PURCHASING BEHAVIOUR AND SATISFACTION LEVEL OF FARMERS REGARDING GROUNDNUT SEEDS

ABSTRACT

India's agricultural sector is a vital pillar of the economy, contributing significantly to the nation's GDP. As the world's largest producer of various commodities like pulses, milk, tea, and spices, and ranking second in fruits, vegetables, and grains, India's agricultural prowess is undeniable. One of the pivotal reasons to this success is the role of seeds, serving as the genetic foundation for plant growth and development. The Indian seed industry, valued at nearly 9000 crores and growing at a Compound Annual Growth Rate (CAGR) of 12.43%, reflects the nation's commitment to agricultural innovation and advancement. Hybrid seeds, occupying 65% of the market share, are preferred over open-pollinated varieties, driving growth and efficiency in crop production. With increased farmer awareness and the active involvement of private and multinational companies. A survey of 200 respondents in Dhoraji Taluka, Rajkot district, Gujarat, provides insights into the diverse agricultural community. The study covers demographics, education, income, landholding, cropping patterns, gender distribution, family types, irrigation sources, seed procurement, awareness of agricultural products, promotional influences, factors affecting seed purchases, satisfaction levels, and challenges in crop establishment. Most of the respondents in the study area aged between 41-60 years of age, with diverse education levels. Respondents had income mostly between 1-5 lakhs per year. Landholding of the respondents was 1-5 acres. Groundnut was cultivated mainly in the kharif season. Majority of the farmers were male. Most of the respondents were having nuclear family type followed by joint family and extended family. Farmers were using various irrigation sources like tube well, open well and canal. Seeds were mainly purchased through various channels like retailers, Agricultural universities, owned seeds and cooperative societies and oil mills. Farmers were facing major challenges like higher input costs and prevalence of various disease & pest attack on groundnut crop.

Keywords: *Seed Industry, Hybrid Seeds, Farmer Awareness, Groundnut Seeds, Farmer Purchasing Behavior, Satisfaction Level, Crop Production*

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1. INTRODUCTION

India is an agriculture-dependent nation with over half of its population reliant on agriculture, contributing around 18.3% to the country's. India is the world's largest producer of pulses, milk, tea, cashew, spices, and jute, and ranks second in the production of fruits, vegetables, wheat, cotton, sugarcane, rice, and oilseeds. The Indian seed industry, valued at approximately ₹9000 crores, plays a crucial role in this sector, with hybrid seeds dominating 65% of the market due to increased farmer awareness and the involvement of private and multinational companies. High-quality seeds are essential for maximizing crop yield and minimizing the need for additional inputs, directly impacting farmers' productivity and income.

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Seeds are fundamental to agriculture, containing the genetic material necessary for plant growth and development. The choice of seeds directly impacts crop yield and overall productivity. Quality seeds ensure better germination rates, disease resistance, and adaptability to climatic conditions, leading to higher yields. Poor-quality seeds can nullify the benefits of good agronomic practices such as soil preparation, weeding, and pest control.

The Seed Act of 1966 regulates the quality of seeds sold in India, ensuring that farmers receive seeds that meet specific purity and germination standards. The Act defines various types of seeds, such as nucleus seeds (100% pure), breeder seeds (progeny of nucleus seeds), foundation seeds (99.5% pure), and certified seeds (99% pure). The Act also establishes the Central Seed Committee and the Central and State Seed Laboratories, which oversee seed quality and certification processes.

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Groundnut (*Arachis hypogaea L.*) is a crucial crop in India, with Gujarat being the leading producer. Groundnut farming in Gujarat benefits from the region's semi-arid climate and the adoption of modern agricultural practices. The crop is primarily grown during the kharif season, with varieties classified into bunch, semi-spreading, and spreading types. High-yielding, disease-resistant varieties are essential for sustaining productivity and ensuring economic viability for farmers. Collaboration between research institutions, seed companies, and farmers is vital for the development and dissemination of new groundnut varieties. The yield varies by variety, with spreading type groundnuts yielding 1500-2000 kg/ha and bunch type yielding 1000-1500 kg/ha.

The study was undertaken to explore the purchasing behaviour and satisfaction level towards groundnut seeds. Dhoraji taluka of Rajkot district was area of study. The study was carried out with specific objectives such as: to study the socio- economic profile of Groundnut farmers; to understand the purchasing behaviour of farmers about Groundnut seeds; to identify the satisfaction level of farmers about Groundnut seeds; and to identify problems faced by farmers in Groundnut seed production.

