

# **Data-Driven Strategies for Revenue Growth and Utility Efficiency at Katraj Dairy**

**BDM Capstone Project**

Presented by Aishwarya Anil Menon

# About Katraj Dairy



- 1 Established in 1960, Katraj Dairy serves over 200,000 liters of milk daily.
- 2 Operates nine chilling plants and 131 bulk milk coolers across Pune district.
- 3 ISO 22000:2005 certified for quality, with modern pasteurization and packaging facilities.
- 4 Offers a wide range of products: buttermilk, shrikhand, paneer, and more across 150 outlets.

# Problem Statements (Objectives)

1

**Optimize Utility Consumption to Reduce Cost**

Utility costs, especially water and electricity, have been rising post-pandemic, cutting into profit margins.

2

**Develop Pricing Strategies to Maximize Revenue**

Static pricing for key products like buttermilk does not adjust for seasonal demand fluctuations.

3

**Improve Demand Forecasting**

Currently, Katraj Dairy lacks any formal demand forecasting tools, leading to inefficiencies in production and inventory management.

# Data Analysis Process

## Data Collection and Data Cleaning

- Collected sales, utility, and pricing data (FY 2019-24).
- Cleaned data; combined into one dataset.
- Added other factors such as seasons and quarters for deeper analysis.

## Descriptive Statistics

- Performed on overall sales data and each product individually.
- Calculated mean, median, mode, and variability for key products.
- Used statistical analysis to understand product performance and sales trends.

