



GlobeHarvest
Co.

Presentation 2024

OPTIMIZING SOURCING AND PRICING STRATEGIES

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Introduction

GlobeHarvest Co. is an upcoming import-export firm set to venture into Kenya's agricultural market. With a focus on data-driven strategies, it aims to optimize its sourcing and pricing to gain a competitive edge. Through data analytics, GlobeHarvest aims to understand market dynamics, consumer preferences, and pricing trends, enabling informed decision-making for maximum profitability.



Business Understanding

Kenya's agricultural market holds great promise for GlobeHarvest Co., but it comes with challenges like sourcing, timing purchases, and pricing competitively across diverse regions. To thrive, GlobeHarvest needs to grasp market dynamics, consumer behavior, and competition, optimizing procurement and pricing strategies accordingly.



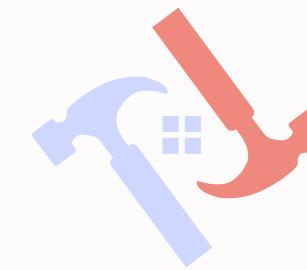
OBJECTIVES

Introducing the company's main objectives.



Identify Cost-Effective Sourcing Locations

Identify regions in Kenya that offer the most cost-effective sourcing opportunities for various food commodities.



Strategically Time Purchases

Determine the optimal timing for purchasing specific commodities, considering seasonal trends and market dynamics.