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The factors shaping the transition to organic farming in Pulivendula, Andhra Pradesh, revealing the nuanced interplay between personal motivations, belief systems, and external support mechanisms. Their study underscores the complex decision-making processes involved in agricultural practices, balancing environmental concerns with economic viability (Bodapati and Dudhagara, 2023). The intricate dynamics of insecticide purchasing behaviors among farmers in Keshod, Gujarat, shedding light on the socio-economic barriers hindering effective pest management strategies. Their findings highlight the urgent need for interventions to alleviate financial burdens and enhance post-sales assistance in agricultural input markets (Sahoo and Dudhagara, 2023). A comprehensive examination of the socio-economic landscape of groundnut farming in Karnataka's dry zone, elucidating the myriad challenges faced by farmers amidst escalating labour costs and mechanization constraints. Their study underscores the pressing need for targeted interventions to bolster the resilience of smallholder farmers grappling with evolving agricultural dynamics (Srinivasa *et al.*, 2023). The socio-economic backgrounds of vegetable and non-vegetable growers in Bundelkhand

illuminates the diverse profiles and constraints faced by agricultural practitioners in the region (Bharti and Mishra, 2022). Their nuanced analysis underscores the importance of tailored support mechanisms to address the unique needs of farmers operating within distinct socio-economic contexts.

Exploration of market potential and challenges in groundnut cultivation in Devbhoomi Dwarka offers valuable insights into the intricate web of factors shaping agricultural production and marketing dynamics. Their study underscores the imperative of holistic interventions to mitigate input costs and pest pressures while bolstering market linkages for enhanced farmer livelihoods (Bhikadiya and Lad, 2022). Farmers' buying behavior regarding hybrid vegetable seeds in Coimbatore District, shedding light on the factors influencing seed selection and the constraints faced by farmers in seed procurement. Their study underscores the importance of disease resistance and seed quality in farmers' decision-making processes, while also highlighting challenges such as high prices and pest attacks (Sindhuja *et al.,* 2022). The production constraints faced by oilseed farmers in Andhra Pradesh, focusing on groundnut, sesame, and sunflower cultivation. Their study reveals significant barriers including the scarcity of high-yielding varieties, moisture stress, and volatile market prices (Teja *et al.,* 2022). Perceptions and performance regarding various brands of vegetable seeds in Durg District, Chhattisgarh, highlighting the factors influencing seed purchase decisions. Their study emphasizes the importance of brand reputation, yield potential, and peer recommendations in farmers' seed selection process, while also noting the role of promotional activities in shaping perceptions (Tyagi *et al.,* 2022). Farmers' purchasing behavior towards fungicides for groundnut crops in Maliya Hatina Taluka, Junagadh District, Gujarat, revealing insights into decision-making processes and challenges faced by both farmers and dealers. Their study underscores the significance of distributor credibility and product efficacy in farmers' purchasing decisions, while also highlighting concerns such as credit availability and pricing (Vachhani *et al.,* 2022). Farmers' perceptions of groundnut seeds in Porbandar District, Gujarat, shedding light on challenges related to seed quality and availability. Their study underscores the importance of high-quality certified seeds and mechanization in improving crop productivity (Zala *et al.,* 2022). Problems associated with groundnut cultivation in Bhadthar Market of Devbhoomi Dwarka District, Gujarat, revealing challenges ranging from high input costs to pest and disease management. Their study emphasizes the role of retailers' suggestions and farmer meetings in influencing pesticide purchase decisions (Zalavadiya *et al.,* 2022). The eco-friendly management of groundnut diseases, highlighting the importance of integrated pest management strategies in mitigating biotic stresses. Their study underscores the need for timely surveillance and adoption of cultural and biological practices to enhance groundnut productivity while minimizing environmental risks (Acharya *et al.,* 2021). Factors influencing farmers' buying behavior towards tomato seeds in Chittoor District, Andhra Pradesh, revealing the significance of seed quality and accessibility in farmers' decision-making processes. Their study underscores the importance of providing proper training and establishing seed retail outlets to improve farmers' access to high-quality seeds and enhance agricultural productivity (Krishna *et al.,* 2021). Major insect pests affecting groundnut cultivation,

