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How Climate Change is Altering the Marketing of Agricultural Products and Influencing Consumer Demand for Climate-Resilient Foods in India

Shivam Madrewar[1*], Sanket Sorate[2], Nidhi Bhatt[3], Krishnaraj Tomar[4], Shivanand Ingale[5], Madhav Dadhich[6]
[1,2,5]Mahatma Phule Krushi Vidyapeeth, Rahuri
[3]Govind Ballabh Pant University of Agriculture and Technology, Pantnagar
[4]Jawaharlal Nehru krishi Vishwa vidyalaya, Jabalpur
[6]Maharishi Arvind University, Jaipur
Corresponding Author: Shivam Madrewar, shivammadrewar@gmail.com

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A B S T R A C T

Climate change is having profound effects on global agricultural systems, significantly influencing crop yields, food security, and consumer behavior. In India, where agriculture is a vital sector, these impacts are driving shifts in both production practices and marketing strategies. As unpredictable weather events become more frequent, the demand for climate-resilient foods—crops that can withstand environmental stresses—has increased. This paper explores the relationship between climate change and agricultural marketing in India, focusing on the evolving consumer demand for sustainable, climate-smart foods. The study examines how businesses are adapting their marketing strategies to align with these new consumer expectations, as well as the role of government policies in supporting climate-resilient agriculture. By analyzing trends in crop production, consumer preferences, and policy initiatives, this paper highlights the need for adaptive marketing strategies in response to climate change. The findings emphasize the growing importance of sustainability in shaping the future of agricultural marketing in India

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INTRODUCTION

Climate change presents a growing challenge to global agricultural systems, impacting crop yields, food security, and consumer behavior. In India, where agriculture plays a crucial role in the economy and livelihoods, these impacts are even more pronounced. The sector is increasingly vulnerable to unpredictable weather patterns, such as erratic rainfall, rising temperatures, droughts, and floods. These environmental stresses directly affect crop production, disrupting food marketing strategies and influencing consumer choices.

As India witnesses shifts in agricultural patterns, the need for climate-resilient foods—crops that can withstand environmental stress—is becoming more apparent. This change in agricultural output is not only reshaping production practices but also influencing consumer preferences. Increasingly, consumers are becoming more environmentally conscious and demanding foods that are not only nutritious but also sustainable. Consequently, businesses have had to adjust their marketing strategies to cater to these new consumer expectations.

This paper investigates how climate change is transforming the agricultural marketing landscape in India, with a particular focus on the emerging demand for climate-resilient foods. It explores how government policies, shifting consumer preferences, and evolving marketing strategies are influencing the agricultural sector. Through this, the study seeks to answer how businesses can adapt to these new dynamics to remain competitive in an increasingly climate-conscious marketplace.

Objectives

- To analyze the impact of climate change on agricultural production in India.
- To examine how agricultural marketing strategies are evolving in response to climate change.
- To assess the growing demand for climate-resilient foods among Indian consumers.
- To explore the role of government policies in promoting climate-resilient agriculture and marketing.
- To identify key marketing strategies and trends that are emerging in the Indian agricultural sector.

LITERATURE REVIEW

The impact of climate change on agricultural systems in India has been well documented. Rising temperatures, shifting precipitation patterns, and extreme weather events have led to erratic crop yields, making traditional farming practices less reliable. According to Kumar et al. (2020), such unpredictable weather conditions are forcing farmers to adopt new practices, including the cultivation of climate-resilient crops such as drought-resistant rice and heat-tolerant wheat.

To respond to these challenges, India is increasingly focusing on the development and promotion of climate-resilient crops. The International Crops

Research Institute for the Semi-Arid Tropics (ICRISAT, 2022) notes that consumer demand for these crops is rising due to their perceived environmental benefits. These crops are not only better suited to the changing climate but also offer a sustainable option for food security. Furthermore, consumers are showing growing interest in organic and climate-resilient foods, reflecting a broader trend toward sustainability in food consumption.

The Indian government has introduced several policy measures to support the adoption of climate-smart agricultural practices. The National Mission for Sustainable Agriculture (NMSA) and Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) are two key initiatives that provide financial support for drought-resistant seeds, water conservation efforts, and capacity-building programs for farmers. These policies are crucial for the development of climate-resilient agriculture and are also shaping marketing strategies in the sector, as businesses align their offerings with sustainability trends to attract eco-conscious consumers.

Additionally, studies by Agri-Food India (2021) and Singh (2021) have highlighted the role of digital marketing and sustainability certifications in promoting climate-resilient agricultural products. These marketing strategies are vital in an increasingly competitive market where consumers are more informed about the environmental impact of their food choices. Companies are using these strategies to enhance their product offerings, particularly focusing on eco-friendly packaging and sustainable production processes

METHODOLOGY

This research employs a qualitative approach using secondary data sources. Data will be collected from academic journal articles, government publications, reputable Indian media outlets (e.g., The Hindu, The Economic Times), and industry reports. The research focuses on understanding how agricultural businesses in India are adapting their marketing strategies in response to climate change. By examining shifts in consumer preferences toward climate-resilient foods, this study explores how marketing is evolving to meet the growing demand for sustainability in food production.

