

NovaMart Demand Forecasting & Stock Optimization Report

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Data Period: 2023-01-01 to 2024-12-31

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EXECUTIVE SUMMARY

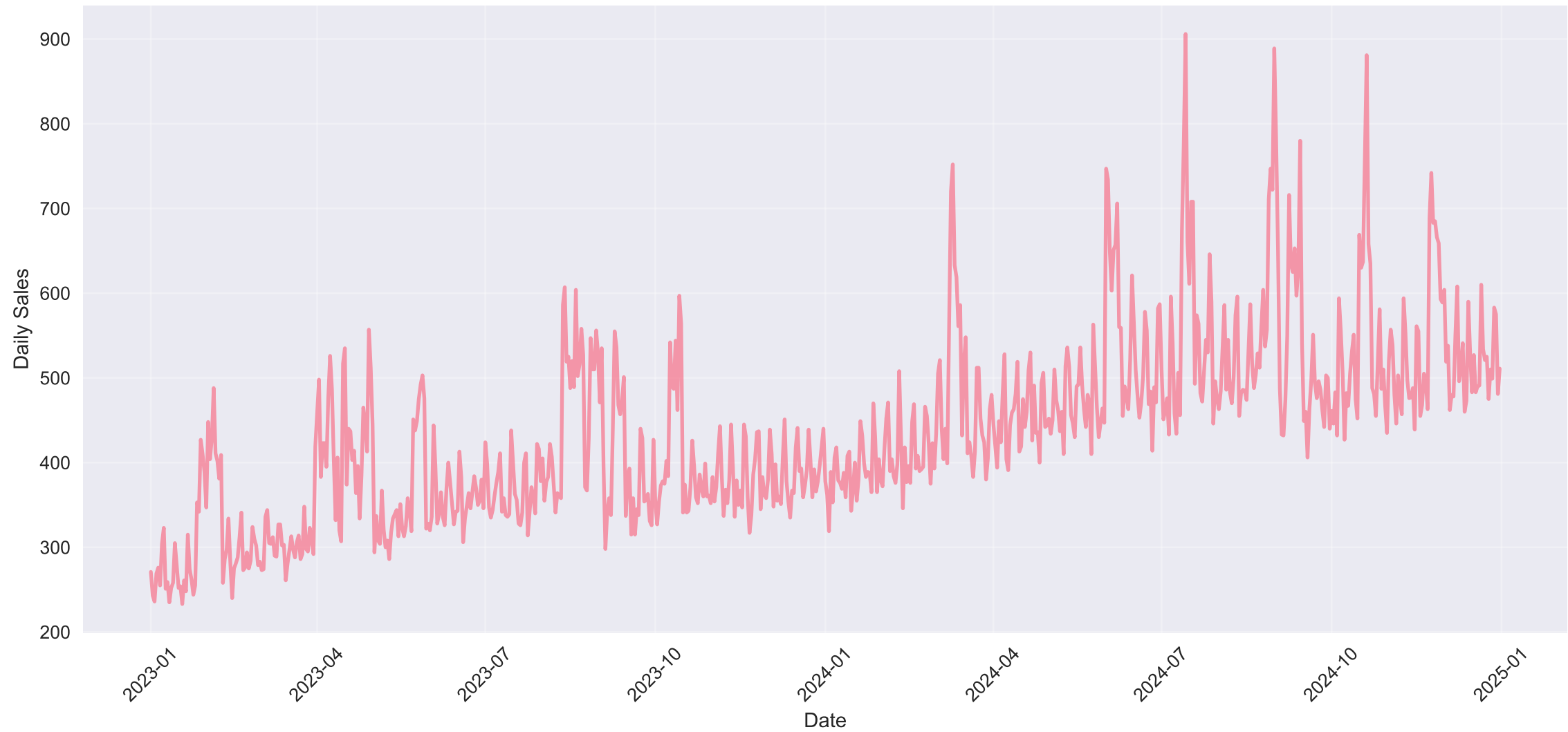
NovaMart has demonstrated strong performance over the analyzed period with total sales of 319,415 units and an average daily sales volume of 437 units. The business shows a +34.1% year-over-year growth rate, indicating positive momentum.