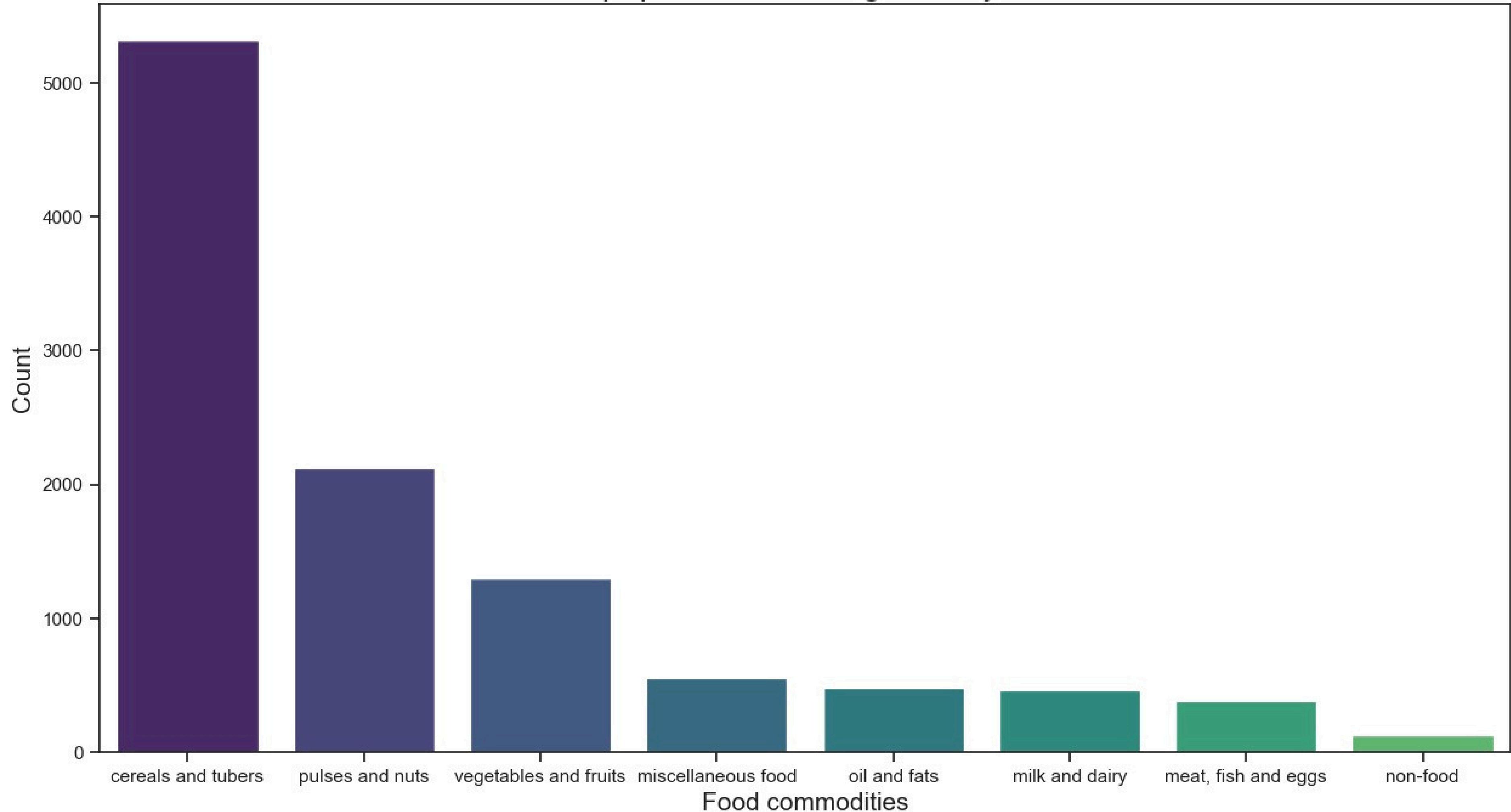
Navigate Price Variabilities

Develop strategies to navigate price variabilities across different regions in Kenya, ensuring competitive pricing and maximizing profitability.

