Optimizing Profitability and Operational Efficiency for M/S Shiv Shakti Traders

A Final Report for the BDM Capstone Project

Name: Tushar Bharti

Roll Number: 21f1005642

Contents

1 Executive Summary

This report outlines strategic recommendations for optimizing the profitability and operational efficiency of M/s Shiv Shakti Traders, a business engaged in the trading of grains such as wheat, paddy, and maize. Through detailed data collection and analysis, it was observed that competitors are effectively combining fertilizer and kirana store operations with their trading businesses, significantly attracting local farmers. In contrast, M/s Shiv Shakti Traders lacks such complementary services, making it less appealing to farmers who prefer the convenience and necessity of fertilizers and grocery items.

To address this gap, it is recommended that M/s Shiv Shakti Traders diversify its business offerings by establishing a fertilizer shop or partnering with existing suppliers and introducing a kirana section. Leveraging technology for real-time market pricing can also enhance their competitiveness. Implementing systems for regularly checking online mandi prices and training staff to use these digital tools will ensure informed purchasing decisions, thereby reducing losses due to delayed or inaccurate information from agents.

Moreover, a comprehensive analysis of the sales data revealed significant seasonal fluctuations and profit variability. Key customers such as Rajeev Katra and Mintu Bhagat contribute majorly to the profits, highlighting the need for robust customer relationship management and diversification of the customer base. By focusing on these strategic areas, M/s Shiv Shakti Traders can enhance profitability, streamline operations, and ensure long-term sustainability in a competitive market.

2 Detailed Explanation of Analysis Process / Methods

2.1 Data Collection

Gathering data is a demanding and time-consuming process, requiring significant effort to build trust and establish credibility with businesses. Developing strong relationships with stakeholders is crucial to obtain precise and meaningful data. The data has been meticulously collected from a ledger maintained daily as rough entries, which are then transferred to customer-specific pages in another ledger for calculations such as goods given and payments made. This process spans approximately 4-5 months from November to March. This specific timeframe was chosen because November marks the beginning of the paddy harvesting season in the area, representing the peak period for paddy trading activities. During this period, there is a significant amount of trading activity, making it an ideal time to collect comprehensive data. It has 626 rows and 8 columns in purchase data, whereas in sales data it has 122 rows and 14 columns.

The collected data is systematically categorized into two primary sections: purchases and sales. To fully understand the context and meaning of various aspects, such as types of paddy, labour

charges, transaction methods, and other relevant details, it took 6-7 visits to the business manager. These visits were crucial to gain insights into the intricate details of the trading process and ensure the collected data's accuracy and reliability. This thorough approach underscores the importance of understanding the nuances involved in paddy trading, enabling a comprehensive analysis of the data. Understanding these nuances allows for more accurate predictions and insights into future trading patterns and trends, benefiting the businesses involved.

2.2 Data Cleaning, Extraction, and Insertion

The data cleaning process involves several detailed steps to ensure the accuracy and reliability of the dataset. First, I began by filtering out various types of grains such as maize, wheat, and moong. Given that multiple types of grains are purchased daily, I specifically extracted only the paddy entries for my analysis. This step was crucial to focus the analysis solely on paddy trading activities.

Next, I differentiated between purchased and sold paddy entries, as both types of transactions were recorded in the same ledger. This distinction was essential for analyzing the trading patterns accurately. During this process, I encountered instances of missing values. Common missing values included rates of paddy, types of paddy being purchased, and transportation costs. Although these missing values were not consistent, they appeared occasionally and needed to be addressed to maintain data integrity.

To handle these missing values, I employed methods such as imputation and cross-referencing with other records to fill in the gaps. After ensuring that all relevant data was accounted for, I carefully inserted the cleaned data into an Excel sheet. The Excel sheet included comprehensive details such as date, customer name, weights, type of paddy, payment amount, and other pertinent information. This structured format facilitated easier analysis and ensured that all necessary details were captured accurately. Overall, this meticulous data cleaning, extraction, and insertion process laid the groundwork for a robust analysis, allowing me to derive meaningful insights from the data.

Date	Customer Name	Type of Paddy	Weight	Rate	No of bags	Labour Cost	Purchase Amount
21-12-2023	Binod Choudhary	Chaudhani	120	17.4	3	12	2088
21-12-2023	Binod Choudhary	BB11	885	19.4	22	88	17169
21-12-2023	Shyam Das	Chaudhani	2657	17.5	57	228	46497
21-12-2023	Dinbandhu	BB11	471	19.5	11	44	9184
21-12-2023	Arun Bela	Mota	1321	18	28	112	23778
21-12-2023	Rudal Yadav	BB11	851	19.4	17	68	16509
21-12-2023	Pawan Bisanpur	BB11	2989	19.35	62	248	57839
22-12-2023	Arun Bela	Chaudhani	150	17.5	3	12	2625
22-12-2023	Arun Bela	Mota	203	18	4	16	3654
22-12-2023	Arun Bela	BB11	2409	19.35	48	192	46614
22-12-2023	Dinbandhu	Mota	47	18	1	4	846