## Analysis and Insights

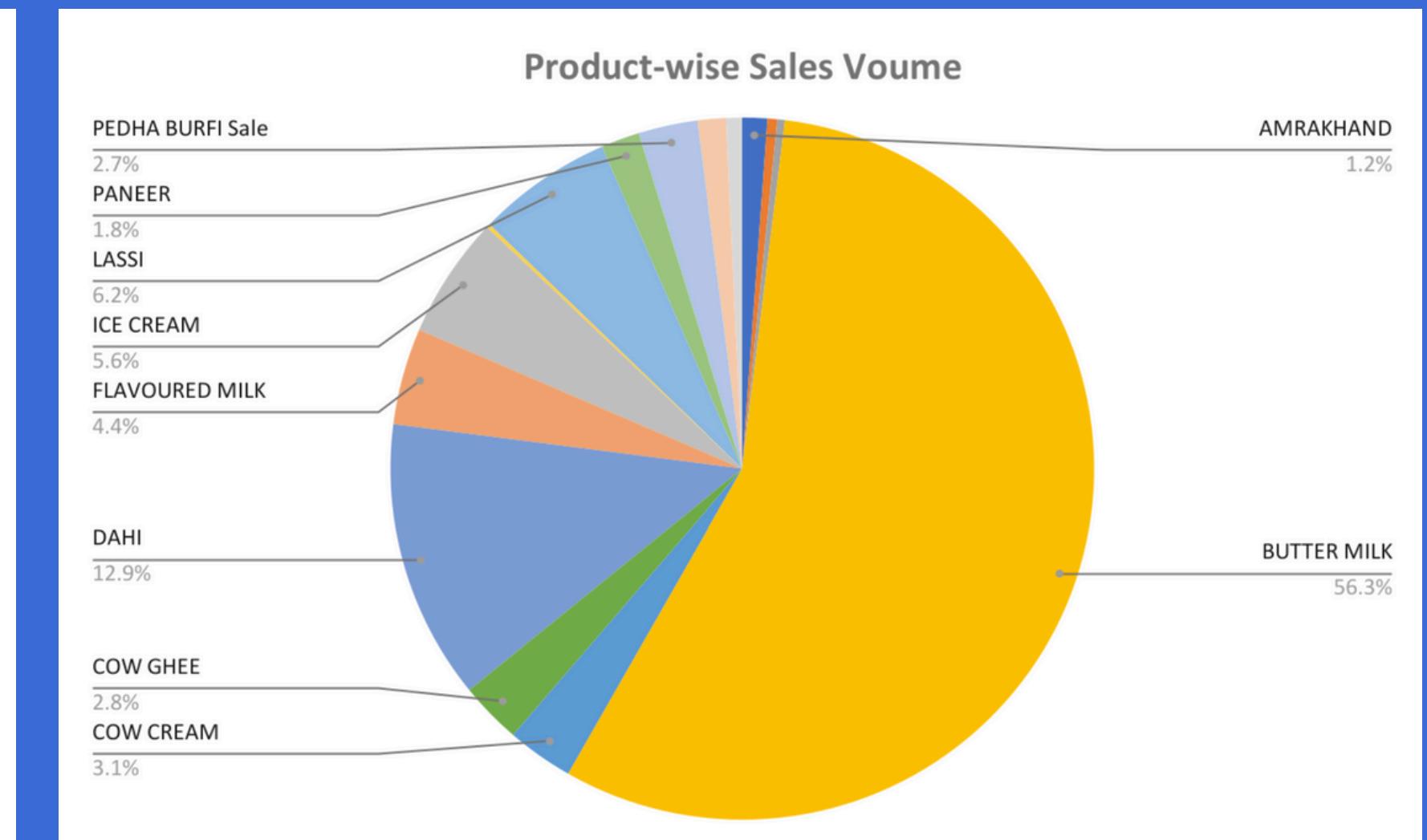
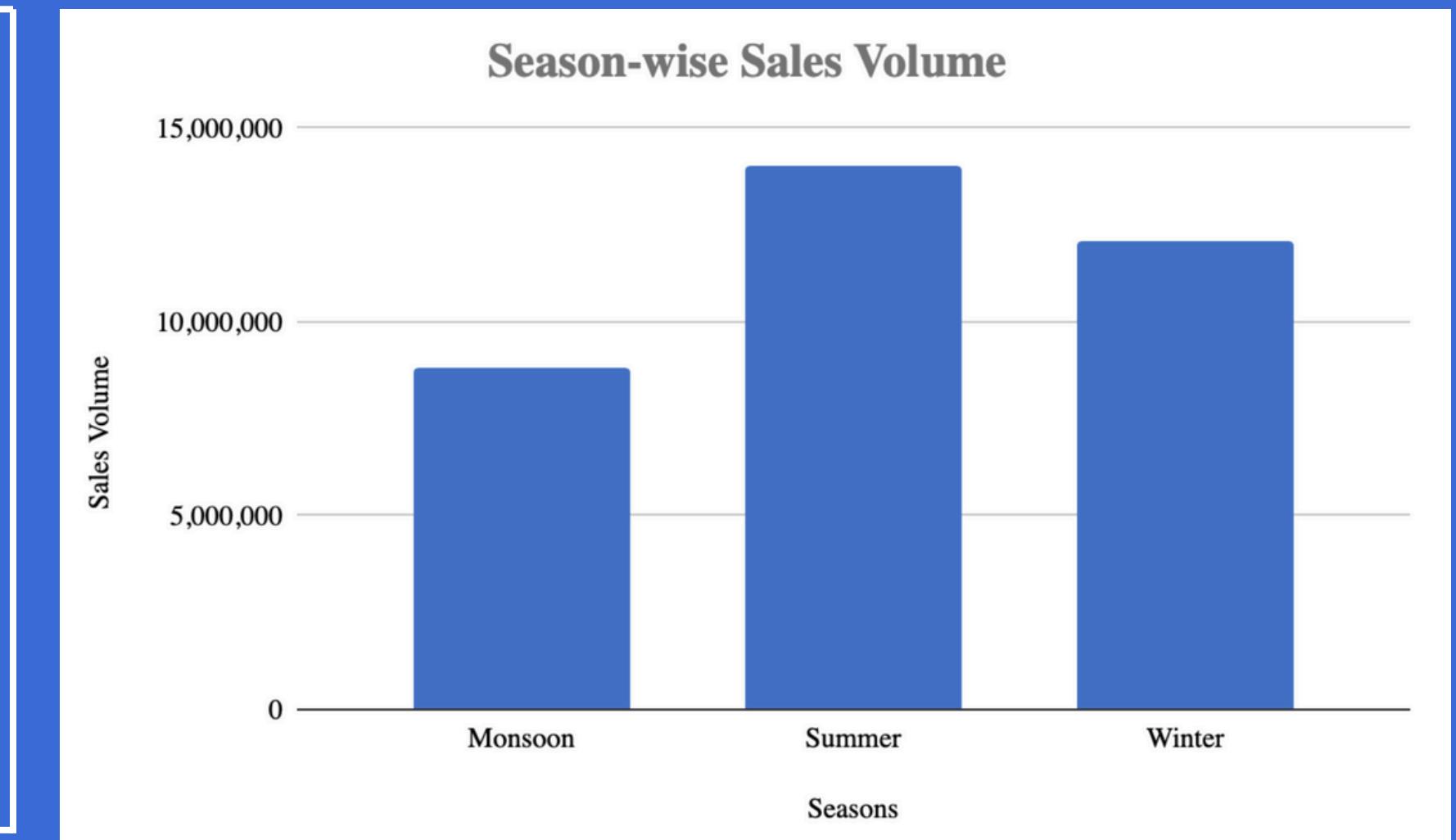
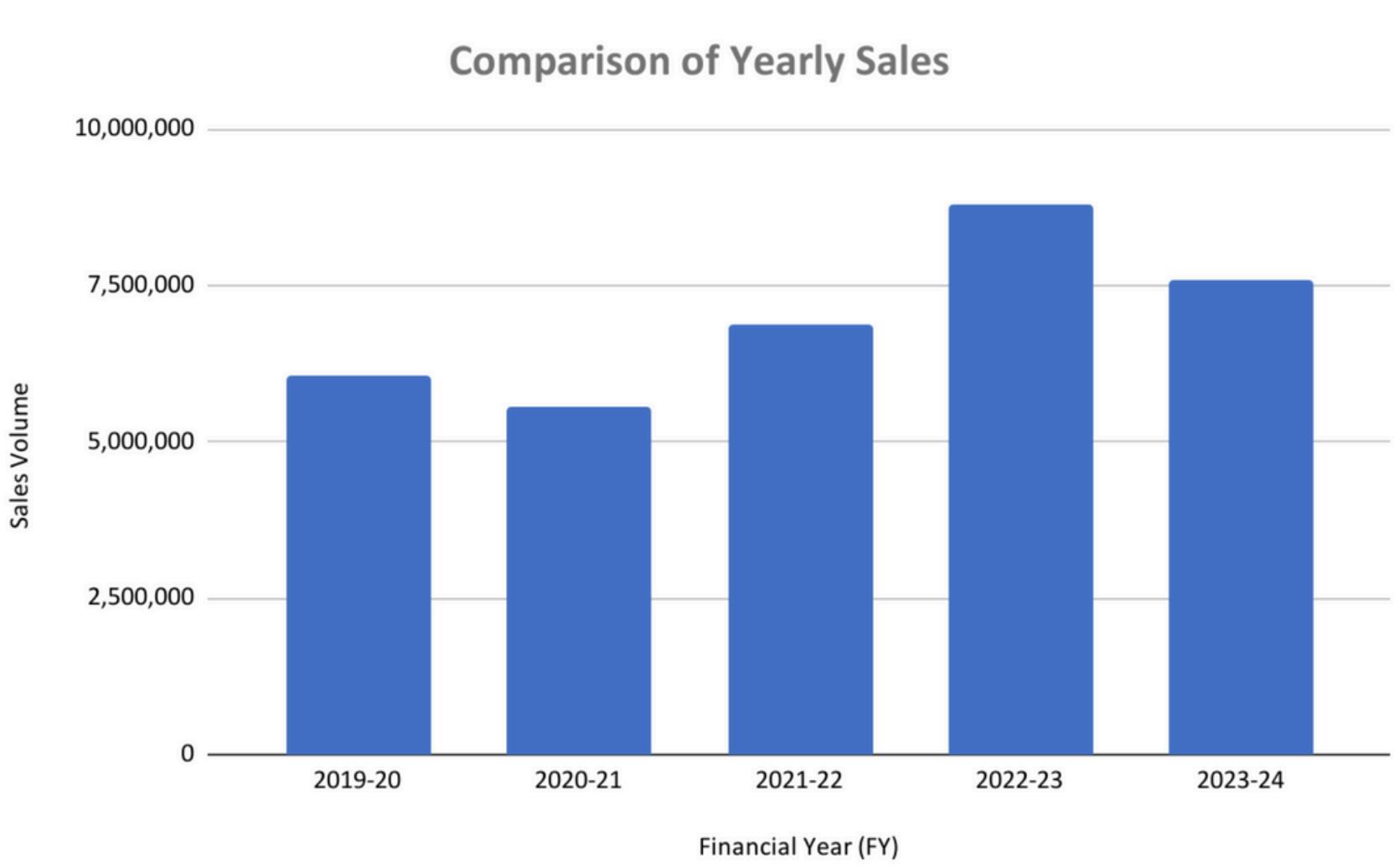
- Created visualizations to analyze sales patterns.
- Conducted Pareto analysis to identify top-performing products (buttermilk and dahi).
- Performed elasticity analysis to determine pricing strategies for buttermilk.
- Forecasted future sales using a simple ARIMA model to reduce stockouts.

