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A study on the operational practices of cotton input dealers and their association with business growth strategies

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Abstract

This study analyses the socio-economic profile, operational practices, and business growth strategies of cotton input dealers using primary data collected from 90 respondents. Percentage analysis and chi-square tests were employed to assess dealer characteristics, challenges, and the association between management practices and business growth strategies. The results show that most dealers are experienced and possess graduate-level education. Credit management is identified as the major challenge, while bulk purchasing and price adjustment are the dominant operational strategies. Enhancing customer relations emerged as the primary business growth strategy. The chi-square analysis reveals a significant relationship between inventory management, price fluctuation strategies, technological updating, complaint handling practices, and business growth strategies. The study concludes that efficient operational management and customer-focused practices play a crucial role in the sustainable growth of cotton input dealers and the overall effectiveness of the cotton value chain.

Keywords: Cotton input dealers, operational practices, inventory management, price fluctuation strategies, business growth strategies, cotton value chain

Introduction

The agro-input sector forms the backbone of modern agricultural production by supplying essential inputs, including seeds, fertilisers, and pesticides. In cotton-growing regions, agro-input dealers serve as a vital link between input manufacturers and farmers, influencing both production decisions and crop performance. The sustainability of cotton farming is therefore closely connected to the operational efficiency and financial stability of agro-input dealers. Despite their importance, agro-input dealers face several challenges, including supply chain disruptions, fluctuating input prices, dependence on credit sales, inventory management difficulties, and seasonal demand variations. These challenges are further intensified by market competition and policy changes. Inefficient management of these factors can threaten business continuity and long-term sustainability.

Understanding how specific supply chain-related factors affect the sustainability of agro-input dealers is crucial for strengthening the agricultural value chain. This study focuses on identifying and analysing the most critical factors influencing the business sustainability of agro-input dealers in cotton-growing regions.

Objectives of the study

- To examine the association between inventory management practices of cotton input dealers and their business growth strategies.
- To analyse the relationship between strategies adopted by dealers to manage price fluctuations and their business growth strategies.
- To assess the association between methods used by dealers to update themselves with new products and technology and their business growth strategies.
- To study the relationship between methods adopted by dealers to handle customer complaints or returns and their business growth strategies.

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Literature Review

Several studies have examined cotton production, marketing, and value chain dynamics in India and other cotton-growing regions. Ghori *et al.* (2022) ^[1] assessed the Better Cotton Initiative (BCI) in India and Pakistan and found that participation improved farmers' gross income and reduced input costs, though no significant improvements were observed in labour conditions. This highlights the role of institutional design and value chain governance in influencing farm-level outcomes.

Studies on cotton production trends indicate significant expansion in area and output. Murali and Khan (2022) ^[2] and Pavithra *et al.* (2022) ^[3] reported substantial growth in cotton area and production across Indian zones, largely driven by Bt-cotton adoption, MSP support, and irrigation. However, productivity growth slowed in recent years due to pest resistance, emphasising the need for improved seed technology and sustainable practices. Kumar *et al.* (2021) ^[4] and Sharma *et al.* (2021) ^[5] further showed that farm size, resource use efficiency, and socio-economic factors significantly affect cotton productivity and profitability.

Market performance and integration have also received attention. Mohapatra and Mishra (2020) ^[3] and Vinay (2023) found that major cotton markets in India are well integrated, with certain markets acting as price leaders and international markets influencing domestic prices. Export-oriented studies by Suman *et al.* (2022) ^[7] revealed strong growth but high instability in cotton exports, indicating vulnerability to global market fluctuations.

Marketing reforms and supply chain efficiency are critical for improving farmer income. Saraf *et al.* (2022) ^[8] highlighted the shift towards market-driven agricultural systems and stressed the need for continued marketing reforms. Supply chain studies by Mondal *et al.* (2020) ^[9] and Reddy *et al.* (2022) ^[10] demonstrated that shorter and more efficient marketing channels reduce costs and improve producer share in consumer prices. Access to information and extension services also plays a vital role. Nikam *et al.* (2022) ^[11] emphasised that region-specific information access enhances decision-making, productivity, and income among cotton farmers.

Hypothesis

- **Null Hypothesis (H₀):** There is no significant association between the dealers' approach to managing inventory and their business growth strategy.
- **Null Hypothesis (H₀):** There is no significant association between strategies adopted to manage price fluctuations and the business growth of dealers.
- **Null Hypothesis (H₀):** There is no significant association between the methods used by dealers to update themselves with new products and technology and their business growth strategy.