Figure 1: Cleaned Purchase Data Snapshot - December 21-22, 2023

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Date	Customer Name	Type	Weight(in kg)	Cost Price	Total Cost Price	Selling Price	Total Selling Price	Shortage(kg)	Shortage Loss	Transport Cost(Rs per kg)	Labour and Moisture Deduction	Total Transportation Cost	Profit
2	13-11-2023	Gautam Ghosh	BB11	30555	18	549990	20.1	614156	55	990	0.85	3056	25925	34195
3	14-11-2023	Prawabhati Mill	BB11	24655	17.95	442557	18.4	453652	0	0	0.3	2466	7397	1232
4	16-11-2023	Rajeev Katra	BB11	24255	17.8	431739	19.65	476611	70	1246	1.3	2426	31441	9759
5	17-11-2023	Rajeev Katra	Mota	28620	17.95	513729	19.65	562383	45	808	1.3	2862	37148	7836
6	19-11-2023	Mintu Bhagat	BB11	19920	18	358560	18.5	368520	0	0	0.2	1992	3984	3984
7	20-11-2023	Rajeev Katra	BB11	30375	18.2	552825	20.16	612360	140	2548	1.3	3038	39306	14643
8	21-11-2023	Rajeev Katra	BB11	30165	18.2	549003	20.21	609635	79	1438	1.3	3017	39112	17065
9	21-11-2023	Mintu Bhagat	BB11	21654	18	389772	18.25	395186	86	1548	0.1	2165	2157	-456
10	22-11-2023	Mintu Bhagat	Mota	4600	17.7	81420	18.8	86480	0	0	0.25	460	1150	3450
11	22-11-2023	Mintu Bhagat	BB11	23350	18.2	424970	19	443650	0	0	0.25	2335	5838	10507
12	22-11-2023	Rajeev Katra	BB11	30430	18.2	553826	20.25	616208	100	1820	1.4	3043	42462	15057
13	23-11-2023	Rajeev Katra	BB11	30195	18.2	549549	20.25	611449	100	1820	1.4	3020	42133	14927
14	24-11-2023	Mintu Bhagat	BB11	26230	18.2	477386	18.9	495747	34	619	0.3	2623	7859	7260
15	24-11-2023	Rajeev Katra	BB11	37625	18.2	684775	20.25	761906	85	1547	1.3	3763	48802	23019
16	24-11-2023	Rajeev Katra	BB11	30400	18.25	554800	20.25	615600	56	1022	1.4	3040	42482	14256
17	24-11-2023	Rajeev Katra	BB11	38320	18.2	697424	20.25	775980	75	1365	1.3	3832	49719	23640
18	25-11-2023	Rajeev Katra	BB11	24935	18.2	453817	20.25	504934	195	3549	1.55	2494	38347	6727
19	26-11-2023	Mintu Bhagat	BB11	20910	18.2	380562	19	397290	40	728	0.2	2091	4174	9735
20	26-11-2023	Mintu Bhagat	BB11	20580	18.2	374556	19	391020	35	637	0.25	2058	5136	8633
21	27-11-2023	Mintu Bhagat	BB11	20710	18.15	375887	19	393490	40	726	0.25	2071	5168	9638
22	27-11-2023	Rajender Agarwal	BB11	29905	18.15	542776	19.7	589129	0	0	1	2991	29905	13457

Figure 2: Cleaned Sales Data Snapshot of November 2023

2.3 Statistical and Descriptive Analysis

After organizing the data, a thorough statistical analysis is conducted to uncover insights into the distribution and characteristics of the data. Key metrics are calculated for both purchase amount and sales amount variables, including mean, median, mode, standard deviation, range, minimum, maximum, sum, and count. These statistics offer a comprehensive snapshot of the sales patterns and performance measures for the given period.

By analyzing these metrics, one can identify trends, detect anomalies, and understand the overall performance. This detailed analysis facilitates deeper insights and well-informed decision-making. Understanding these key metrics enables better interpretation of trends, allowing for strategic decisions based on the data. The statistical analysis thus provides a solid foundation for evaluating performance and planning future actions.

2.4 Calculation of Profit in Sales Data

- **Total Cost Price**:

Total Cost Price = Cost Price × Weight

- **Total Selling Price**:

Total Selling Price = Selling Price × Weight

- **Shortage Loss**:

Shortage Loss = Cost Price × Shortage Weight

- **Total Transportation Cost**:

Total Transportation Cost = Transport Cost × Weight

- **Labour and Moisture Deduction**:

Labour and Moisture Deduction = Amount Deduction for Labour and Moisture Penalty

- **Profit**:

Profit = Total Selling Price – (Total Cost Price + Shortage Loss + Total Transportation Cost + Labour and Moisture Deduction)

2.5 Use of Tools for Analysis

In the analysis, I utilized Google Colab to leverage Python's Pandas library for reading and manipulating data from Excel files, employing the read_excel function for efficient data loading. For visualization, I used Matplotlib, specifically its Pyplot module, to generate various types of graphs including line charts, bar graphs, and pie charts. These visual tools enabled a comprehensive understanding of trends and patterns within the data, facilitating the summarization and presentation of key insights

2.6 Identifying Key Competition in local market

During several visits to the local market, I observed that 2-3 competitors are employing smart strategies by managing their businesses in conjunction with operating fertilizer shops. This combined approach has a significant impact on local farmers, who are consistently in need of fertilizers. These competitors offer an attractive proposition by trading fertilizers in exchange for the farmers' produce, making them the preferred choice over M/s Shiv Shakti Traders. The convenience and necessity of fertilizers ensure a steady flow of customers to these competitors.

Furthermore, a similar pattern is evident with kirana stores. Many farmers also run small kirana shops and benefit from receiving grocery items in return for their paddy. This dual business model effectively attracts more farmers, diverting them from trading with M/s Shiv Shakti Traders. This context is particularly important to highlight given the case of Mr. Dilip Kumar, who operates a small medical store alongside his trading business, located adjacent to the paddy stores.

Unlike the fertilizer and kirana stores, the medical store does not provide immediate, relevant benefits to the farmers. As a result, the presence of the medical store has no significant effect on the farmers' trading decisions. The success of competitors with fertilizer and kirana stores underscores a crucial gap for M/s Shiv Shakti Traders. The current business model is less attractive to farmers, leading to a notable diversion of customers. To counter this, M/s Shiv Shakti Traders might consider exploring complementary business opportunities that address the immediate needs of the farmers, similar to fertilizers and kirana items, to regain and enhance their market position.

2.7 Evaluating Pricing Strategies

It is crucial to examine how competitors price their products and understand the current market prices. Based on information provided by Mr. Dilip Kumar, it was noted that there is often a lack of knowledge about current market pricing in low market areas. This knowledge gap sometimes leads to purchasing goods at higher prices before market prices drop, resulting in significant losses.

This issue primarily arises due to reliance on communication from agents and parties. These agents often respond late or sometimes fail to respond at all, leading to delayed market price

updates. Additionally, there is a significant lack of internet usage among these businesses. In today's digital age, numerous market and mandi websites update prices hourly for almost every good and every region. Unfortunately, not utilizing these online resources has placed these businesses at a considerable disadvantage.

To mitigate this issue, it is imperative to leverage modern technology and internet resources to stay updated with real-time market prices. Establishing a reliable system for regularly checking online market prices can greatly reduce the risk of purchasing goods at unfavourable prices. Moreover, training staff on using these digital tools and incorporating them into daily operations will ensure that the business remains competitive and informed about market trends. By adopting these strategies, businesses can avoid unnecessary losses, make informed purchasing decisions, and develop a more competitive pricing strategy. Staying ahead in the market requires proactive measures and embracing the digital tools available to keep pace with market fluctuations.

Date	Customer Name	Type of Paddy	Weight	Rate	No of bags	Labour Cost	Purchase Amount
23-11-2023	Ritesh Choudhary	BB11	583	18.25	13	52	10639
23-11-2023	Chandan Choudhary	BB11	900	18.25	20	80	16425
23-11-2023	JayPrakash Shah	BB11	2538	18.25	49	196	46318
23-11-2023	Sanjay Rajpur	BB11	8129	18.25	160	640	148354
23-11-2023	Bechan Sakhua	BB11	2275	18.1	40	160	41177
23-11-2023	Dinbandhu	Mota	777	17.7	20	80	13750
23-11-2023	Basant Sakhua	BB11	2296	18.1	44	176	41557
23-11-2023	Binod Choudhary	BB11	1080	18.1	23	92	19548
23-11-2023	Ganesh Choudhary	BB11	796	18.1	17	68	14407
23-11-2023	Pawan Bisanpur	BB11	4384	18.15	85	340	79569
23-11-2023	Ganesh Choudhary	BB11	2945	18.1	60	240	53304

Figure 3.

