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Supplier selection and procurement gaps in the organic grain supply chain

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Abstract

The efficient procurement of organic grains is vital for ensuring product availability, quality, and cost-effectiveness across the supply chain. This study assesses procurement processes in the organic grain sector, identifying operational gaps and analyzing supplier selection criteria through primary data collected from 30 suppliers, including farmers, Farmer Producer Organizations (FPOs), and traders, using structured questionnaires. Descriptive statistics and Likert scaling were employed to evaluate key procurement performance indicators such as cost of procurement, supplier reliability, and lead time. The findings reveal that quality, certification, and consistent supply are the most influential criteria for supplier selection, while inefficiencies in price negotiation, communication delays, and procurement planning hinder cost efficiency and supply chain responsiveness. Supporting the hypothesis that supplier criteria significantly influence procurement outcomes, the study recommends strengthening supplier relationships, digitizing procurement tracking, and implementing performance-based selection models to optimize procurement operations in organic agri-supply chains.

Keywords: Organic grains, procurement processes, supplier selection criteria, farmer producer organizations, supply chain management, quality standards, performance indicators

1. Introduction

Procurement is a critical component of supply chain management, especially in the organic agri-food sector, where sourcing quality produce from certified and reliable suppliers is a complex and sensitive task. The integrity of organic products depends largely on the procurement process, which must adhere to standards related to traceability, sustainability, and food safety. However, firms in this sector often face challenges in aligning supplier capabilities with procurement requirements, leading to inefficiencies in cost, lead time, and supply reliability.

Organic grain sourcing typically involves multiple supplier categories, including individual farmers, Farmer Producer Organizations (FPOs), and traders. Each plays a distinct role in meeting raw material requirements. However, inconsistencies in procurement processes such as unclear supplier evaluation, lack of automation, and communication gaps can lead to performance bottlenecks.

To ensure effective supply chain optimization, it is also essential to understand the preferences and expectations of end consumers, as their perceptions regarding quality, certification, pricing, and other factors influence procurement planning and supplier engagement.

This study, therefore, aims to (i) identify gaps affecting procurement performance, (ii) understand the role of supplier selection criteria in achieving procurement efficiency, and (iii) assess consumer preferences towards organic grains to support better procurement strategies, marketing decisions, and customer satisfaction initiatives.

2. Materials and Methods

Hyderabad was selected for the study due to its strategic proximity to major agricultural regions, robust supply chain infrastructure, large urban consumer base, and rising demand for organic products driven by high literacy levels and growing health consciousness. A purposive sampling method was adopted to engage key stakeholders, including 30 suppliers (farmers, Farmer Producer Organizations, and traders), 60 regular consumers, as well as procurement managers, inventory managers, and logistics partners. Primary data were collected through standardized questionnaires (both open- and closed-ended) and direct observation of supply chain operations. The survey covered aspects such as sourcing patterns, procurement challenges, supplier selection criteria, inventory management practices, logistics processes, and consumer preferences regarding organic grains. Consumers provided feedback on product availability, quality, pricing, packaging, and service experience, while suppliers shared insights on vendor selection factors, sourcing difficulties, and operational gaps. Secondary data were obtained from previous research articles, books, journals and reputable websites to validate

and supplement the primary findings. The collected data were analyzed using descriptive statistics to summarize survey results, Likert scale analysis to evaluate supplier selection criteria and consumer preferences, and Garrett ranking to prioritize sourcing challenges.

3. Results and Discussion

3.1 Supplier Profile

Among the 30 suppliers surveyed, 40% were individual organic farmers, 33% were Farmer Producer Organizations (FPOs), and 27% were traders or aggregators. Most suppliers had more than 2 years of experience working with the firm, indicating a relatively stable supply base. However, variability was observed in delivery timelines and procurement terms, especially among smaller suppliers.

3.2 Supplier Selection Criteria

Supplier selection is crucial to ensure timely delivery of quality organic grains at the right cost. Due to certification requirements, seasonal supply, and freshness, clear criteria help avoid delays and quality issues, streamlining the procurement process. The table below highlights the most important selection factors.