## Findings and Recommendations

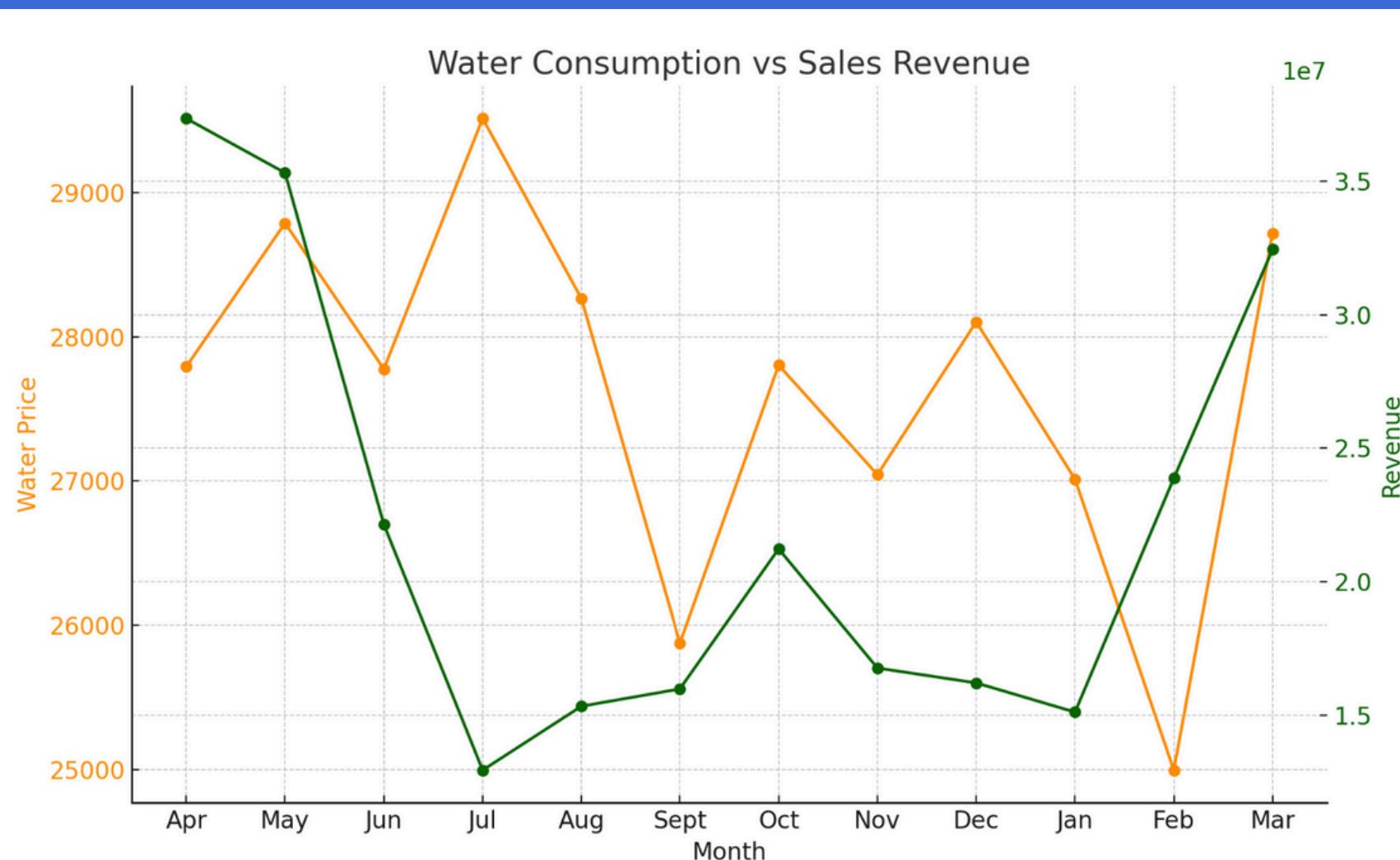
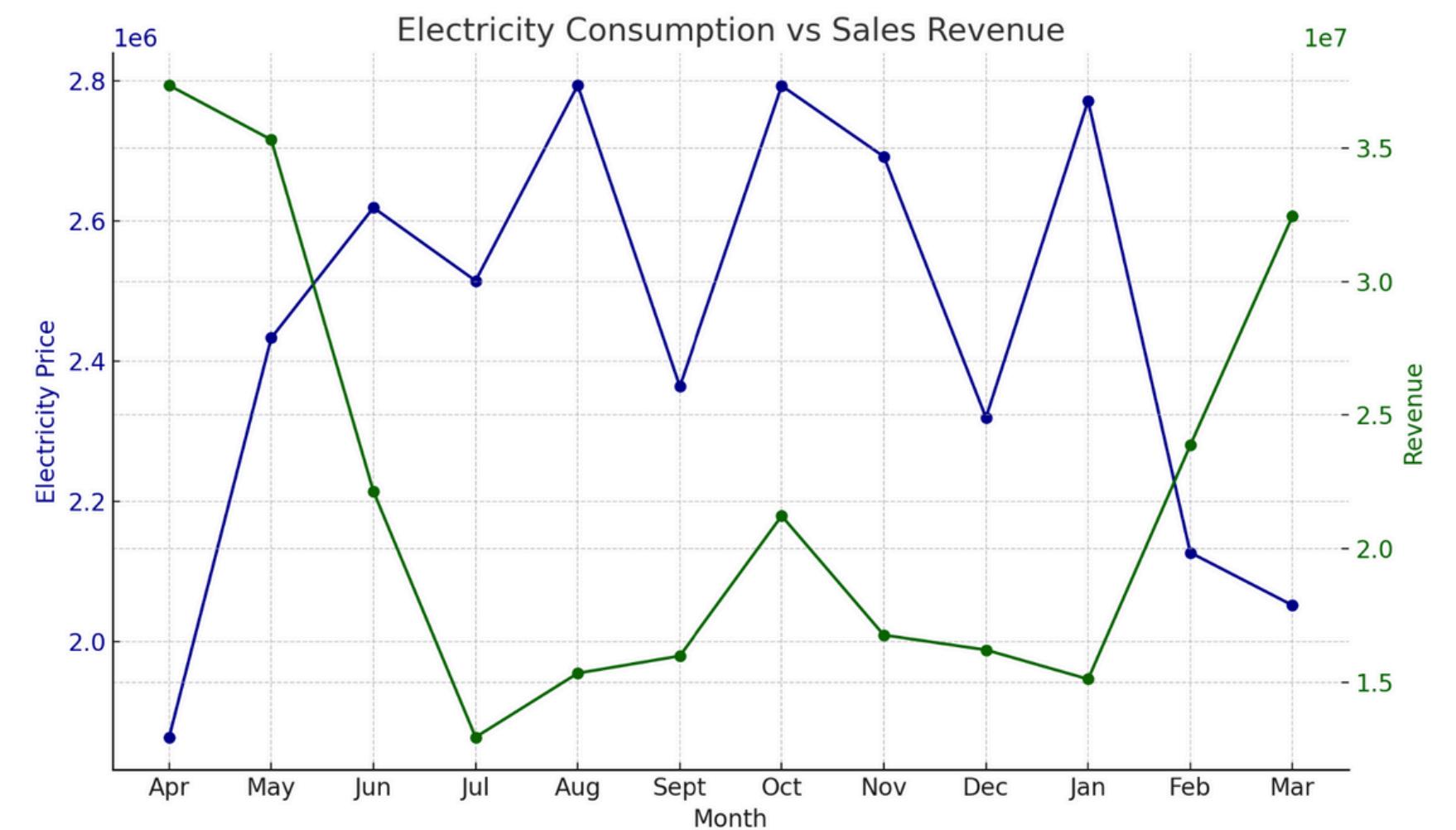
- Developed recommendations to address business problems.
- Shared with Katraj Dairy to track success and identify areas for improvement.

