3: Impact of sales promotion on Bajra seed purchase behaviour

S. No.	Factors	HA	A	N	DA	HDA	Mean Score	Rank
1	Demonstrations increase Bajra seed adoption	45	30	12	7	6	4.01	I
2	Free samples encourage trial of Bajra seeds	38	28	18	9	7	3.81	II
3	Discounts motivate Bajra seed purchase	36	27	18	11	8	3.72	III
4	Meetings improve awareness of Bajra varieties	34	28	20	10	8	3.70	IV
5	Field days improve understanding of performance	32	30	18	10	10	3.64	V



Table 3: The present table shows the impact of sales promotion on bajra seed purchase behaviour revealed that demonstrations played the most significant role, securing the highest mean score of 4.01 and ranking first, indicating that practical exposure greatly enhanced seed adoption among farmers. Free samples ranked second with a mean score of 3.81, suggesting that they effectively encouraged trial of bajra seeds.

Discounts were the third most influential factor, with a mean score of 3.72, reflecting their role in motivating purchase decisions. Farmer meetings improved awareness of bajra varieties and ranked fourth with a mean score of 3.70. Field days, with a mean score of 3.64, ranked fifth, indicating comparatively lower but still positive influence.

Table 4: Effectiveness of marketing strategies for Bajra seeds

S. No.	Marketing Strategy (Bajra Seeds)	HA	A	N	DA	HDA	Mean Score	Rank
1	Dealer influence in Bajra seed selection	42	26	12	10	10	3.80	I
2	Availability through local agri-dealers	34	28	18	10	10	3.66	II
3	Brand reputation of Bajra seed company	32	26	20	12	10	3.58	III
4	Technical guidance on Bajra cultivation	30	25	20	15	10	3.50	IV
5	After-sales support for Bajra farmers	28	25	22	15	10	3.46	V

Table 4: The present table shows the effectiveness of marketing strategies for bajra seeds, indicating that dealer influence in seed selection was the most significant factor, securing the highest mean score of 3.80 and ranking first, highlighting the crucial role of intermediaries in farmers' decision-making. Availability through local agri-dealers ranked second with a mean score of 3.66, reflecting the importance of

easy access to seeds. Brand reputation of the seed company occupied the third position with a mean score of 3.58, indicating moderate influence on purchase behaviour. Technical guidance on bajra cultivation ranked fourth with a mean score of 3.50, suggesting its supportive role in adoption. After-sales support received the lowest mean score of 3.46 and ranked fifth.



Table 5: Farmers' satisfaction towards Bajra seed marketing strategies

S. No.	Statement	HA	A	N	DA	HDA	Mean Score
1	Bajra seeds are easily available in local market	40	30	12	10	8	3.84
2	Dealers provide proper guidance on Bajra seeds	38	28	15	10	9	3.76
3	Company provides timely support to farmers	35	30	15	10	10	3.70
4	Marketing strategies meet Bajra farmers' needs	32	28	20	10	10	3.62

Table 5: The present table shows the level of farmers' satisfaction towards bajra seed marketing strategies, indicating a generally positive perception across all aspects. The statement that bajra seeds were easily available in the local market recorded the highest mean score of 3.84, suggesting strong satisfaction with accessibility. This was followed by dealers providing proper

guidance on bajra seeds, with a mean score of 3.76, indicating the importance of advisory support. Timely support from companies received a mean score of 3.70, reflecting moderate satisfaction among farmers. The statement that marketing strategies met farmers' needs obtained the lowest mean score of 3.62, though it still indicated a favourable response.

CONCLUSION

The study concluded that pearl millet seed marketing in the study area was significantly influenced by the effectiveness of promotional activities, dealer networks, and seed accessibility. The findings revealed that Crystal Crop Protection Ltd. maintained the strongest market position among the major pearl millet seed companies, indicating a higher level of acceptance and preference among farmers. Pioneer Seeds and Syngenta India Ltd. also possessed a notable market presence, whereas Kaveri Seeds and Rasi Seeds exhibited comparatively lower levels of market penetration. Among the various sales promotion activities undertaken by Crystal Crop Protection Ltd., field demonstrations proved to be the most effective, reflecting the importance of

practical exposure in enhancing farmers' confidence and encouraging the adoption of seed varieties. Farmer meetings, seed sample distribution, discounts, and field days also contributed positively to awareness creation and product promotion. The analysis of purchase behaviour further demonstrated that demonstrations had the greatest influence on seed adoption decisions, followed by free samples and discounts, highlighting the significance of experiential learning and economic incentives in shaping purchasing patterns. The study also established that dealer influence was the most important marketing strategy affecting seed selection, emphasising the critical role played by local agri-input dealers in disseminating information and guiding farmers.



Easy availability of seeds through local distribution channels and the reputation of seed companies further strengthened farmers' purchasing decisions.

The assessment of farmer satisfaction indicated a generally favourable perception towards existing marketing strategies, particularly regarding seed availability, dealer support, and timely assistance from companies. Overall, the study demonstrated that effective sales promotion programmes, strong dealer relationships, and efficient distribution systems were instrumental in enhancing market share and farmer satisfaction. It was therefore inferred that continued investment in farmer-oriented promotional activities, technical support services, and robust marketing networks would further strengthen the adoption of quality pearl millet seeds and contribute to sustainable agricultural development and improved farm productivity in the region.

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