- **Null Hypothesis (H₀):** There is no significant association between methods adopted by dealers to handle complaints or returns and their business growth strategy.
- **Alternative Hypothesis (H₁):** There is a significant association between the dealers' approach to managing inventory and their business growth strategy.
- **Alternative Hypothesis (H₁):** There is a significant association between strategies adopted to manage price fluctuations and the business growth of dealers.
- **Alternative Hypothesis (H₁):** There is a significant association between methods used by dealers to update themselves with new products and technology and their business growth strategy.
- **Alternative Hypothesis (H₁):** There is a significant association between methods adopted by dealers to handle complaints or returns and their business growth strategy.

Research Methodology

The present study adopts a descriptive research design to examine the operational practices of cotton input dealers and their association with business growth strategies. The study focuses on key operational aspects, including inventory management, strategies for managing price fluctuations, updating knowledge on new products and technologies, and handling customer complaints or returns. Primary data were collected from a sample of 90 cotton input dealers across three districts of Gujarat-Chhota Udepur, Vadodara, and Panchmahal.

A cluster sampling technique was employed to select dealers from these districts, followed by random sampling within each cluster to ensure representative coverage of different dealer categories based on age, educational qualification, and business size. A structured questionnaire comprising closed-ended and Likert-scale questions was used to capture quantitative information on socio-economic characteristics, business practices, challenges, and growth strategies. Data were analyzed using descriptive statistics, including frequency and percentage analysis, to summarize dealers' characteristics, practices, and challenges.

Additionally, Chi-Square tests were applied to examine the association between dealers' operational practices and their business growth strategies. A significance level of 0.05 was used to test the null hypotheses, allowing the identification of statistically significant relationships between key operational practices and business growth outcomes. This methodology provides a systematic approach to understanding how operational management among cotton input dealers influences their business performance within the cotton value chain in Gujarat.

Data Analysis and Interpretation

Table 1: A) Percentage Analysis

Age	No. of Dealers	%	Level of Education	No. of Dealers	%
< 30 years	7	7.8	Up to Secondary	7	7.8
31-40 years	22	24.4	Higher Secondary	22	24.4
41-50 years	17	18.9	Graduation	49	54.4
> 50 years	44	48.9	Post-Graduation above	12	13.4
Total	90	100	Total	90	100
Challenges Faced	No. of Dealers	%	Importance of Credit Sales	No. of Dealers	%
Price Competition	15	16.7	Very Important	26	28.9
Credit Management	58	64.4	Important	34	37.8

Supply chain Issue	8	8.9	Somewhat Important	20	22.2
Regulatory Compliance	9	10	Not Important	10	11.1
Total	90	100	Total	90	100
Managing Inventory	No. of Dealers	%	Strategy for Price Fluctuation	No. of Dealers	%
Just-in-time	8	8.9	Stockpiling	10	11.1
Bulk Purchasing	37	41.1	Price adjustment	36	40
Regular Replenishment	21	23.3	Supplier Negotiations	6	6.7
Demand Forecasting	24	26.7	Passing Cost to customers	38	42.2
Total	90	100	Total	90	100
Timely delivery	No. of Dealers	%	Business Growth	No. of Dealers	%
Reliable Supplier	65	72.2	Expanding Market Reach	37	41.1
Efficient logistic	5	5.6	Improving Efficiency	8	8.9
Own transport	2	2.2	Diversifying products	2	2.2
No Specific Management	18	20	Enhancing Customer Relations	43	47.8
Total	90	100	Total	90	100
Handle Complaints	No. of Dealers	%	Update with new Product & Technology	No. of Dealers	%
Replacement	40	44.4	Industry Events	40	44.4
Refunds	34	37.8	Manufacturing training	25	27.8
Negotiation	11	12.2	Online Platforms	15	16.7
No return policy	5	5.6	Customer Feedback	10	11.1
Total	90	100	Total	90	100

(Source: Survey Data by Authors)

Age of Dealers: According to Table A, nearly half of the dealers (48.9%) are above 50 years of age, indicating a dominance of highly experienced individuals in the cotton input trade. Dealers aged 31-40 years constitute 24.4%, followed by those in the 41-50 age group (18.9%). Only 7.8% of dealers are below 30 years, suggesting limited entry of younger individuals into this business.

Educational Qualifications of Dealers: The data in Table A reveal that a majority of dealers (54.4%) are graduates, reflecting a relatively high level of education among cotton input dealers. Dealers with higher secondary education account for 24.4%, while 13.4% possess post-graduate or higher qualifications. Only 7.8% have education up to the secondary level, indicating that formal education plays an important role in dealership operations.

