

Supply Chain Management System (Mirchi Management System) Report

Column Analysis

A review was conducted across all datasets (Procurement, Sales, Stock, Villages). The following were identified as critical for insights:

Dataset	Key Columns	Significance
Procurement	Date, Vendor, Village, Quantity, Rate per Bag, Total Amount	Tracks supplier Trends, procurements costs, and regional sourcing
Sales	Date, Buyer, Market, Quantity, Rate per Bag, Total Amount	Identifies revenue drivers, buyer behaviour, and pricing strategy
Stock	Opening, Received, Dispatched, Closing	Helps monitor inventory movement and supply chain efficiency
Villages	Village, District, Avg.Yield	Evaluates agricultural productivity and sourcing potential.

Data Cleaning Summary

- **Missing/Nulls:** Minor gaps in procurement rates handled by mean imputation.
- **Standardization:** Market and vendor names cleaned for consistency (case and spelling).
- **Conversions:** Quantity fields standardized as numeric; dates formatted uniformly.
- **Validation:** Procurement vs Sales cross-checked with Stock flows for accuracy.

Visualizations & Insights

Procurement Trends

- Vendors from Guntur and Krishna supplied **highest volumes**.
- Average procurement rate varied between ₹1,200–₹1,350 per bag.

Sales Analysis

- Key buyers: Spice Co. and Megamart.
- Highest sales volumes recorded in **Kolkata and Chennai markets**.

- Profit margins strongest where selling price exceeded procurement cost by ~15–20%.

Stock Movements

- Inventory dropped critically low (< 30 bags) on **5th Jan**, highlighting replenishment gaps.
- Dispatched stock volume peaked on **4th Jan (100 bags)**.

Village Productivity

- Highest yield: **Vinukonda (60 bags/month)**.
- Guntur district villages contribute a **majority of procurement volume**.

Key Takeaways

- Procurement is **concentrated in Guntur**, suggesting supplier dependency risk.
- Sales revenue is **market-dependent**, with strong demand from **eastern metro markets**.
- Inventory showed **supply chain bottlenecks**, requiring better planning to avoid stock-outs.
- Village-level yield analysis shows **Vinukonda and Vijayawada** as high-potential sourcing hubs.