# Sales Performance

- Buttermilk & Dahi = 70% Sales
- Steady Sales Growth FY 2019–2024
- 25% Summer Spike for Buttermilk



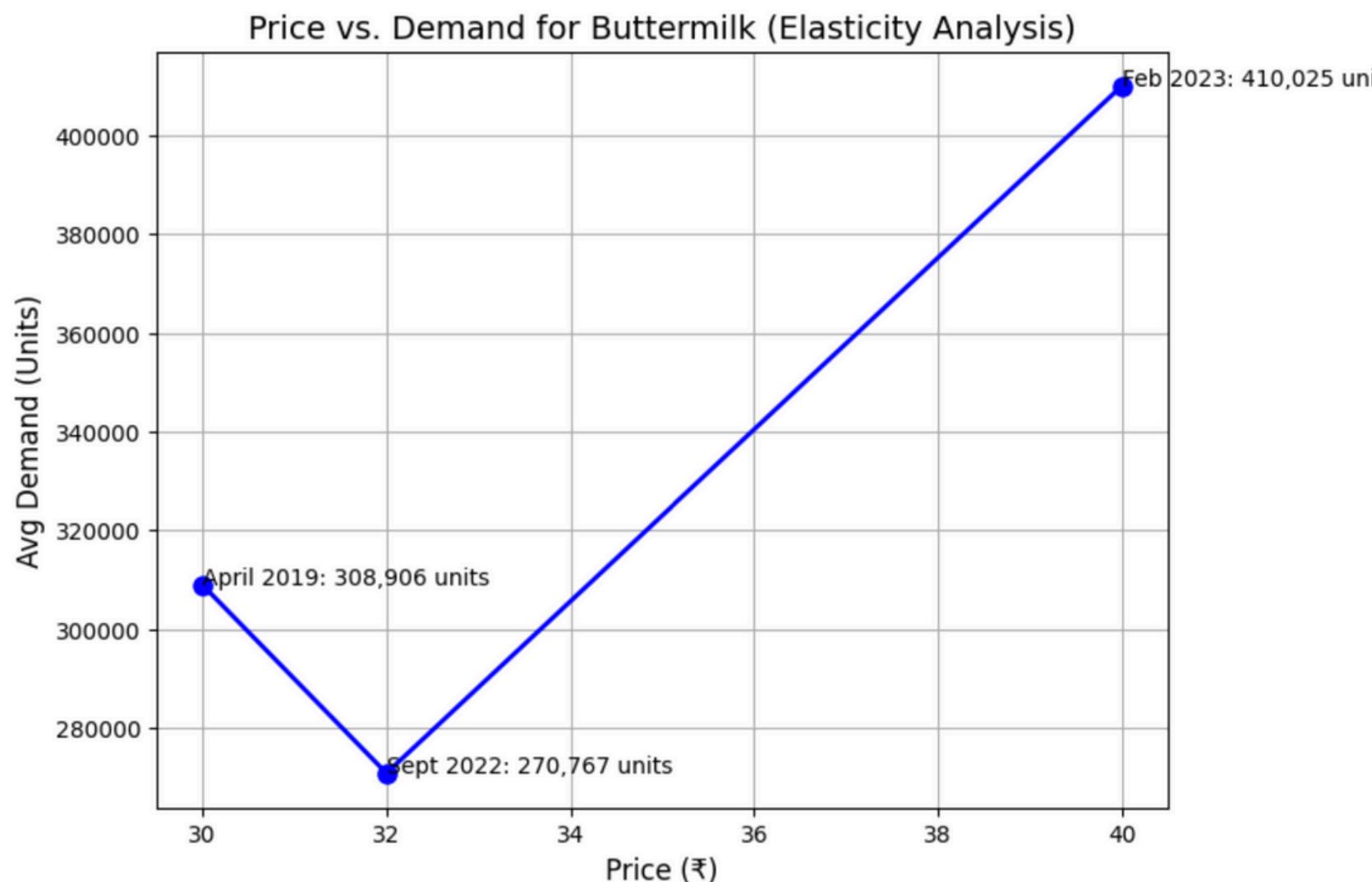
# Utility Consumption



- 15% Water Use Reduction (FY 2021-2023)
- Electricity Usage = No Drop in Sales
- Potential for Energy Optimization

# Elasticity and Pricing Insights

- Price Increase = 51% Sales Spike (Feb 2023)
- Seasonality Drives Sales
- Dynamic Pricing Opportunity



