Monthly Analysis Report for 2025-03

CO2 Analysis

Year: 2025

Month: 3

Statistics: {'Mean CO2': np.float64(8267.67), 'Median CO2': np.float64(8336.5), 'Standard Deviation': np.float64(1583.79), 'Min CO2': np.float64(3890.0), 'Max CO2': np.float64(12215.0)}

Diurnal Variations: {'Daytime Mean CO2': np.float64(8267.65), 'Nighttime Mean CO2': np.float64(8267.69), 'Daytime Variability': np.float64(1646.18), 'Nighttime Variability': np.float64(1530.03)}

Trends: {'Weekly Trend': {Timestamp('2025-03-02 00:00:00'): 6253.0, Timestamp('2025-03-09 00:00:00'): 7748.05, Timestamp('2025-03-16 00:00:00'): 8565.09, Timestamp('2025-03-23 00:00:00'): 8591.29, Timestamp('2025-03-30 00:00:00'): 8472.29}, 'Daily Trend': {Timestamp('2025-03-01 00:00:00'): 6096.5, Timestamp('2025-03-02 00:00:00'): 6440.8, Timestamp('2025-03-03 00:00:00'): 7703.5, Timestamp('2025-03-04 00:00:00'): 6270.33, Timestamp('2025-03-05 00:00:00'): 7657.11, Timestamp('2025-03-06 00:00:00'): 7673.0, Timestamp('2025-03-07 00:00:00'): 7661.0, Timestamp('2025-03-08 00:00:00'): 7711.6, Timestamp('2025-03-09 00:00:00'): 8845.5, Timestamp('2025-03-10 00:00:00'): 9750.5, Timestamp('2025-03-11 00:00:00'): 10277.67, Timestamp('2025-03-12 00:00:00'): 8353.8, Timestamp('2025-03-13 00:00:00'): 8180.25, Timestamp('2025-03-14 00:00:00'): 7904.33, Timestamp('2025-03-15 00:00:00'): 7378.33, Timestamp('2025-03-16 00:00:00'): 8203.83, Timestamp('2025-03-17 00:00:00'): 8358.6, Timestamp('2025-03-18 00:00:00'): 8966.0, Timestamp('2025-03-19 00:00:00'): 8103.43, Timestamp('2025-03-20 00:00:00'): 8846.67, Timestamp('2025-03-21 00:00:00'): 9042.17, Timestamp('2025-03-22 00:00:00'): 8256.71, Timestamp('2025-03-23 00:00:00'): 8788.67, Timestamp('2025-03-24 00:00:00'): 8907.0, Timestamp('2025-03-25 00:00:00'): 6849.75, Timestamp('2025-03-26 00:00:00'): 8690.62, Timestamp('2025-03-27 00:00:00'): 9262.25, Timestamp('2025-03-28 00:00:00'): 9575.0, Timestamp('2025-03-29 00:00:00'): 8672.47, Timestamp('2025-03-30 00:00:00'): 8471.57}}

Anomalies: [{'record': 4364.0}, {'record': 3890.0}, {'record': 4842.0}, {'record': 4974.0}, {'record': 4740.0}, {'record': 11891.0}, {'record': 11856.0}, {'record': 12215.0}, {'record': 11996.0}]

Weight Analysis

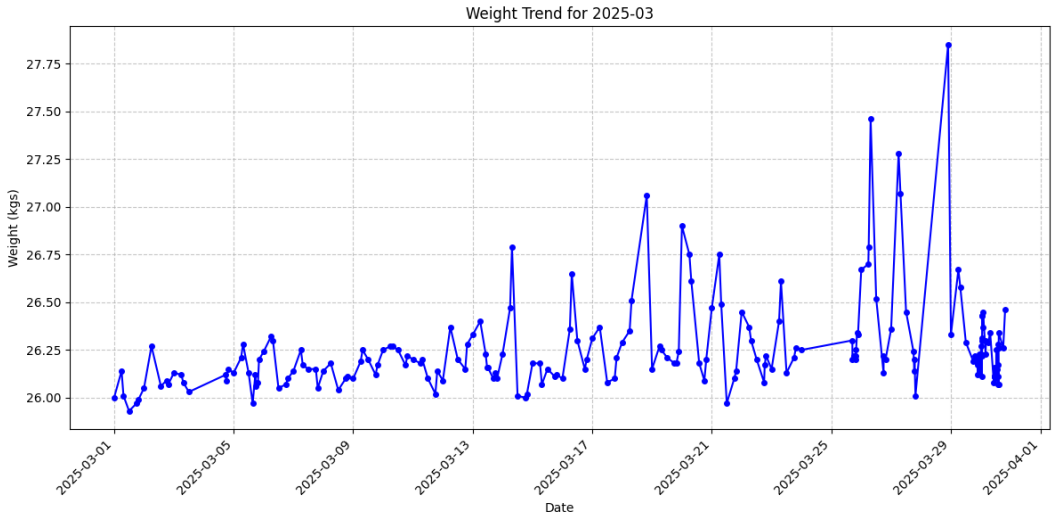
Year: 2025

Month: 3

Statistics: {'Maximum Weight': np.float64(27.85), 'Minimum Weight': np.float64(25.93), 'Mean Weight': np.float64(26.25)}