Figure 3 is a snippet from the data showing a purchase made based on the previous day's price of 18.25. After discovering the market price dropped to 18.1 on November 23, the discrepancy highlights the impact of delayed communication.

2.8 Moisture Management

The process of measuring moisture in these local areas is manually done. The staff checks each bag with a hand tool to estimate the moisture content, but this method has significant drawbacks. Often, these manual checks are not accurate, leading to discrepancies when the paddy reaches the mills. If the moisture content exceeds the exempted percentage, it results in high penalties, which severely impact overall profit. In some cases, these inaccuracies can even lead to the rejection of entire truckloads of paddy. Such rejections are costly and can disrupt business operations.

To address this issue, implementing advanced moisture measuring tools would be beneficial. These tools would provide accurate readings, helping to avoid unnecessary penalties and ensuring the moisture content remains within acceptable limits. By using precise instruments, M/s Shiv Shakti Traders could enhance quality control, reduce the risk of costly rejections, and improve profitability. These improvements would ensure better compliance with quality standards and foster greater trust with buyers, leading to more stable business outcomes.

3 Results and Findings

3.1 Analysis of Paddy Type Distribution

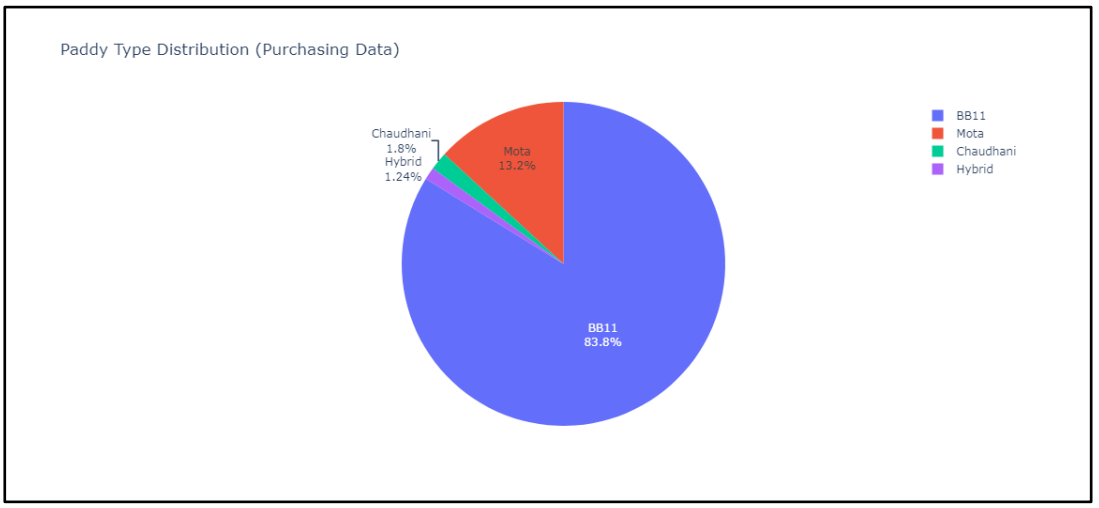

Figure 4.

The pie chart in *figure 4* represents the distribution of different types of paddy based on their weight (in kg) from the purchasing data. The chart provides overall visual breakdown of the proportions of each paddy type.

Observations and Insights

1. **BB11**:
    - **Percentage**: 83.8%
    - **Weight**: 1,815,238 kg
    - **Trend**: BB11 is the predominant type of paddy purchased, making up the vast majority of the total paddy purchased. This indicates a strong preference or demand for this variety, suggesting it might be the most suitable or popular among customers or for production needs.
2. **Mota**:
    - **Percentage**: 13.2%
    - **Weight**: Approximately 286,120 kg (calculated based on the total weight and percentage)
    - **Trend**: Mota is the second most purchased type of paddy. Although significantly less than BB11, it still represents a notable portion of the overall paddy procurement.
    -
3. **Chaudhani**:
    - **Percentage**: 1.8%
    - **Weight**: Approximately 39,022 kg (calculated based on the total weight and percentage)

- **Trend**: Chaudhani has a very small share in the overall paddy purchase. This indicates it is less preferred or has a specific niche use compared to the other types.
-

4. **Hybrid**:
   - **Percentage**: 1.24%
   - **Weight**: Approximately 26,907 kg (calculated based on the total weight and percentage)
   - **Trend**: Hybrid also has a minimal share, similar to Chaudhani, indicating a limited demand for this type of paddy.

Findings and Results

1. **Dominance of BB11**:
   - The overwhelming dominance of BB11 in the purchasing data indicates that it is the primary type of paddy required for business operations. This is because BB11 commands a higher price and offers good returns to farmers, encouraging its cultivation. Additionally, its superior qualities and strong market demand further contribute to its predominance.
2. **Secondary Importance of Mota**:
   - Mota, while significantly less than BB11, still constitutes a substantial portion of the purchases. This type of paddy does not provide as much market value to farmers, but it plays an important role as a secondary option for different applications compared to BB11.
3. **Niche Demand for Chaudhani and Hybrid**:
   - The very small percentages of Chaudhani and Hybrid are due to the low quality of Chaudhani and the poor yield, which causes low market demand, whereas Hybrid is not cultivated much.