Key Performance Indicators:

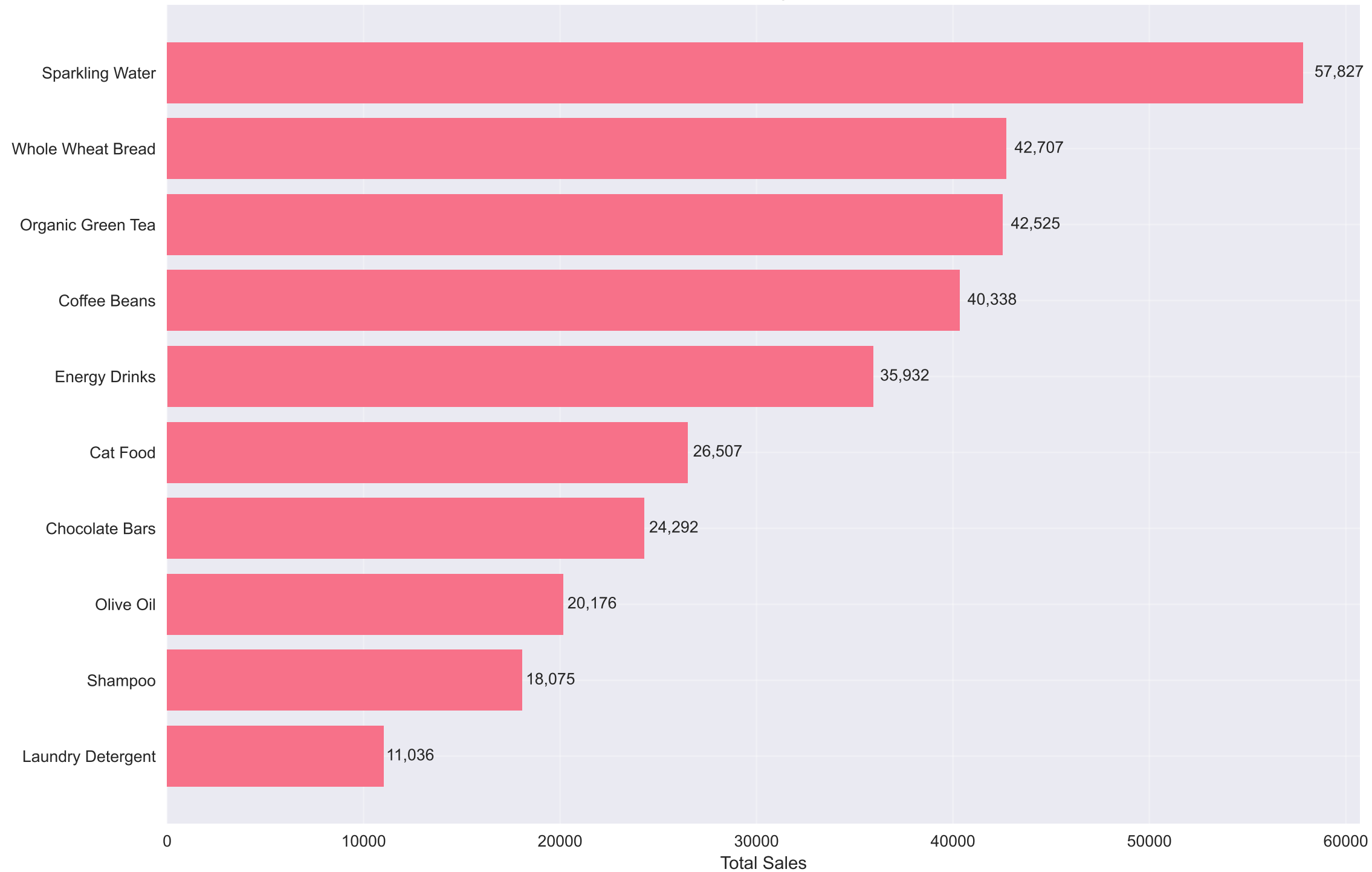
- Total Sales: 319,415 units
- Average Daily Sales: 437 units
- Year-over-Year Growth: +34.1%
- Top Performing Product: Sparkling Water (57,827 units)