A key component of this research involves analyzing the role of policy initiatives in facilitating the marketing of climate-smart agricultural products. Given the reliance on secondary data, the analysis will primarily focus on identifying trends in the adoption of climate-resilient crops and consumer behavior shifts, while also assessing the effectiveness of government support programs in fostering sustainable agricultural practices.

Observation

Table 1. Climate-Resilient Crop Production in India (2019-2022).

Year	Drought-Resistant Crops (in hectares)	Heat-Resistant Crops (in hectares)	Organic Farming Area (in hectares)
2019	25,00,000	12,00,000	8,00,000
2020	30,00,000	15,00,000	10,00,000
2021	35,00,000	20,00,000	12,00,000
2022	40,00,000	25,00,000	15,00,000

The data in Table 1 highlights the significant rise in the cultivation of climate-resilient crops, especially drought-resistant and heat-tolerant varieties. This trend correlates with the increasing recognition of the importance of climate-smart agriculture in ensuring food security in the face of climate change (Kumar et al., 2022).

Table 2. Consumer Demand for Climate-Resilient Foods (2019-2022)

Year	**Percentage of Consumers Preferring Organic Foods**	**Percentage of Consumers Preferring Climate-Resilient Crops**
2019	30%	25%
2020	35%	40%
2021	40%	45%
2022	50%	55%

As seen in Table 2, consumer preference for climate-resilient foods has grown significantly, with a marked increase from 25% to 55% in just four years. This shift in demand underscores the growing awareness and desire for sustainable food options among Indian consumers (ICRISAT, 2022).

Table 3. Government Policies Supporting Climate-Resilient Agriculture (2019-2022)

Year	**Policy/Program Name**	**Government Budget Allocation (in INR Crore)**	**Targeted Crops**
2019	National Mission for Sustainable Agriculture	10,000	Rice, Wheat, Pulses
2020	Pradhan Mantri Krishi Sinchayee Yojana	8,500	All Crops
2021	Climate-Resilient Agriculture Initiative	12,000	Drought-Resistant Crops
2022	National Adaptation Fund for Climate Change	15,000	Climate-Resilient Crops

Table 3 shows a steady increase in government funding for climate-resilient agriculture, indicating strong institutional support for sustainable farming practices. These policies not only benefit farmers but also shape the marketing strategies of agricultural products, as businesses align their offerings with these sustainability initiatives (Ministry of Agriculture, 2020).

Table 4. Marketing Strategies for Climate-Resilient Products by Leading Brands (2020-2022)

Year	Brand Name	Marketing Strategy	Percentage Increase in Sales
2020	Amul	Promoted dairy products from climate-resilient cows	15%
2021	ITC	Focused on eco-friendly packaging and sustainable crops	20%
2022	Parle	Launch of climate-smart, drought-resistant grains	25%

As shown in Table 4, leading brands in India's agricultural sector, such as Amul, ITC, and Parle, have embraced climate-resilient product marketing strategies. These efforts have resulted in substantial sales growth, underscoring the effectiveness of sustainability-focused marketing in attracting eco-conscious consumers (Patel, 2022).

RESULT AND DISCUSSION

The results of this study demonstrate a clear shift in the agricultural marketing landscape in India. Both producers and consumers are adjusting to the new realities imposed by climate change. The demand for climate-resilient foods has increased significantly, reflecting a broader consumer trend toward more sustainable food choices. This shift is influencing marketing strategies in the agricultural sector, with companies increasingly adopting eco-friendly practices and promoting climate-smart products.

Government policies, such as NMSA and PMKSY, are playing a crucial role in supporting climate-resilient agriculture. These initiatives are fostering an environment in which sustainable farming practices can thrive, which in turn drives the marketing of climate-resilient products. The government's financial support is essential for both the producers who are adopting these practices and the businesses that are marketing climate-resilient foods to eco-conscious consumers.

CONCLUSION AND RECOMMENDATION

This study highlights the significant impact of climate change on agricultural marketing in India. The findings show a clear shift towards the promotion of climate-resilient foods, with both producers and consumers adapting to the changing environmental conditions. The increasing consumer demand for sustainable and climate-smart foods is reshaping marketing strategies across the agricultural sector. The role of government policies in supporting climate-smart agriculture is critical in facilitating this transition. Future research could explore the impact of digital marketing strategies on

promoting climate-resilient agricultural products and the challenges that businesses face in implementing sustainability practices at scale.

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