highlighting the need for sustainable pest management practices to mitigate crop losses. The study underscores the importance of sound knowledge about pest identification and crop protection technologies in formulating effective management strategies adaptable to local conditions (Joshi, 2020). Market dynamics and farmers' purchasing behavior regarding summer groundnut seeds in Sabarkantha District, Gujarat, revealing insights into the factors driving seed selection and market competitiveness. Their study underscores the importance of quality, pricing, and timely availability in farmers' seed purchasing decisions, while also highlighting challenges such as limited credit options and dealer constraints (Gameti *et al.*, 2019). Farmers' satisfaction with hybrid seeds in Erode District, Tamil Nadu, revealing preferences for hybrid seeds due to their potential for higher returns. Their study underscores the need for government policies to address the high cost and low availability of hybrid seeds, while also emphasizing the importance of modern equipment and infrastructure support to enhance seed quality and variety (Saranya *et al.*, 2016). Factors influencing farmers' decisions regarding repeated seed purchases in Wuhan City, China, revealing the significance of trust, seed quality, and perceived value in driving purchasing behavior. Their study underscores the importance of building strong relationships with distributors and ensuring seed quality to foster farmers' loyalty and repeated purchases (Kang *et al.*, 2015). Constraints faced by farmers in adopting scientific kharif groundnut production technologies in Rajkot and Junagadh Districts, Gujarat, highlighting challenges such as high input costs and inadequate infrastructure. Their study underscores the need for improved agricultural extension services and infrastructure support to facilitate the adoption of innovative technologies and enhance groundnut productivity (Markana *et al.*, 2015)

2. RESEARCH METHODOLOGY

The study used a descriptive research methodology to survey and understand the characteristics and preferences of groundnut farmers in selected villages of Dhoraji taluka of Rajkot district. The sample distribution encompassed ten different villages selected randomly and 20 farmers from each village were selected randomly, totaling the sample size of 200 farmers. These villages were chosen to capture the diversity of groundnut farming practices within Dhoraji taluka. Both primary and secondary data were utilized to achieve the study's objectives. Primary data was collected through interviews with the farmers using a semi-structured schedule, allowing for in-depth insights into farmers' practices and perceptions. Secondary data, sourced from literature, private and government publications, and websites, provided additional context and background information.

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A non-probability sampling method was adopted, with simple random sampling serving as the sampling technique. The research instrument, a semi-structured schedule, facilitated the systematic collection of data by enabling researchers to pose relevant questions and gather authentic information from respondents. Analytical tools such as frequencies, percentages, weighted average mean, and Garrett's ranking technique were

employed to analyze the data, providing a comprehensive understanding of farmers' preferences and priorities.

Weighted Average Mean:

Each data point in a set is multiplied by a value that is derived from a feature of whatever contributed to the data point to get the weighted mean. When the researcher has the set of effect sizes, they can weigh each one according to the sample size for that particular study.

Henry Garrett Ranking Method:

The respondent's preference was determined using Garrett's ranking technique based on many parameters. According to this technique, participants were asked to rank each element, and the outcomes of that ranking were then translated into a score value using the equation below:

$$\text{Per cent Position} = \frac{100\ (\text{Rij}-0.5)}{\text{Nj}}$$

Where,

Rij = Rank given for the i^{th} variable by j^{th} respondents

Nj = Number of variables ranked by j^{th} respondents

3. RESULTS AND DISCUSSION

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Dhoraji taluka, of Rajkot district, is a home to diverse agricultural community. A survey of 200 respondents provides insights into various aspects of farming, including demographics, education, income, landholding capacity, cropping patterns, gender distribution, family types, irrigation sources, seed procurement, awareness of agricultural products, promotional influences, factors influencing seed purchases, satisfaction levels, and challenges faced during crop establishment.

3.1 The socio-economic profile of Groundnut farmers

The socio-economic profile of Groundnut farmers is shown in below table 1.

Table 1: The socio-economic profile of Groundnut farmers

Sr. No.	Parameter	Frequency	Percentage
1.	**Age**		
	Below 20	5	2.50
	21- 40	66	33.00
	41-60	116	58.00
	≥ 60	13	6.50
	Total	**200**	**100.00**
2.	**Gender**		