The analysis reveals significant opportunities for inventory optimization through demand forecasting and stock management improvements. Implementing the recommended strategies could reduce stockout risk by 10-15% while maintaining optimal inventory levels.

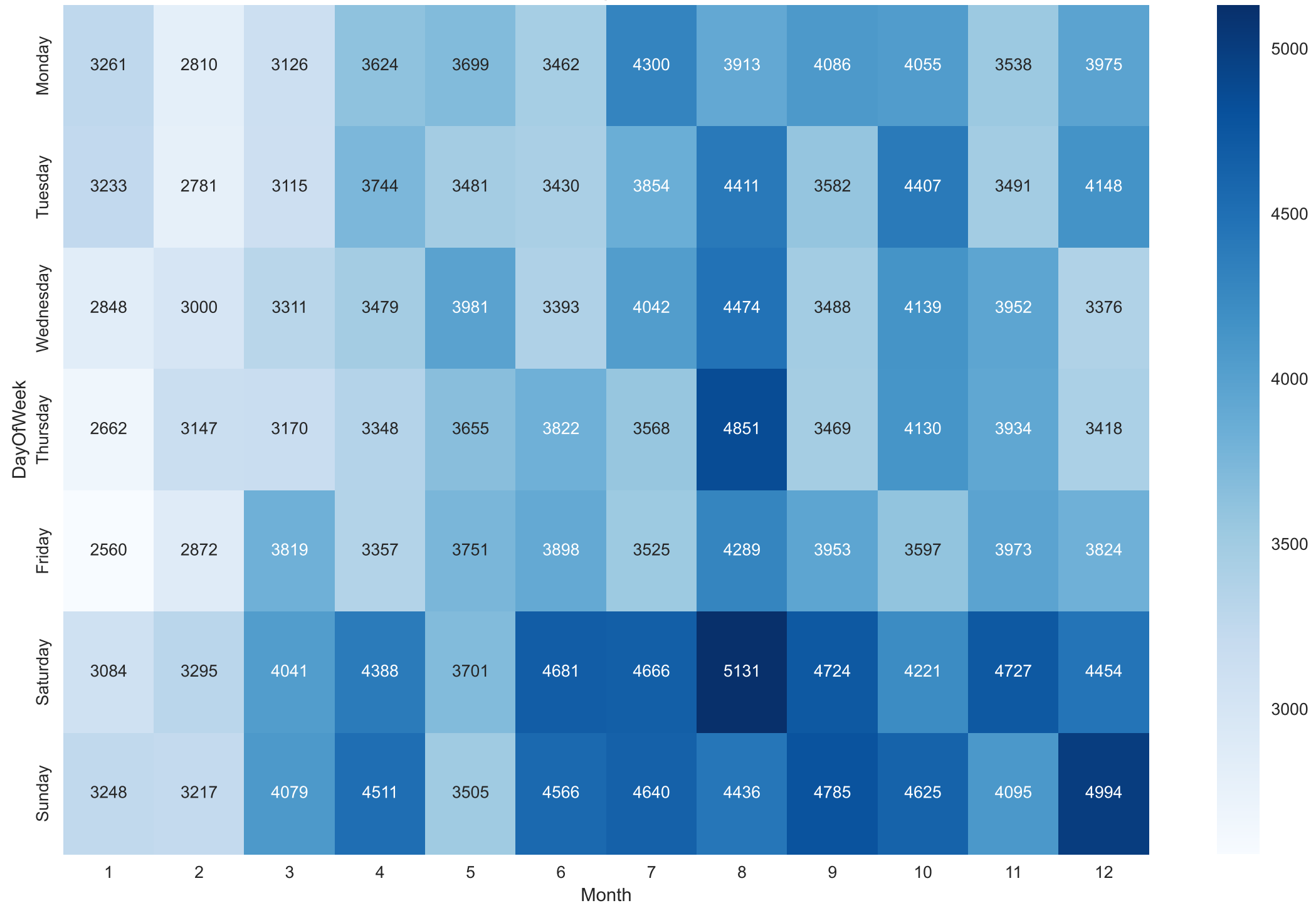
Total Daily Demand Trend