S.no	Supplier Selection Criteria	Mean Score	Rank
1	Organic Certification (NPOP/PGS)	4.87	1
2	Timeliness of Delivery	4.60	2
3	Consistency in Supply	4.43	3
4	Reasonable Pricing	4.33	4
5	Trust and Past Relationship	4.20	5
6	Geographic Proximity	3.57	6

Key observations

Organic Certification is the most critical factor with the highest mean score of 4.87, highlighting the emphasis on adhering to recognized organic standards.

Timeliness of Delivery ranks second (4.60), indicating the importance of on-time supply to maintain smooth operations.

Consistency in Supply holds the third position (4.43), reflecting the need for reliable and steady availability of grains.

Reasonable Pricing is also valued (4.33), but ranks below quality and reliability factors, suggesting that cost is important but not the primary concern.

Trust and Relationship with suppliers have moderate importance (4.20), showing that while past dealings matter, they are less decisive than certification and supply factors.

Geographic Proximity received the lowest score (3.57), implying that location is less significant if other criteria like quality and timely delivery are met.

3.3 Sourcing Challenges

Suppliers were asked to rank major Sourcing challenges. The ranks were converted to Garrett scores, and the results are summarized below:

S.no	Sourcing Challenge	Garrett Score	Rank
1	Inconsistent quality of grains	72.5	1
2	Limited availability of certified produce	69.2	2
3	High transportation costs	63.4	3
4	Lack of coordination among suppliers	59.1	4
5	Delayed delivery from remote areas	55.3	5

Key observations

Inconsistent quality of grains is the top challenge with the highest Garrett score of 72.5, indicating frequent issues with grain quality affecting supply reliability.

Limited availability of certified produce ranks second (69.2), highlighting difficulties in sourcing enough certified organic grains to meet demand.

High transportation costs (63.4) are a significant concern, largely due to suppliers being located in remote rural areas.

Lack of coordination among suppliers (59.1) contributes to inefficiencies and delays in the procurement process.

Delayed delivery from remote areas (55.3) further exacerbates supply chain disruptions and affects timely availability.

3.4 Internal Procurement Gaps

The study identified four significant internal gaps within the procurement process that hinder the efficient sourcing of organic grains:

1. Lack of Standardized Quality Checks

Currently, the procurement process relies heavily on visual or manual inspection of grains without established guidelines or formal testing protocols. This subjective approach leads to variability in quality assessments, increasing the risk of accepting substandard produce. The absence of standardized quality control tools or procedures undermines consistency, potentially causing customer dissatisfaction and higher rejection rates.

2. Weak Engagement with Certified Farmer Producer Organizations (FPOs)

The procurement system shows an over-dependence on small, uncertified suppliers rather than strengthening partnerships with certified FPOs. Certified FPOs typically offer larger volumes of traceable and quality-verified organic grains, which can stabilize supply and ensure compliance with organic standards. Limited collaboration with these organizations results in supply inconsistencies and challenges in meeting certification requirements.

3. Absence of Digital Procurement Systems

The procurement operations are managed manually using paper records or basic spreadsheets, causing delays in data processing and difficulties in real-time tracking of orders and supplier performance. This lack of automation reduces operational efficiency, increases the likelihood of errors, and hampers effective planning and forecasting. Digital tools could facilitate faster decision-making, transparency, and better coordination across the supply chain.

4. Limited Supplier Evaluation and Monitoring

There is no formal system to regularly evaluate and monitor supplier performance based on key indicators such as quality, delivery timeliness, and reliability. Without structured performance reviews or supplier scorecards, underperforming suppliers continue to participate in the supply chain unchecked, adversely impacting procurement efficiency and overall supply chain stability. Implementing routine assessments would enhance accountability and encourage continuous improvement among suppliers.

3.5 Consumer preferences towards Organic Grains

Understanding consumer preferences helps the company know what matters most to buyers—like quality, health benefits, price, or availability. This supports better decisions in product planning, marketing, and customer satisfaction. The following table presents data collected through customer surveys.