3.2 Price Trends of Different Types of Paddy

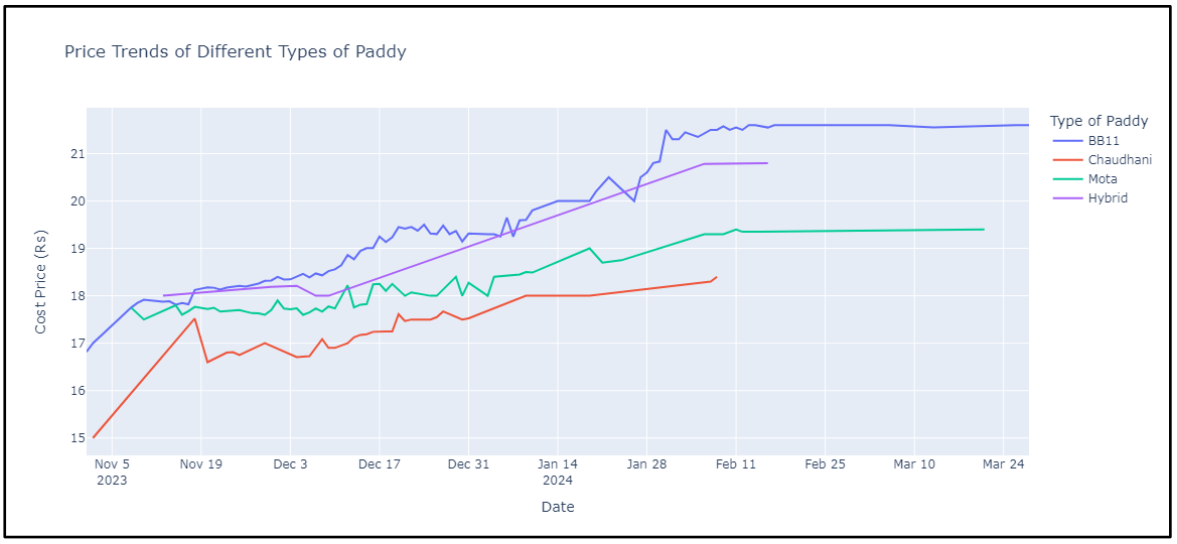

Figure 5.

The line chart in *figure 5* represents the price trends of different types of paddy (BB11, Chaudhani, Mota, and Hybrid) over the period from November 2023 to March 2024. Each line shows the average cost price for a specific type of paddy on given dates.

Observations and Insights

1. **BB11**:
    - **Trend**: The price of BB11 shows a consistent upward trend throughout the period. Starting at approximately ₹17.5 per kg in early November, it rises steadily to around ₹19.5 per kg by the end of March.
    - **Insight**: The increasing price indicates a rising demand or reduced supply for BB11. This trend suggests that BB11 is becoming more valuable over time.
    -
2. **Chaudhani**:
    - **Trend**: Chaudhani exhibits more volatility in its price. Starting at around ₹15 per kg, it fluctuates but generally trends upward, reaching about ₹18 per kg by the end of the period.
    - **Insight**: The price volatility could be due to market fluctuations, supply chain issues, or changing demand. Despite the fluctuations, the general upward trend indicates increasing value or demand over time.
3. **Mota**:
    - **Trend**: The price of Mota shows moderate fluctuations but remains relatively stable compared to other types. It starts at around ₹17.5 per kg and ends at approximately ₹18.5 per kg.
    - **Insight**: Mota's stable price suggests a balanced supply-demand situation. The slight upward trend indicates a gradual increase in value or demand.
    -
4. **Hybrid**:
    - **Trend**: The Hybrid variety starts at around ₹16.5 per kg and shows a consistent increase, reaching about ₹21 per kg by the end of the period.
    - **Insight**: The significant upward trend in Hybrid prices indicates a strong increase in demand or a reduction in supply. The sharp rise suggests that Hybrid paddy is becoming increasingly valuable.

Findings and Results

1. **Rising Prices**:
    - All paddy types show an overall upward trend in prices, indicating a general increase in value or demand across the board. This is driven by market conditions, increased production costs, or reduced availability.
    -
2. **Volatility in Chaudhani**:

- The volatility in Chaudhani prices suggests that it is more susceptible to market fluctuations. This is due to a shortage of paddy for that particular period, caused by the stocking of good quality paddy for higher rates later on.
-

3. **Stable Mota Prices**:
   - Mota exhibits the least volatility and a stable upward trend, as it serves as a secondary option to BB11, resulting in a balanced market for this type of paddy.
   -
4. **Significant Increase in Hybrid Prices**:
   - Hybrid paddy shows the most significant price increase. It is not cultivated much locally, but due to strong market demand, its value has increased over time.

3.3 Top 15 Customers by Purchase Weight and Paddy Type

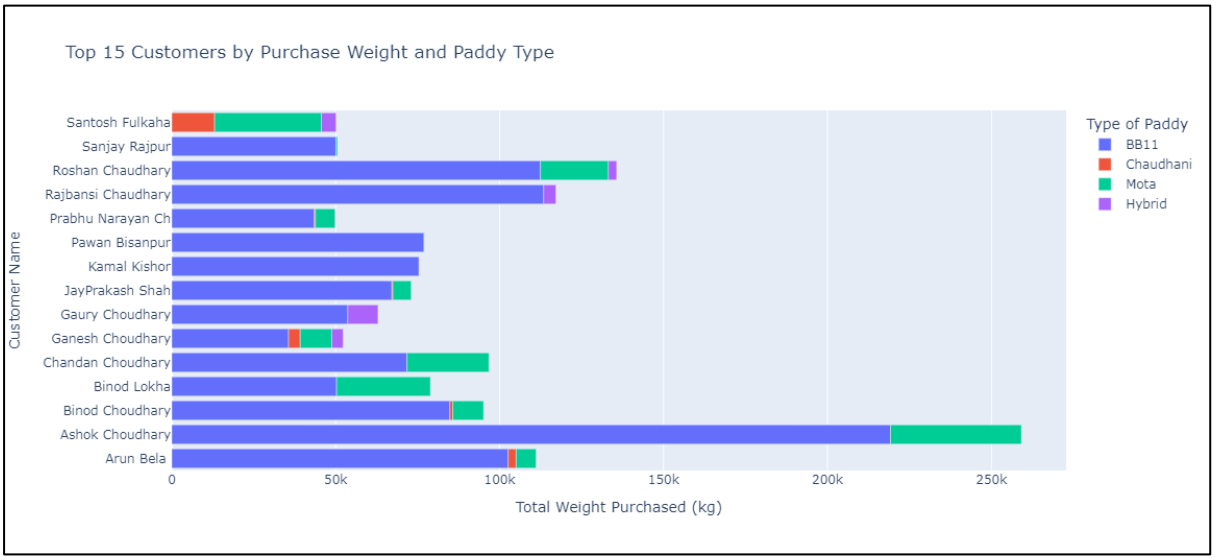

Figure 6.

The horizontal bar chart in *figure 6* shows the top 15 customers by total weight of paddy purchased, color-coded by paddy type: BB11, Chaudhani, Mota, and Hybrid.

Key Observations

1. **Dominance of BB11**:
   - Most purchased paddy type among top customers, indicating strong preference or demand.
2. **Diverse Purchasing Patterns**:
   - Some customers balance their purchases between BB11 and Mota.
3. **Smaller Quantities of Chaudhani and Hybrid**:
   - These types are niche or have lower demand compared to BB11 and Mota.

Insights

- **Sanjay Rajpur & Roshan Chaudhary**: Mix of BB11 and Mota (~90,000 kg).
- **Prabhu Narayan Ch**: Balanced between BB11 and Mota (~75,000 kg).
- **Pawan Bisanpur & Kamal Kishor**: Strong preference for BB11.