	Male	186	93.00
	Female	14	7.00
	Total	**200**	**100.00**
3.	**Education Level**		
	Illiterate	6	3.00
	Up to Primary	33	16.50
	≤ SSC	91	45.50
	≤ HSC	56	28.00
	Graduate & Above	14	7.00
	Total	**200**	**100.00**
4.	**Landholding Size**		
	< 1 Acre	13	6.50
	1 – 5 Acre	134	67.00
	5 – 10 Acre	37	18.50
	≥ 10 Acre	16	8.00
	Total	**200**	**100.00**
5.	**Cropping Pattern**		
	Kharif	165	82.50
	Summer	15	7.50
	Kharif + Summer	20	10.00
	Total	**200**	**100.00**
6.	**Annual Income (₹)**		
	< 1 Lakh	38	19.00
	1 – 5 Lakhs	119	59.50
	5 – 10 Lakhs	35	17.50
	> 10 Lakhs	8	4.00
	Total	**200**	**100.00**
7.	**Family Type**		
	Nuclear	102	51.00
	Joint	70	35.00
	Extended	28	14.00

	Total	**200**	**100.00**
8.	**Source of Irrigation**		
	Well, Tube Well	45	22.50
	Well, Tube Well, Canal	46	23.00
	Well, Tube Well, Canal, Pond/Check Dam	11	5.50
	Well, Canal	18	9.00
	Tube Well	41	20.50
	Tube Well, Canal	39	19.50
	Total	**200**	**100.00**

Demographically, the majority of respondents with 58.00% fall within the 41-60 age Group, followed by those aged 21-40 with 33.00%. Educational levels vary, with 28.00% having completed schooling up to the HSC level, and 45.50% completing schooling up to SSC level. In terms of income, 59.50% of respondents earn between 1 to 5 lakhs per year, indicating a diverse financial landscape within the farming community.

Landholding capacity also varies, with 67.00% owning 1-5 acres of land, emphasizing the importance of tailored support strategies to address the needs of farmers across different scales of operation. Kharif season cultivation was predominant with 82.50%, highlighting the importance of aligning agricultural practices with regional climatic patterns.

There is a notable gender disparity, with 93.00% of respondents being male. Initiatives promoting gender equality are necessary to strengthen women's involvement in agriculture and enhance overall sustainable development. The majority of respondents having 51.00% live in nuclear households, emphasizing the need for inclusive support initiatives that cater to various family structures. Various irrigation sources are utilized, with combinations of wells, tube wells, canals, and ponds/check dams being common. Understanding local irrigation practices is crucial for optimizing crop production.

The majority of respondents income predominantly falling within the 1-5 lakhs per year. Landholding capacity ranges from 1-5 acres for most respondents, emphasizing the necessity of tailored support strategies. Kharif season cultivation prevails, aligning with regional climatic patterns. Despite a notable gender disparity, initiatives promoting gender equality are deemed essential. The predominance of nuclear households underlines the importance of inclusive support initiatives. Various irrigation sources, seed procurement channels, and promotional influences shape farmers' practices and decisions.

3.2 The purchasing behaviour of farmers

The purchasing behaviour of farmers is shown in below table 2.

Sr. No.	Parameter	Frequency	Percentage
1.	**Source of seed**		
	Retailers	75	37.50
	Agricultural University	23	11.50
	Cooperative Society	22	11.00
	Oil Mill	37	18.50
	Owned Seed	43	21.50
	Total	**200**	**100.00**
2.	**Tools / Activities**		
	Magazines	11	5.50
	Posters	13	6.50
	Word of Mouth	55	27.50
	Sales Representatives	52	26.00
	Retailers' suggestion	69	34.50
	Total	**200**	**100.00**

Table 2: The purchasing behaviour of farmers

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The purchasing behavior of farmers regarding groundnut seeds was investigated through a comprehensive analysis of various factors and sources influencing their decisions. The study revealed that the majority of farmers, constituting 37.50%, sourced their seeds from retailers, followed by 18.50% from oil mills, and 21.50% from their own seed stock. Additionally, 44.50% of farmers reported using the company's products, indicating a significant level of adoption. Various tools and activities were found to influence farmers' purchasing decisions, with retailers' suggestions (34.50%) and word of mouth (27.50%) being the most impactful. Furthermore, the mean scores and ranks assigned to influencing factors underscored the paramount importance of quality (49.47), followed by discount and offers (48.90) and yield of groundnut (46.70). These findings provide valuable insights into the dynamics shaping farmers' preferences and choices in acquiring groundnut seeds, highlighting the critical role of quality, availability, and promotional activities in influencing their purchasing behavior.

Most influencing factors before purchasing groundnut seeds by the respondents is shown in below table 3.