Daily Weight Fluctuations: [{'min': 26.13, 'max': 27.46, 'mean': 26.58625, 'fluctuation_range': 1.3300000000000018}, {'min': 26.01, 'max': 27.28, 'mean': 26.46875, 'fluctuation_range': 1.2699999999999996}]

Hourly Patterns: {'Daytime Mean Weight': np.float64(26.3), 'Nighttime Mean Weight': np.float64(26.22)}



Temperature Analysis

Year: 2025

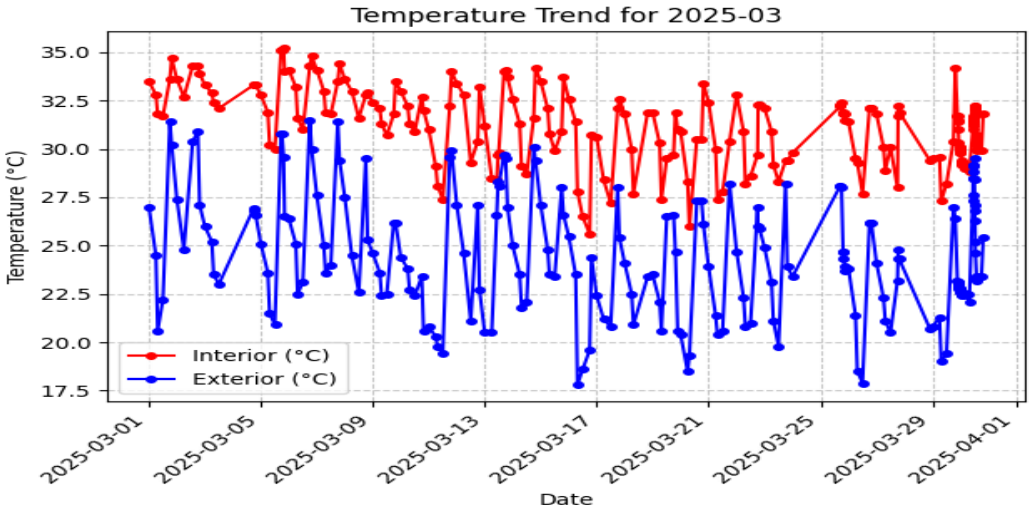
Month: 3

Temperature Statistics: {'Exterior': {'Lowest': np.float64(17.8), 'Highest': np.float64(31.5), 'Average': np.float64(24.4)}, 'Interior': {'Lowest': np.float64(25.6), 'Highest': np.float64(35.2), 'Average': np.float64(31.2)}}

Standard Deviation: {'Exterior': np.float64(3.1), 'Interior': np.float64(1.9)}

Correlation: {'Coefficient (r)': np.float64(0.73), 'p-value': np.float64(0.0)}

has_plot: True



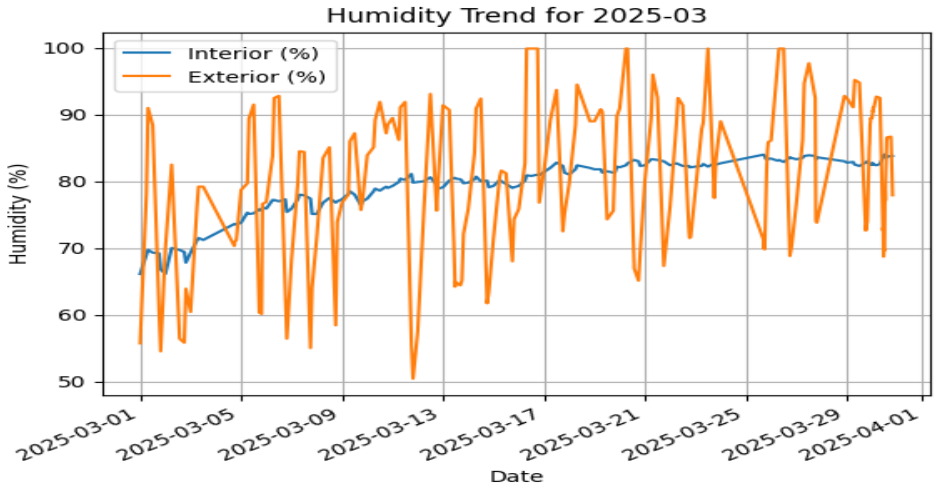
Humidity Analysis

Year: 2025

Month: 3

Humidity Insights: {'Interior Humidity (%)': {'Average': np.float64(80.21), 'Min': np.float64(66.1), 'Max': np.float64(84.0), 'Standard Deviation': np.float64(4.04), 'Range': np.float64(17.900000000000006)}, 'Exterior Humidity (%)': {'Average': np.float64(80.6), 'Min': np.float64(50.4), 'Max': np.float64(99.9), 'Standard Deviation': np.float64(11.3), 'Range': np.float64(49.50000000000001)}}

Correlation Analysis: {'Interior Humidity vs Interior Temperature (°C)': np.float64(nan), 'Exterior Humidity vs Exterior Temperature (°C)': np.float64(nan), 'Interior Humidity vs Hive Weight (kg)': np.float64(0.3230715175454499), 'Exterior Humidity vs Hive Weight (kg)': np.float64(0.46715960457397154)}



Correlation Analysis

CO■ vs Weight: Pearson: nan, Spearman: nan

Temperature vs Weight: Pearson: nan, Spearman: nan

Humidity vs Weight: Pearson: nan, Spearman: nan

Plot not found: combined_trends.png

Plot not found: correlation_heatmap.png