3.4 Analysis of Monthly Sales

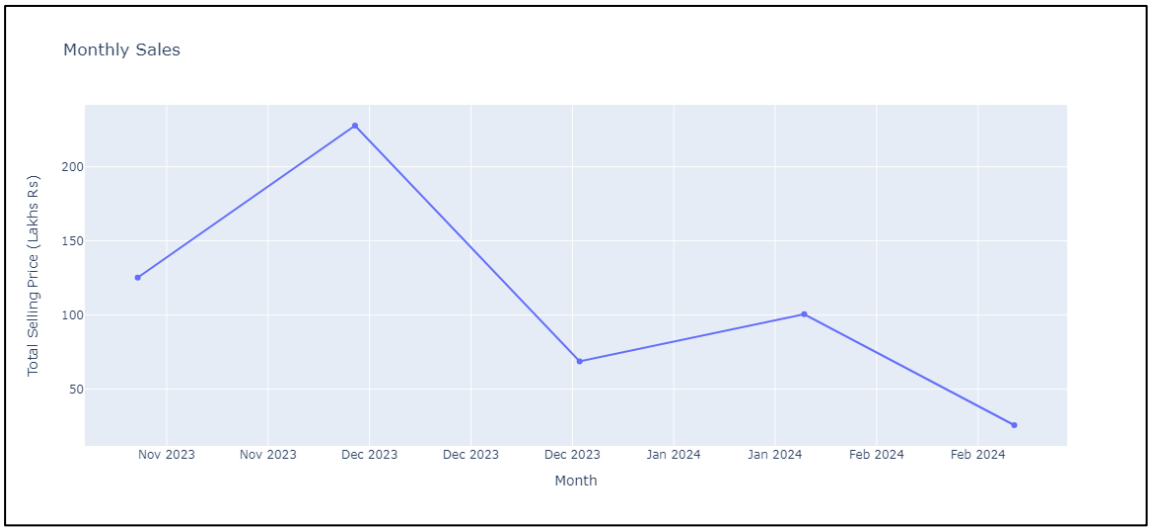

Figure 7.

The provided chart in *figure 7* represents the total selling price of goods on a monthly basis, converted into lakhs of rupees. The data covers sales transactions from November 2023 to March 2024.

Observations and Insights

1. **November 2023**:
    - **Sales**: Approximately ₹125.21 lakhs.
    - **Trend**: The sales started at a moderate level, indicating a stable market condition or the initial phases of a sales campaign.
    -
2. **December 2023**:
    - **Sales**: Approximately ₹227.79 lakhs.
    - **Trend**: A significant increase in sales was observed, making December the peak month with the highest sales. This could be attributed to the holiday season, festive purchases, or successful marketing strategies. It highlights a period of high consumer demand and effective sales efforts.
    -
3. **January 2024**:
    - **Sales**: Approximately ₹68.72 lakhs.

- **Trend**: There was a sharp decline in sales following the peak in December. This decrease might be due to post-holiday season effects where consumer spending typically drops. It can also reflect market saturation after the high sales period in December.
-

4. **February 2024**:
   - **Sales**: Approximately ₹100.48 lakhs.
   - **Trend**: Sales picked up again but did not reach the peak levels observed in December. This slight recovery suggests a stabilization phase or the impact of post-holiday promotions to boost sales.
5. **March 2024**:
   - **Sales**: Approximately ₹25.69 lakhs.
   - **Trend**: There was a significant decline in sales compared to previous months. This sharp drop could indicate the end of the seasonal sales period, reduced market activity, or other factors affecting consumer spending.

Findings and Results

1. **Seasonal Influence**:
   - The data indicates a strong seasonal influence on sales. The highest sales occurred in December due to the completion of the paddy harvest and farmers shifting their focus to selling it.
   - The decline in January is consistent with parties starting to stock paddy for higher rates later on when there is a market shortage.
2. **Marketing and Promotions**:
   - The spike in December sales is due to the availability of paddy in bulk in the market and at a low cost.
   - The slight increase in February is due to the unavailability of paddy in the market as the season comes to an end and the earlier stocked paddy coming out in limited quantities.
3. **March Decline**:
   - The significant drop in March sales suggests a return to baseline levels after the seasonal peak. This is due to low market demand and the beginning of other crops like wheat and maize.
4. **Stabilization Trends**:
   - The gradual increase from January to February implies a return to normalcy in consumer behavior. It highlights the importance of maintaining engagement with customers even after peak seasons to ensure continued sales momentum.
5. **Strategic Planning**:
   - Understanding these trends allows for better inventory management, marketing planning, and resource allocation. Businesses can prepare for high-demand periods by stocking up and ramping up marketing efforts.
   - Post-peak strategies should focus on retaining customer interest and smoothing out the transition to lower demand periods.

3.5 Analysis of Profit Over Time

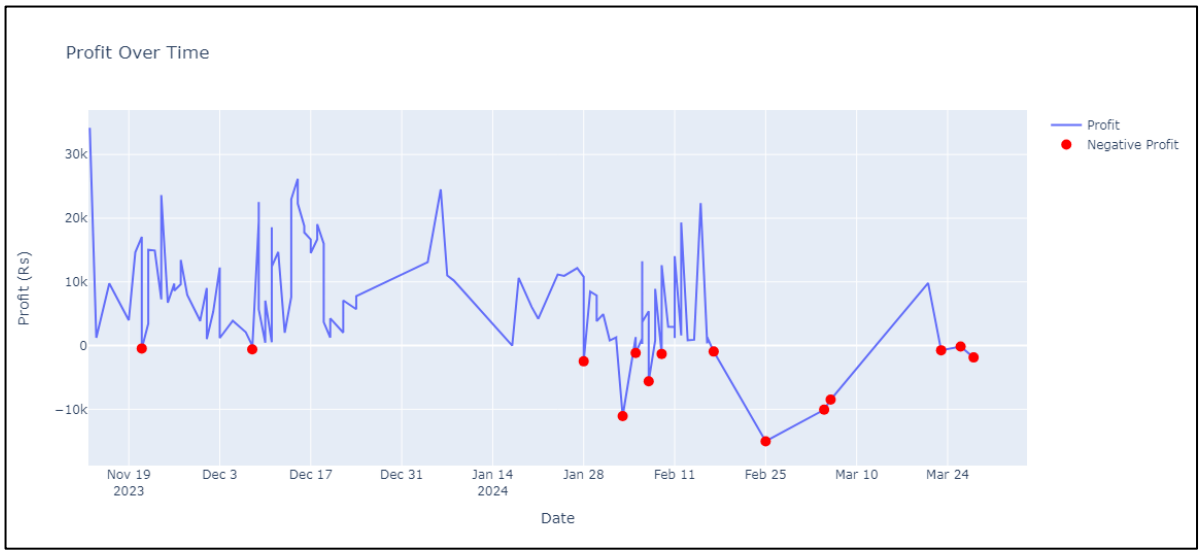

Figure 8.