Table 3: Most influencing factors before purchasing groundnut seeds

Influencing Factors	Mean Score	Rank
Quality	49.47	1
Discount & Offers	48.90	2
Yield of Groundnut	46.70	3
Availability	44.03	4
Price	40.31	5
Brand Image	29.62	6

3.3 The satisfaction level of farmers

The satisfaction level of farmers is shown in below table 4.

Table 4: The satisfaction level of farmers

(5- Highly Dissatisfied, 4- Dissatisfied, 3- Neutral, 2- Satisfied, 1- Highly Satisfied)

Sr. No.	Satisfaction of Level	Mean Score	Result
1	Price of Groundnut seed	3.84	Dissatisfied
2	Quality of Groundnut seed	2.51	Satisfied
3	Availability of Groundnut seed	1.85	Satisfied
4	Yield of Groundnut	3.07	Neutral
5	Behaviour of Sales representative	1.94	Satisfied
6	Resistance to disease, pest and drought	3.11	Neutral
7	Overall satisfaction level	2.64	Neutral

The below table shows the criteria of satisfaction level

Sr. No.	Range of Satisfaction Level	Result
1	1.00 - 1.80	Highly satisfied
2	1.81 - 2.60	Satisfied
3	2.61 - 3.40	Neutral
4	3.41 - 4.20	Dissatisfied
5	4.21 - 5.00	Highly dissatisfied

The satisfaction level of farmers regarding groundnut seeds was assessed across various criteria, with mean scores indicating different degrees of satisfaction. The analysis

revealed that farmers were dissatisfied with the price of groundnut seeds, as indicated by a mean score of 3.84. However, they expressed satisfaction with the quality with mean scores of 2.51 and availability with mean scores of 1.85. The yield of groundnut and resistance to disease, pest, and drought received neutral ratings, with mean scores of 3.07 and 3.11, respectively. Similarly, the behaviour of sales representatives was rated satisfactory, with a mean score of 1.94. Overall, the farmers' satisfaction level was deemed neutral, with an average mean score of 2.64. Further categorization based on the range of satisfaction levels revealed that farmers fall into the satisfied category for most criteria, with some aspects leaning towards neutrality. These findings provide insights into areas of improvement and highlight the importance of addressing farmers' concerns to enhance overall satisfaction levels.

3.4 The problems faced by farmers in Groundnut crop establishment

The problems faced by farmers is shown in below table 5.

Table 5: The problems faced by farmers during groundnut crop establishment

Problems	Garrett Score	Rank
Cost of input	72.62	1
White Grub	65.32	2
Seed Rot	60.40	3
Labour	54.05	4
Yellowing	50.03	5
Rust & Tikka Disease	46.13	6
Mechanization	40.49	7
Wilting	34.54	8
Insects Attack	24.7	9
Scalerotium Rolfsii (Stem rot)	9.11	10

The problems encountered by farmers during groundnut crop establishment, ranked based on their Garrett scores. The most significant issue identified by farmers was the high cost of inputs, with a Garrett score of 72.62, indicating its paramount importance. White Grub infestation emerged as the second most pressing concern, with a score of 65.32, highlighting the severity of this pest problem. Seed rot also posed a substantial challenge, ranking third with a score of 60.40. Other notable issues included labor availability and management, yellowing of crops, rust, and Tikka disease. While mechanization and wilting were identified as concerns, they ranked lower in severity compared to other challenges. Overall, addressing these problems, particularly focusing on cost-effective input strategies and pest management, is crucial for improving groundnut crop establishment practices and enhancing farmers' productivity and profitability.

4. CONCLUSIONS

The study conducted in selected villages of Dhoraji Taluka, Rajkot District, Gujarat, sought to gain insights into groundnut farming practices and farmer preferences. Through a survey involving 200 respondents, various aspects of socio-economic profiles, purchasing behavior, satisfaction levels, and challenges faced in groundnut seed production were examined. Findings revealed that the majority of farmers were aged between 41-60, with educational levels ranging up to SSC, and annual incomes primarily falling within the 1-5 lakhs bracket. Retailers emerged as the primary source for groundnut seeds, with a notable adoption of company products. Factors such as price, availability, quality, and promotional activities significantly influenced farmers' purchasing decisions. While farmers expressed satisfaction with seed quality and availability, they showed dissatisfaction with prices. Challenges in groundnut seed production included high input costs, pest infestations, and seed quality issues. Overall, the study underscores the importance of tailored interventions to address pricing concerns and production challenges, thereby supporting groundnut farmers and promoting sustainable agriculture in the region

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