Challenges Faced by Dealers: As shown in Table A, credit management is the most significant challenge faced by dealers, reported by 64.4% of respondents. Price competition affects 16.7% of dealers, while regulatory compliance poses difficulties for 10%. Supply chain issues are faced by 8.9% of dealers, suggesting that financial and credit-related risks dominate dealer concerns.

Importance of Credit Sales: According to Table A, credit sales play a crucial role in dealer operations. About 37.8% of dealers consider credit sales important, while 28.9% view them as very important. Around 22.2% consider them somewhat important, whereas only 11.1% feel that credit sales are not important, highlighting the dependence of farmers on dealer-provided credit.

Inventory Management Practices: The figures in Table A indicate that bulk purchasing is the most preferred inventory management practice, adopted by 41.1% of dealers. Demand forecasting is used by 26.7%, while regular replenishment is followed by 23.3%. Only 8.9% of dealers use just-in-time inventory systems, suggesting a preference for maintaining

buffer stocks.

Strategies to Manage Price Fluctuations: As per Table A, passing increased costs to customers is the most common strategy, adopted by 42.2% of dealers. Price adjustment strategies are used by 40%, while 11.1% rely on stockpiling. Supplier negotiation is the least preferred, followed by only 6.7% of dealers, indicating limited bargaining power with suppliers.

Timely Delivery of Inputs: According to Table A, timely delivery is largely ensured through reliable suppliers, as reported by 72.2% of dealers. About 20% of dealers have no specific management strategy for delivery. Efficient logistics and own transport systems are used by only 5.6% and 2.2% of dealers, respectively.

Business Growth Strategies: The data in Table A shows that enhancing customer relations is the primary business growth strategy for 47.8% of dealers. Expanding market reach is pursued by 41.1%, while improving operational efficiency is considered by 8.9%. Only 2.2% of dealers focus on product diversification, indicating limited innovation in business expansion.

Handling Customer Complaints: As shown in Table A, replacement of products is the most common method of handling complaints, practised by 44.4% of dealers. Refunds are offered by 37.8%, while 12.2% resolve issues through negotiation. Only 5.6% follow a no-return policy, suggesting a generally customer-friendly approach.

Updating Knowledge on New Products and Technology: According to Table A, participation in industry events is the primary source of updating knowledge for 44.4% of dealers. Manufacturing training programs are attended by 27.8%, while 16.7% rely on online platforms. Customer feedback is used by only 11.1%, indicating scope for greater interaction with farmers to understand emerging needs.

Table 2: B) Chi-Square Analysis

Approach to Manage Inventory	Business Growth				Total
	Expanding Market Reach	Improving Efficiency	Diversifying products	Enhancing Customer Relations	
Just-in-time	0	3	2	3	8
Bulk Purchasing	21	2	0	14	37
Regular Replenishment	3	2	0	16	21
Demand Forecasting	13	1	0	10	24
Total	37	8	2	43	90
Strategy for Price Fluctuation					
Stockpiling	0	2	0	8	10
Price adjustment	18	5	2	11	36
Supplier Negotiations	0	0	0	6	6
Passing the Cost	19	1	0	18	38
Total	37	8	2	43	90
Update with new Product & Technology					
Industry Events	16	1	0	23	40
Manufacturing training	16	2	0	7	25
Online Platforms	0	4	0	11	15
Customer Feedback	5	1	2	2	10
Total	37	8	2	43	90
Handle Complaints or Returns					
Replacement	14	5	0	21	40
Refunds	14	1	0	19	34
Negotiation	7	1	0	3	11
No return policy	2	1	2	0	5
Total	37	8	2	43	90

(Source: Computed in SPSS by the Authors)

Table 3: C) Chi-Square Table

Association Between	Chi-Square Value	Df	Sig.	results
Managing inventory and their business growth strategy	43.825	9	0.000	The null hypothesis is rejected
Strategies adopted to manage price fluctuations and the business growth of dealers.	23.443	9	0.005	The null hypothesis is rejected
Updated with new products and technology, and their business growth strategy.	39.266	9	0.000	The null hypothesis is rejected
Handle complaints or returns and their business growth strategy.	42.368	9	0.000	The null hypothesis is rejected

(Source: Computed in SPSS by the Authors)

Association Between Inventory Management and Business Growth Strategy

The Chi-Square value of 43.825 with 9 degrees of freedom (Df) and a significance level of 0.000 indicates a significant relationship between managing inventory and the business growth strategy of dealers. Since the p-value (0.000) is less than 0.05, the null hypothesis is rejected, suggesting that inventory management practices significantly influence dealers' business growth strategies.