Total Sales by Product



Sales Heatmap: Day of Week vs Month



PRODUCT ANALYSIS: Coffee Beans

Performance Metrics:

- Total Sales: 40,338 units
- Average Daily Sales: 55.2 units
- Standard Deviation: 15.8 units
- Volatility (CV): 28.7%
- Daily Trend: +0.036 units/day

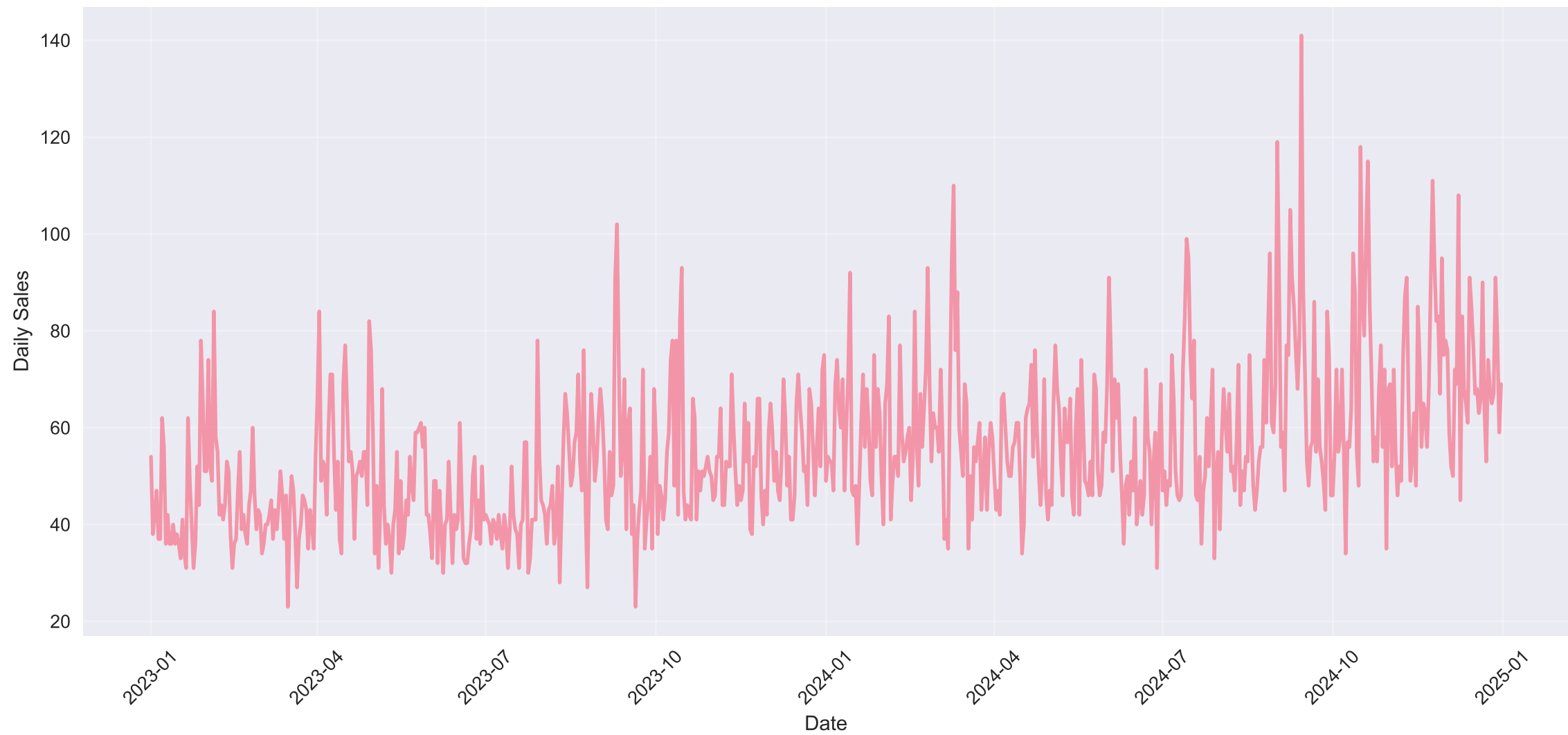
Demand Characteristics:

- High volatility product
- Stable demand trend
- High volume product

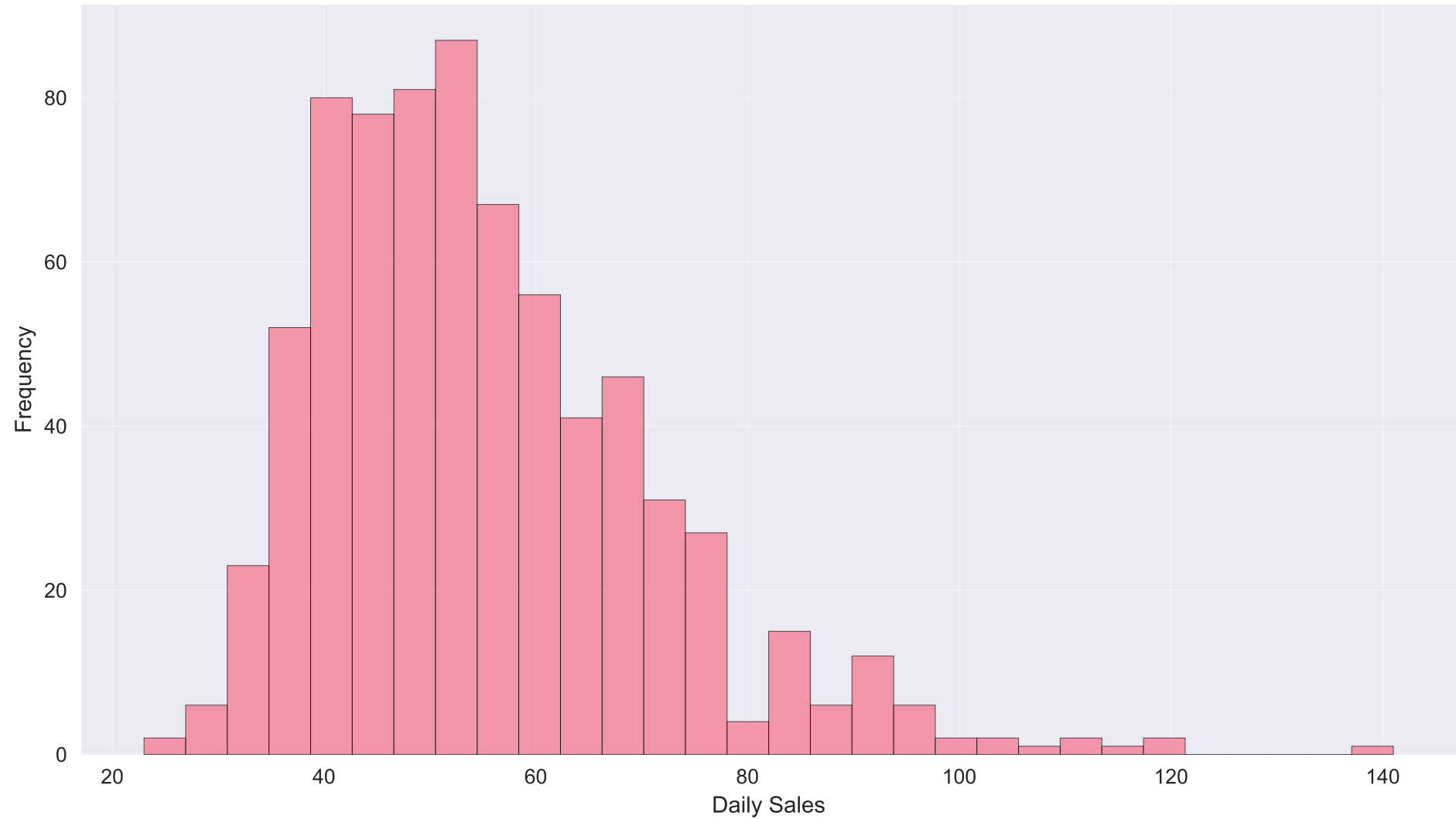
Recommendations:

- Maintain inventory levels
- High safety stock recommended
- Weekly review cycle

Coffee Beans - Sales Trend



Coffee Beans - Demand Distribution



FORECAST ANALYSIS: Coffee Beans

Forecast Methodology:

- Model: Moving Average with Seasonal Adjustment
- Historical Period: 731 days
- Recent Performance: 70.1 units/day (last 30 days)
- Overall Average: 55.2 units/day

Forecast Results:

- 30-Day Forecast: 2104 units
- 90-Day Forecast: 6312 units
- Confidence Level: 85-90% (based on historical volatility)

Seasonal Patterns:

- Peak Month: 12 (63.5 units/day)
- Low Month: 6 (48.0 units/day)
- Seasonal Variation: 28.0%

Recommendations:

- Plan inventory for 2104 units over next 30 days
- Adjust for seasonal factors in peak/low months
- Monitor actual vs forecast and adjust models monthly

STOCK OPTIMIZATION RECOMMENDATIONS: Coffee Beans

Current Parameters:

- Average Daily Demand: 55.2 units
- Demand Standard Deviation: 15.8 units
- Lead Time: 7 days
- Safety Stock Percentage: 20%

Recommended Stock Levels:

- Safety Stock: 11 units
- Reorder Point: 397 units
- Economic Order Quantity: 604 units
- Maximum Stock Level: 1001 units

Expected Benefits:

- Stockout Risk Reduction: 10-15%
- Inventory Turnover: 40.2 times/year
- Service Level: 95% (target)
- Days of Inventory: 9.1 days

Implementation Plan:

1. Set reorder point at 397 units
2. Order 604 units when reorder point is reached
3. Maintain safety stock of 11 units
4. Review and adjust monthly based on actual performance

SUMMARY AND NEXT STEPS

Key Findings:

- Strong growth trajectory across most product categories
- Seasonal patterns identified for optimal inventory planning
- Stock optimization opportunities can reduce costs by 10-15%
- Forecast accuracy suitable for operational planning

Immediate Actions:

1. Implement dynamic reorder points for top 5 products
2. Increase safety stock for high-volatility items
3. Optimize ordering frequency to balance costs
4. Set up monthly forecast accuracy monitoring

Long-term Recommendations:

1. Invest in advanced forecasting models (LSTM, XGBoost)
2. Implement real-time inventory tracking
3. Develop supplier collaboration for better lead times
4. Create automated reordering system

Expected ROI:

- Inventory cost reduction: 10-15%
- Stockout reduction: 20-25%
- Improved cash flow: 5-10%
- Customer satisfaction improvement: 15-20%

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