## Elasticity Between April 2019 and Sept 2022:

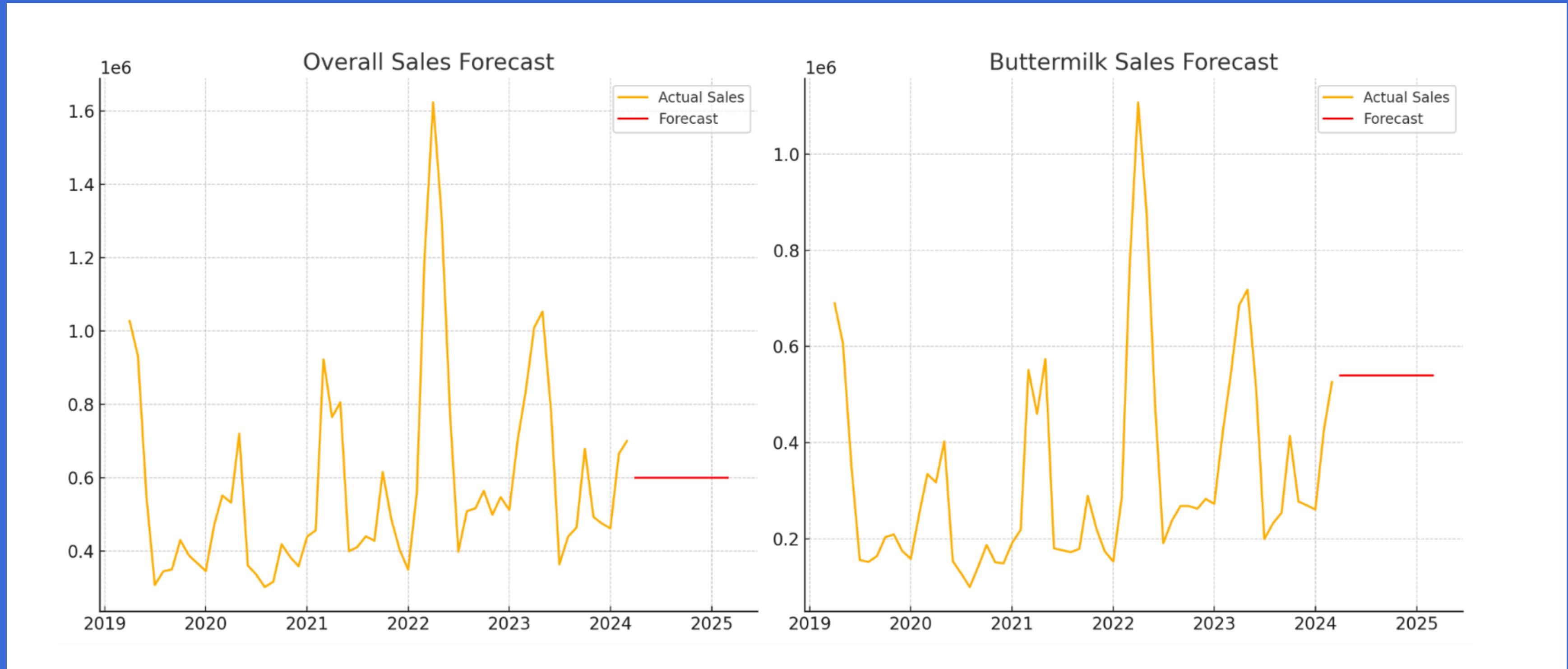
- Price change:  $\frac{32-30}{30} \times 100 = 6.67\%$
  - Quantity change:  $\frac{270,767.4 - 308,905.61}{308,905.61} \times 100 = -12.36\%$
- $$E_d = \frac{-12.36\%}{6.67\%} = -1.85$$