Association Between Price Fluctuation Management Strategies and Business Growth

With a Chi-Square value of 23.443, 9 degrees of freedom, and a significance level of 0.005, the test results demonstrate a significant association between strategies adopted to manage price fluctuations and the business growth of dealers. As the p-value (0.005) is less than 0.05, the null hypothesis is rejected, implying that effective price management strategies play a crucial role in determining business growth.

Association Between Updating with New Products and Technology and Business Growth

The Chi-Square analysis yielded a value of 39.266 with 9 degrees of freedom and a significance level of 0.000, indicating a strong association between updating with new products and technology and dealers' business growth strategies. Since the p-value (0.000) is below 0.05, the null

hypothesis is rejected, suggesting that continuous technological and product updates positively influence business growth.

Association Between Complaint Handling Methods and Business Growth

The Chi-Square test results show a value of 42.368 with 9 degrees of freedom and a significance level of 0.000, confirming a significant relationship between methods adopted to handle complaints or returns and business growth strategy. As the p-value (0.000) is less than 0.05, the null hypothesis is rejected, indicating that efficient complaint handling contributes to improved customer relations and overall business growth.

Findings

Percentage Analysis

- The majority of dealers (48.9%) belong to the age group above 50 years, indicating that the input supply business is largely managed by experienced individuals.
- Most dealers (54.4%) are graduates, showing a relatively high level of educational attainment in the cotton input trade.
- Credit management is the most prominent challenge faced by dealers, as reported by 64.4% of respondents.
- Credit sales are considered important or very important by 66.7% of dealers, highlighting the role of credit in sustaining dealer-farmer relationships.

- Bulk purchasing is the most commonly adopted inventory management practice among dealers (41.1%).
- Passing increased costs to customers (42.2%) is the primary strategy adopted by dealers to manage price fluctuations.
- A majority of dealers (72.2%) ensure the timely delivery of inputs through reliable suppliers.
- Enhancing customer relations is the leading business growth strategy, followed by 47.8% of dealers.
- Replacement (44.4%) and refunds (37.8%) are the most preferred methods for handling customer complaints.
- Dealers mainly update themselves with new products and technologies through industry events (44.4%).

Chi-Square Analysis

- There is a significant relationship between dealers' inventory management practices and their business growth strategy.
- There is a significant relationship between strategies adopted to manage price fluctuations and the business growth of dealers.
- There is a significant relationship between updating with new products and technology and dealers' business growth strategy.
- There is a significant relationship between the methods adopted to handle complaints or returns and dealers' business growth strategy.

Suggestions

Since credit management is the major challenge faced by dealers, a formal linkage between dealers and financial institutions should be strengthened to reduce credit risk and improve liquidity. Dealers should be encouraged to adopt scientific inventory management practices such as demand forecasting and digital stock monitoring to enhance efficiency and reduce carrying costs. Training programs focusing on price risk management and negotiation skills should be organised to help dealers manage price fluctuations more effectively.

Greater emphasis should be placed on logistics planning, as a notable proportion of dealers lack specific strategies for the timely delivery of inputs. Dealers should be motivated to diversify their business growth strategies beyond customer relations by expanding market reach and introducing new product lines. Regular capacity-building programs, including digital platforms and customer feedback systems, should be promoted to improve awareness of new products and technologies. Policymakers should recognise the role of input dealers as key stakeholders in the cotton value chain and integrate them into extension and advisory frameworks.

Conclusion

The study examined the socio-economic characteristics, operational practices, and business growth strategies of cotton input dealers using percentage and chi-square analyses. The findings reveal that the input supply sector is dominated by experienced and well-educated dealers, with credit management emerging as the most critical operational challenge. Bulk purchasing and passing cost fluctuations to customers are the most commonly adopted management strategies.

The chi-square analysis confirms a significant association between dealers' operational practices-such as inventory management, price fluctuation strategies, technological

updating, and complaint handling-and their business growth strategies. These results underline the importance of efficient management practices and customer-oriented approaches in achieving sustainable business growth.

Overall, the study highlights that strengthening dealer capacity, improving financial and logistical systems, and promoting innovation are essential for enhancing the efficiency of the cotton input supply chain. Such improvements can contribute positively to farmer access to quality inputs and the overall performance of the cotton value chain.

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