S.no	Factors	Response									
		Strongly Agree		Agree		Neutral		Disagree		Strongly Disagree	
		f	%	f	%	f	%	f	%	f	%
1	Health Benefits	17	28.3	29	48.3	14	23.2	0	0	0	0
2	Product Quality Satisfaction	14	23.3	30	50	14	23.3	2	3.3	0	0
3	Availability of Grains	19	31.7	23	38.3	16	26.7	2	3.3	0	0
4	Pricing Concerns	11	18.3	20	33.3	11	18.3	18	30	0	0
5	Trust in Certification	15	25	23	38.3	20	33.3	1	1.7	1	1.7
6	Influence of Brand Reputation	13	21.7	23	38.3	7	11.7	16	26.7	1	1.7
7	Packaging	13	21.7	37	61.7	9	15	0	0	1	1.7
8	Word-of-Mouth Promotion	21	35	19	31.7	18	30	1	1.7	1	1.7
9	Customer Loyalty	21	35	18	30	20	33.3	1	1.7	0	0
10	Environmental Concerns	17	28.3	19	31.7	20	33.3	3	5	1	1.7
11	Staff Support	15	25	23	38.3	19	31.7	2	3.3	1	1.7
12	Ease of Finding	19	31.7	24	40	17	28.3	0	0	0	0
13	Promotions and Discounts	20	33.3	19	31.7	19	31.7	2	3.3	0	0
14	Customer Service Satisfaction	21	35	18	30	20	33.3	1	1.7	0	0
15	Future Purchase Intent	21	35	16	26.7	22	36.7	0	0	1	1.7

Key Observations

- **High Agreement on Health Benefits** - A combined 76.6% of respondents (Strongly Agree + Agree) believe organic grains offer health benefits, indicating strong health-driven demand.
- **Product Quality Satisfaction** - 73.3% of customers express satisfaction with product quality, though 23.3% remain neutral, suggesting scope for enhancing perceived quality.
- **Availability of Grains** - 70% agree that grains are readily available, but 26.7% are neutral, indicating occasional availability concerns.
- **Pricing Concerns** - Only 51.6% agree on reasonable pricing, while 30% disagree, showing price sensitivity among customers.
- **Trust in Certification** - 63.3% trust organic certifications, but a notable 33.3% are neutral, suggesting limited awareness or understanding of certification value.
- **Brand Reputation Influence** - 60% are influenced by brand reputation, while 26.7% disagree, indicating that brand positioning is moderately important but not decisive for all buyers.
- **Packaging Approval** - 83.4% appreciate packaging, making it one of the strongest positive factors.
- **Word-of-Mouth Promotion** - 66.7% acknowledge its influence, confirming the importance of satisfied customers in marketing.
- **Customer Loyalty** - 65% show loyalty towards the brand, but 33.3% remain neutral, indicating potential for loyalty programs.
- **Environmental Concerns** - 60% agree that environmental factors influence their purchase, but over a third are neutral, showing moderate awareness.
- **Staff Support** - 63.3% are satisfied with staff support, though 31.7% are neutral, suggesting room for improving customer interaction.
- **Ease of Finding Products** - 71.7% find products easy to locate, indicating good distribution and placement.
- **Promotions and Discounts** - 65% value offers, while 31.7% are neutral, suggesting promotional campaigns could be more impactful.
- **Customer Service Satisfaction** - 65% are satisfied, but one-third are neutral, highlighting the need for service improvement.
- **Future Purchase Intent** - 61.7% plan to buy again, but 36.7% are undecided, showing potential for post-purchase engagement to convert neutrals into loyal customers.

4. Conclusion

The study reveals that while quality assurance, organic certification, and consistent supply are the most influential factors in supplier selection, the organic grain supply chain is constrained by both external and internal inefficiencies. Supplier-side challenges include inconsistent grain quality, limited certified produce, high transportation costs, and poor coordination, while internal issues such as lack of standardized quality checks, limited engagement with certified Farmer Producer Organizations (FPOs), manual record-keeping, and absence of structured supplier performance monitoring further hinder procurement efficiency. Consumer feedback shows strong appreciation for health benefits, product quality, packaging, and ease of finding products, but mixed perceptions on pricing, trust in certification, and environmental concerns point to the need for improved awareness and value-based pricing strategies. Addressing these gaps through digitized procurement systems, standardized quality protocols, stronger partnerships with certified FPOs, and enhanced marketing and customer service will improve operational efficiency, strengthen supplier relationships, boost consumer trust, and ensure the sustainable growth of the organic grain supply chain.

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