The line chart in *figure 8* represents the profit over time from November 2023 to March 2024. The blue line indicates the profit values, while the red markers highlight points where the profit was negative.

Observations and Insights

1. **Profit Fluctuations**:
    - The profit values show significant fluctuations over the observed period. There are multiple peaks and troughs, indicating variability in sales performance and profitability.
    - This variability suggests that the business experiences both highly profitable periods and periods of losses.
2. **Negative Profit Periods**:
    - Several points on the chart are marked with red dots, indicating negative profit. These instances occur at various times, notably in late November, early December, late January, throughout February, and late March.
    - Negative profit periods are due to several factors, including the unavailability of transport, higher transportation charges, lower sales prices, and moisture deductions.
3. **Key Time Periods**:
    - **November 2023**: Profit starts high but quickly shows significant drops with some negative profit points.
    - **December 2023**: Profit remains positive but shows variability with a negative point in early December.
    - **January 2024**: A large dip towards the end of January, leading to a negative profit point.
    - **February 2024**: A period of frequent negative profits, indicating sustained challenges.

- **March 2024**: Continued fluctuations with several negative profit points.

Findings and Results

1. **Profit Peaks and Troughs**:
   - The chart highlights periods of high profitability interspersed with significant losses. This suggests an inconsistent profit generation pattern, likely influenced by varying market demand, pricing strategies, Operational cost.
2. **Frequent Negative Profits**:
   - The presence of multiple negative profit points is a concern. These periods occur due to unavailability of transports during festivals or local elections, high transportation costs, fluctuations in cost price and selling price, rejection of paddy due to quality issues, and high moisture penalties.
3. **Seasonal or Market Influences**:
   - The trend reflects seasonal influences or broader market trends affecting profitability. For example, the holiday season in end of December and starting January shows some variability, but overall, it maintains positive profits, suggesting strong market demand during this period.

3.6 Analysis of Customer-wise Profit

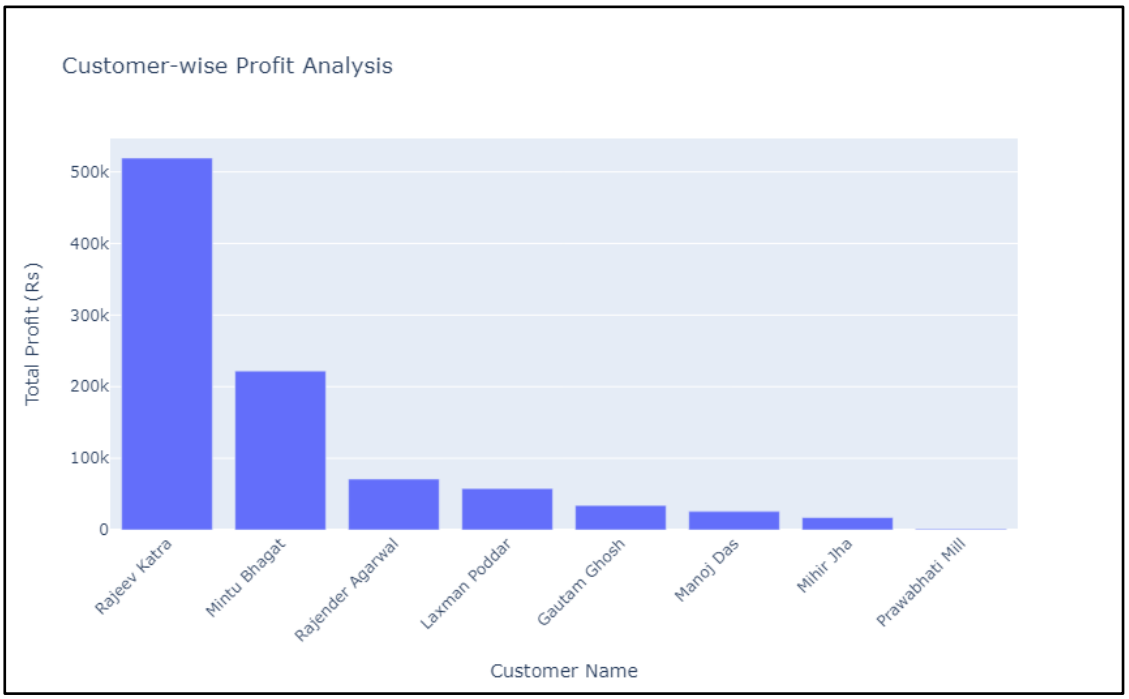

Figure 9.

The bar chart in *figure 9* represents the total profit generated from each customer. The x-axis displays the names of the customers, and the y-axis shows the total profit in rupees.

Observations and Insights

1. **Rajeev Katra**:
    - **Profit**: Approximately ₹500,000.
    - **Trend**: Rajeev Katra is the top contributor to the total profit, significantly higher than any other customer. This indicates a strong and profitable relationship with this customer, possibly due to higher transaction volumes or frequent purchases.
    -
2. **Mintu Bhagat**:
    - **Profit**: Approximately ₹200,000.
    - **Trend**: Mintu Bhagat is the second-highest contributor to the total profit. Though significantly lower than Rajeev Katra, this customer still represents a substantial portion of the total profits, indicating a good business relationship.
    -
3. **Rajender Agarwal**:
    - **Profit**: Approximately ₹100,000.
    - **Trend**: Rajender Agarwal is the third highest, but the profit is notably lower than the top two customers. This shows a moderate level of transactions contributing to the overall profit.
    -
4. **Other Customers**:
    - **Profit**: Ranging from approximately ₹50,000 to ₹100,000.
    - **Customers**: Laxman Poddar, Gautam Ghosh, Manoj Das, Mihir Jha, Prawabhati Mill.
    - **Trend**: These customers contribute less to the total profit compared to the top three. Their transactions are less frequent or of lower value, indicating areas where customer engagement or sales efforts could be improved.