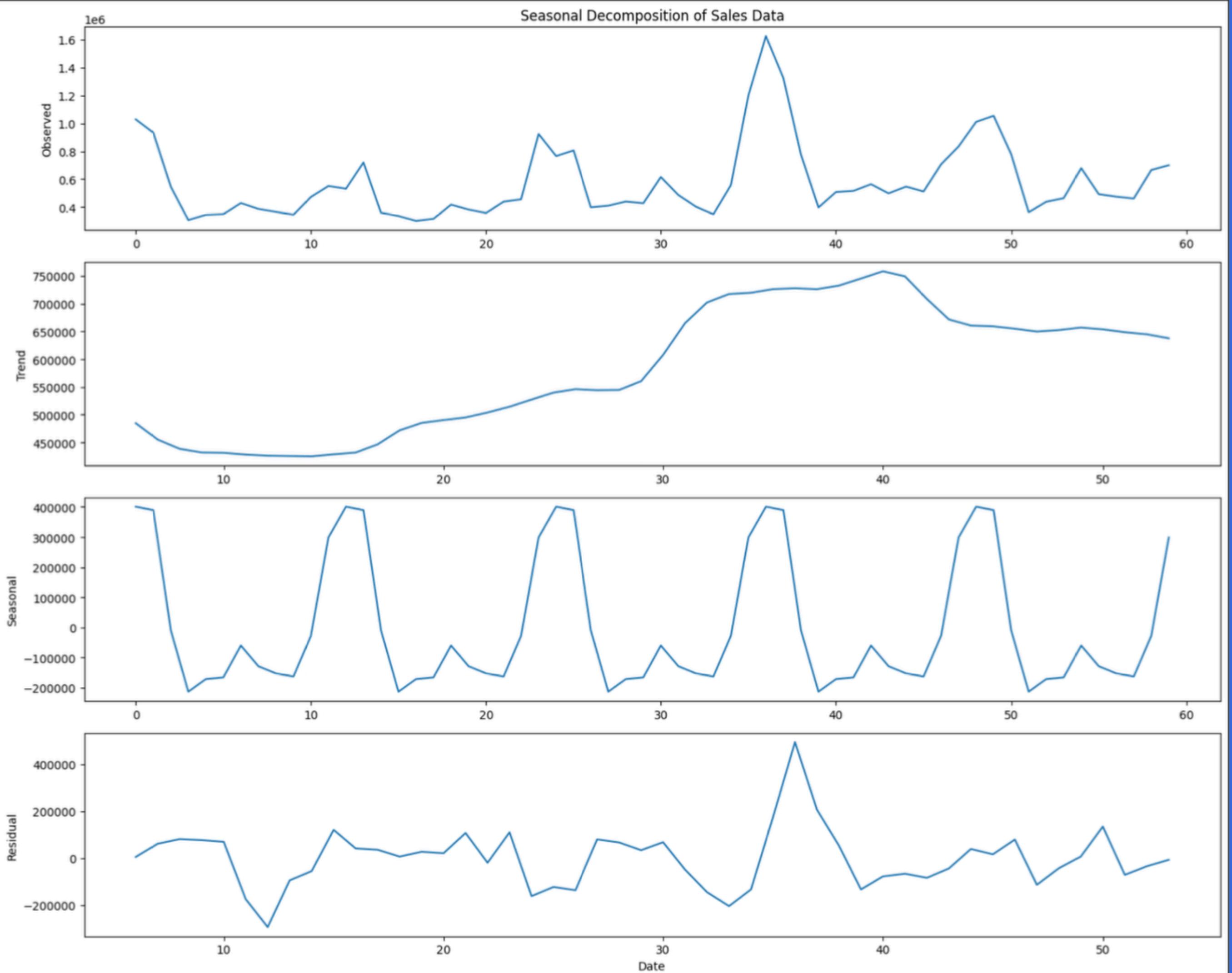
## Elasticity Between Sept 2022 and Feb 2023:

- Price change:  $\frac{40-32}{32} \times 100 = 25\%$
  - Quantity change:  $\frac{410,025.29 - 270,767.4}{270,767.4} \times 100 = 51.43\%$
- $$E_d = \frac{51.43\%}{25\%} = 2.06$$

# Forecasting and Seasonality

- 25% Buttermilk Sales Surge Forecast
- Steady Demand for Dahi
- Seasonality Drives Production Needs





# Recommendations

## Scale Production and Inventory for Buttermilk and Lassi in Summer

- Use historical data to forecast demand for April-June.
- Increase production capacity starting February.
- Hire temporary staff during peak production periods.
- Implement Zoho Inventory for real-time stock tracking.
- Use temperature-controlled zones for high-demand products.

## Implement Dynamic Pricing for Buttermilk During Peak Seasons

- Conduct pricing survey to understand demand sensitivity.
- Use elasticity analysis to adjust prices dynamically.
- Increase buttermilk prices by 5-10% (April to June).
- Apply seasonal pricing for lassi as well.
- Use automated pricing tools (e.g., Prisync, Wiser)

## Align Electricity Usage with Production Levels

- Invest in energy-efficient equipment (e.g., refrigeration units).
- Regular maintenance of current equipment.
- Install smart meters to track peak/off-peak usage.
- Shift non-critical tasks to off-peak hours.
- Explore renewable energy options (e.g., solar power).
- Negotiate with utility providers for lower off-peak rates.
- Prepare for 20% peak hour rate increase (by April 2025).

## Invest in Demand Forecasting Tools for Key Products

- Start with basic forecasting tools (Excel or ARIMA models).
- Implement AI-driven demand forecasting for accuracy.
- Conduct weekly demand reviews for real-time adjustments.
- Train staff on forecasting tools for better decision-making.

## Promote High-Margin Products During Off-Peak Months

- Run targeted campaigns.
- Distribute free samples to increase product awareness.
- Leverage social media (Instagram, Facebook) for marketing.
- Offer seasonal discounts and bundle deals.
- Create new product variants to attract more customers.