Findings and Results

1. **Concentration of Profits**:
    - The majority of the profits are concentrated among the top two customers, Rajeev Katra and Mintu Bhagat, as more than 50% of the profit is generated by selling to these parties. This highlights the importance of these key customers to the business's profitability.
    - The remaining customers contribute significantly less to the overall profits, indicating a potential risk if reliance on the top customers is too high.
    -
2. **Customer Relationship Management**:
    - The strong profit contributions from Rajeev Katra and Mintu Bhagat suggest that maintaining and enhancing relationships with these customers should be a priority.
    - Efforts should be made to understand and replicate the factors contributing to these successful relationships with other customers.
    -

3. **Diversification of Customer Base**:
    - There is a need to diversify the customer base to reduce dependency on a few high-profit customers because there have been instances where payments get stuck for several months. This could impact the business significantly, as it is highly dependent on cash flow.
    - Identifying opportunities to increase the value or frequency of transactions with mid and lower-tier customers can help balance the profit contributions.
4. **Strategic Focus**:
    - The business should focus on both retaining high-profit customers and developing strategies to boost profitability from other customers.
    - Tailored marketing, personalized customer service, and targeted promotions could help in achieving this.

3.7 Analysis of Monthly Total Transportation Cost

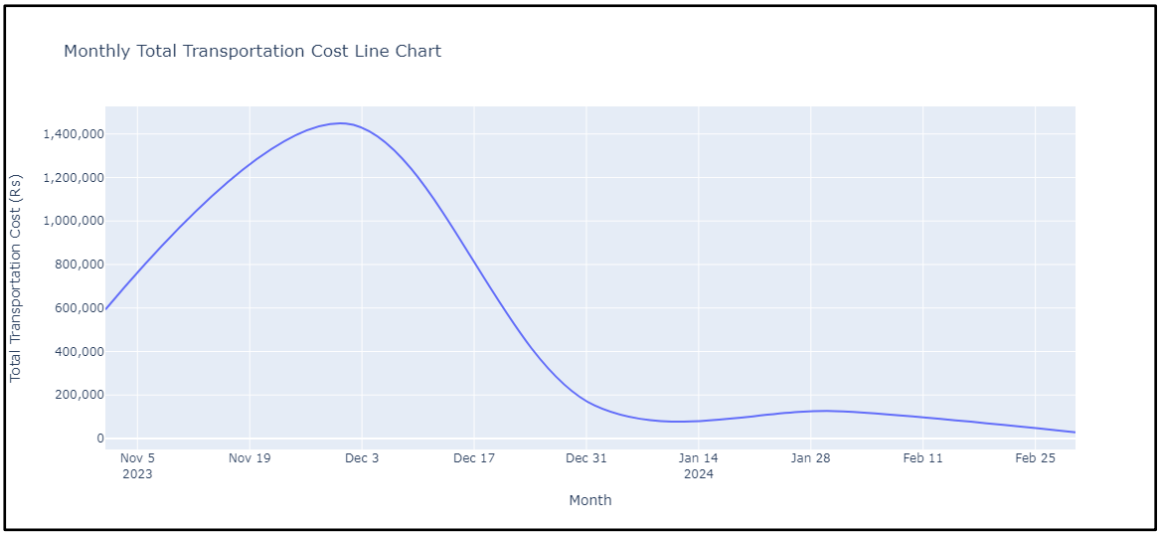

Figure 10.

The provided line chart in *figure 10* represents the monthly total transportation cost over time from November 2023 to February 2024. The line is smoothed to provide a clearer view of trends and fluctuations in transportation costs.

Observations and Insights

1. **November 2023 to December 2023**:
    - **Trend**: The total transportation cost shows a significant increase during this period, peaking in early December.
    - **Insight**: This rise is attributed to increased transportation activities, due to the peak season when there is generally higher demand for goods. It is also due to higher fuel prices or increased logistics activities.
    -
2. **December 2023 to January 2024**:

- **Trend**: There is a sharp decline in the total transportation cost after the peak in early December, reaching a low point towards the end of December and into January.
- **Insight**: This decline could be due to the post-festive season slowdown, where transportation needs decrease as the market adjusts after the high-demand period. Reduced activities or better optimization of transportation routes might also contribute to the decline.

3. **January 2024 to February 2024**:
   - **Trend**: The total transportation cost remains relatively low and stable, with slight fluctuations but no significant increases.
   - **Insight**: The stability during this period suggests that the transportation activities have normalized. The slight fluctuations might be due to routine variations in transportation requirements or minor changes in logistical efficiencies.

Findings and Results

1. **Seasonal Impact**:
   - The chart clearly shows the impact of seasonal demand on transportation costs. The significant increase during the peak season and the subsequent decline highlights how transportation activities are influenced by market demand cycles.
2. **Cost Optimization**:
   - The sharp decline after the peak indicates potential opportunities for cost optimization. During this period, the high availability of vehicles impacts transportation costs, resulting in lower operational costs.
3. **Stability in Operations**:
   - The relatively stable costs in the first two months of 2024 suggest that operations have reached a steady state. This stability helps in better budgeting and forecasting for future transportation needs.

3.8 Analysis of Average Labour Cost Over Time

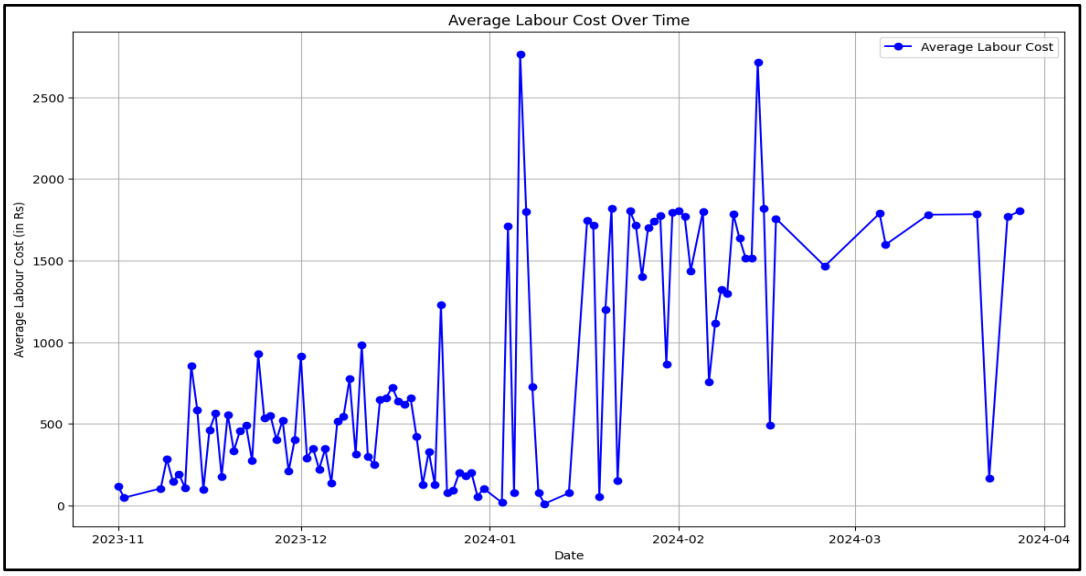

Figure 11.

The line chart in *figure 11* represents the average labour cost over time, from November 2023 to April 2024. This visualization includes data from both purchase and sales records, showing how the average labour cost fluctuates over this period.

Observations and Insights

1. **Initial Period (November 2023 to Early December 2023)**:
    - **Trend**: The average labour cost shows significant variability, with frequent spikes and drops.
    - **Insight**: This could be due to initial fluctuations in labour requirements or inconsistencies in recording labour costs. It might also indicate a period of adjustment or initial setup costs.
    -
2. **Mid-December 2023 to January 2024**:
    - **Trend**: There is a noticeable increase in the average labour cost, with several peaks reaching above 1000 Rs.
    - **Insight**: This period might correspond to higher labour activity, possibly due to increased operations, higher demand, or the festive season. The peaks could be due to overtime payments or hiring additional temporary labour.
    -
3. **January 2024**:
    - **Trend**: The average labour cost reaches its highest peak in early January and then drops sharply towards the end of the month.
    - **Insight**: The high peak could be attributed to intensive operations, project deadlines, or significant labour events. The sharp drop could indicate the completion of such events or a reduction in workforce.
    -
4. **February 2024 to March 2024**:

- **Trend**: The labour cost stabilizes somewhat, though it continues to exhibit variability. The average cost remains relatively high compared to the initial period.
- **Insight**: This stability might indicate a more consistent workload and better management of labour resources. The ongoing variability suggests that while the operations are stable, there are still fluctuations due to periodic high labour demands.
-

5. **Late March 2024 to April 2024**:
   - **Trend**: There are a few sharp drops towards the end of the period, indicating minimal or zero labour costs on certain days.
   - **Insight**: These drops could be due to holidays, reduced operations, or days when no labour was recorded.

Findings and Results

1. **High Variability**:
   - The average labour cost shows high variability, with significant peaks and drops throughout the period. This shows inconsistent labour demands and possible inefficiencies in labour management.
   -
2. **Seasonal Impact**:
   - There is a noticeable increase in labour costs during December and January, likely due to seasonal demand and specific operational peaks.
3. **Stabilization**:
   - The period from February to March shows relative stabilization, indicating better management or consistent operations.
4. **Sharp Drops**:
   - The sharp drops towards the end of the period might require further investigation to understand their causes and implications.

4 Interpretation of Results and Recommendation

Focus on BB11: BB11 dominates purchase data, indicating high demand. M/S Shiv Shakti Traders should ensure a stable supply by establishing strong relationships with reliable suppliers and negotiating long-term contracts. Implementing quality management practices, such as regular checks and proper storage, will maintain quality. Monitoring market trends will help adjust strategies to meet demand, ensuring competitiveness and profitability.

Market Analysis for Mota: Mota is the second most purchased paddy type. To maximize its potential, M/S Shiv Shakti Traders should conduct market analysis to understand demand drivers. This includes studying consumer preferences and competitor strategies. Optimizing the supply chain involves improving procurement, ensuring timely deliveries, and maintaining quality. Tailoring marketing and sales strategies based on these insights can increase market share and profitability.

Diversification Strategies: Chaudhani and Hybrid paddy types have niche markets. M/S Shiv Shakti Traders can develop targeted marketing campaigns to promote these varieties and explore new markets with higher demand. Understanding the specific needs of potential customers and positioning these paddy types as valuable options can help maximize their value and contribute to business growth.

Customer Engagement: Maintaining and enhancing relationships with top customers, like Rajeev Katra and Mintu Bhagat, is crucial. Personalized services, exclusive deals, and dedicated account management can strengthen these relationships. Implementing loyalty programs and targeted promotions can increase engagement with other customers, encouraging repeat business and higher transaction values.

Inventory Management: Effective inventory management is essential to avoid overstocking or stockouts. M/S Shiv Shakti Traders should plan inventory based on sales trends, ensuring high availability during peak seasons and efficient stock management during slower months. Implementing inventory management software can provide real-time data on stock levels, aiding in better decision-making and reducing holding costs.

Monitor Labour Costs: Labour costs show significant variability. Regular monitoring can help identify patterns and inconsistencies. Implementing practices like optimizing schedules, reducing overtime, and improving workforce efficiency can manage costs. Training employees and using technology for workforce management can further reduce labour costs.

Optimize Logistics During Peak Periods: Transportation costs peak during high-demand periods. M/S Shiv Shakti Traders should implement strategies like better route planning, bulk transportation deals, and leveraging technology for efficient load management. Data analytics can identify cost-saving opportunities, reducing transportation costs and improving delivery times.

Investigate Negative Profit Causes: Periods with negative profits need detailed analysis to identify causes. Reviewing cost structures, pricing strategies, sales volumes, and external factors can help manage costs. Implementing cost control measures and adjusting pricing strategies to ensure competitiveness while maintaining profitability is crucial.

Enhance Sales Efforts: Boosting sales during low-profit periods can improve profitability. Targeted marketing campaigns, customer engagement initiatives, and exploring new market opportunities can drive sales. Using data analytics to identify customer preferences and trends can tailor marketing efforts effectively.

Diversify Revenue Streams: Exploring new products or services, entering new markets, or developing partnerships can mitigate the impact of seasonal or market fluctuations. Diversifying revenue streams reduces dependency on a single product or market, spreading risk and enhancing business stability.

Continuous Monitoring: Regularly monitoring sales, profit, and cost data helps identify emerging trends and adjust strategies accordingly. Implementing a robust data analytics system

can provide real-time insights into business performance, aiding proactive decision-making. Continuous monitoring allows M/S Shiv Shakti Traders to stay ahead of market changes and respond to challenges promptly, driving profitability and growth.

Diversify Offerings with Complementary Businesses: Establish a fertilizer shop or partner with fertilizer suppliers and introduce a small kirana section. This will cater to the immediate needs of farmers and make M/s Shiv Shakti Traders a more attractive trading partner, similar to the successful models of competitors.

Leverage Technology for Real-Time Market Pricing: Implement systems for regularly checking online mandi and market prices, and train staff on using digital tools for accessing this information. This will ensure informed purchasing decisions and competitive pricing strategies, reducing reliance on delayed or inaccurate information from agents.

5 Conclusion

Implementing these recommendations will help M/S Shiv Shakti Traders enhance profitability, streamline operations, and ensure long-term sustainability in a competitive environment. Focusing on high-demand products, optimizing supply chains, diversifying offerings, and improving customer engagement are key strategies that will drive business success. By continuously monitoring and adjusting strategies based on data insights, the company can maintain its competitive edge and achieve its business objectives.