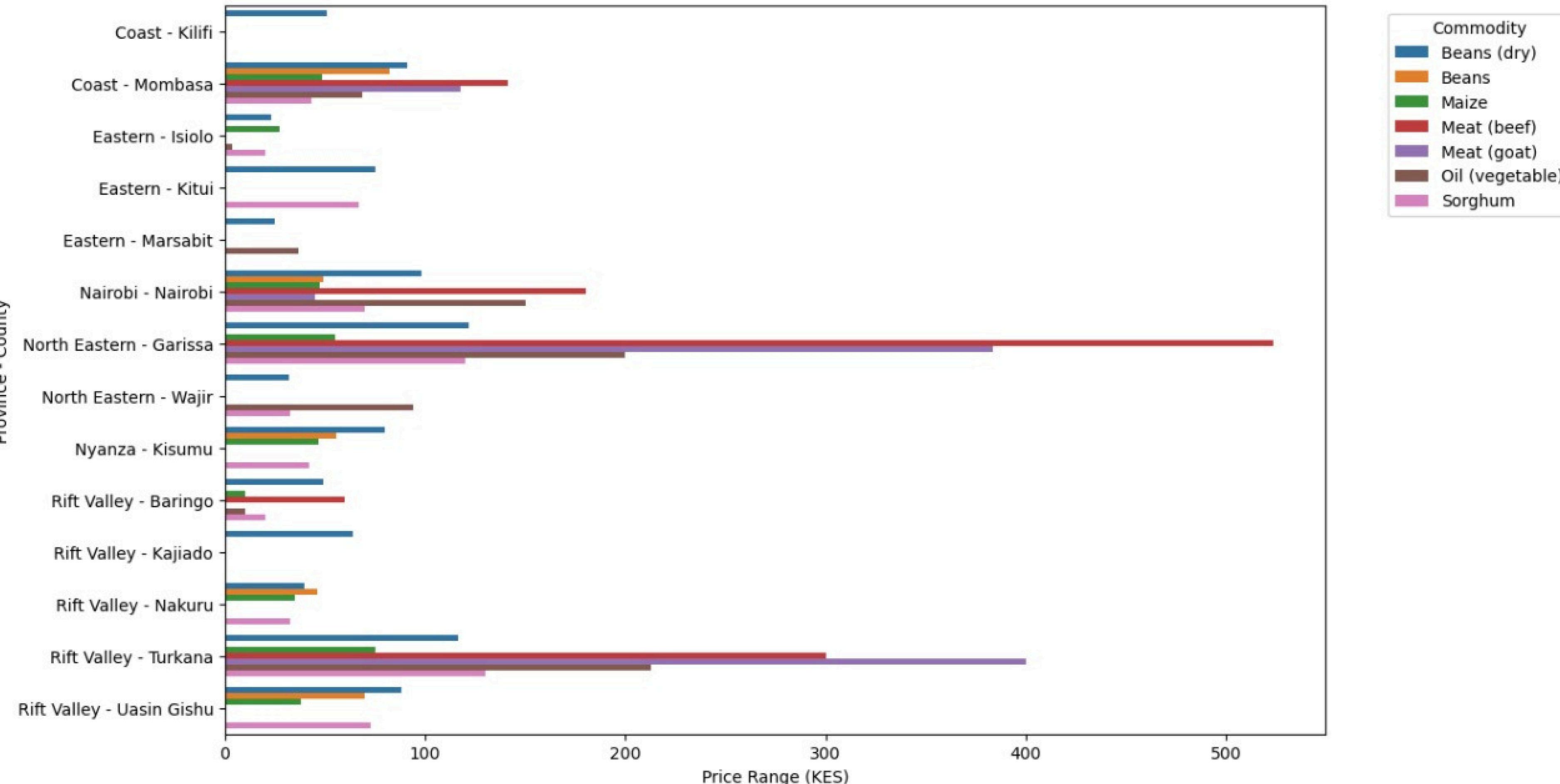
EXPLORATORY DATA ANALYSIS

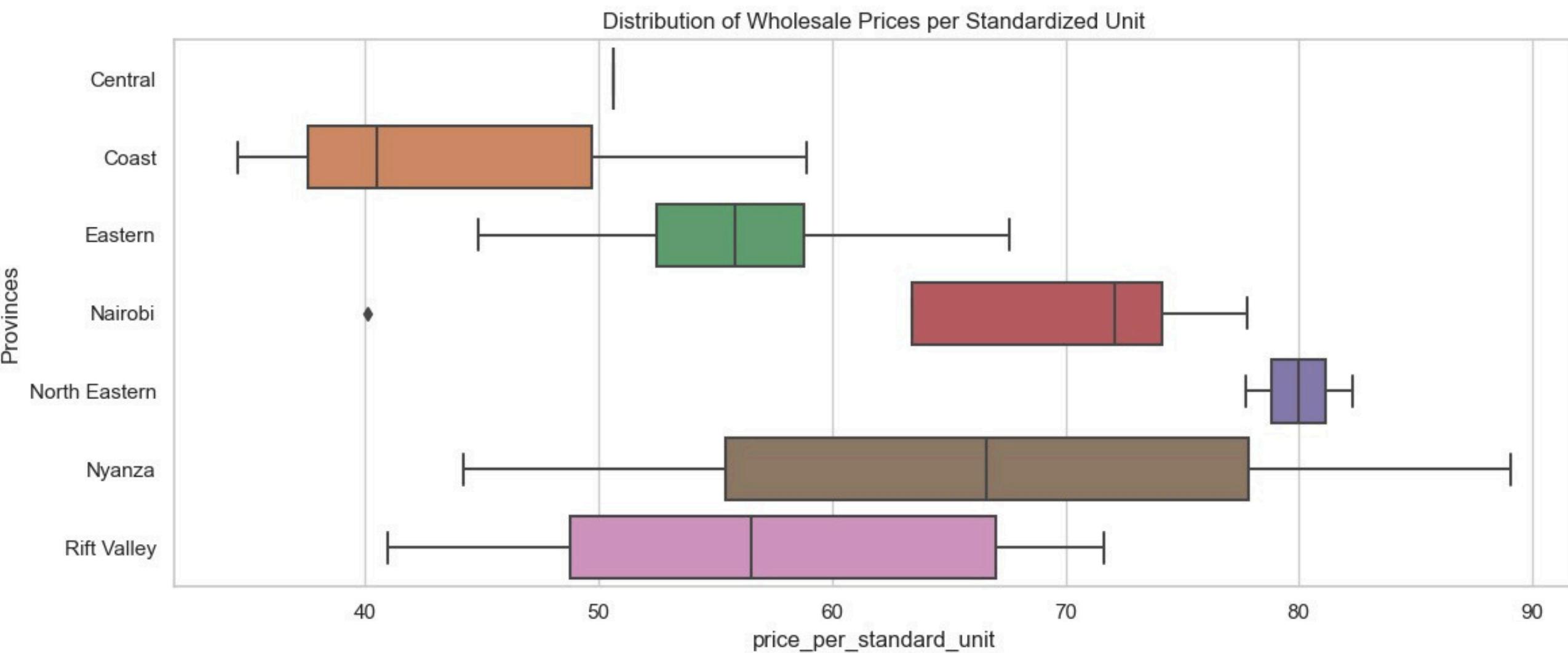
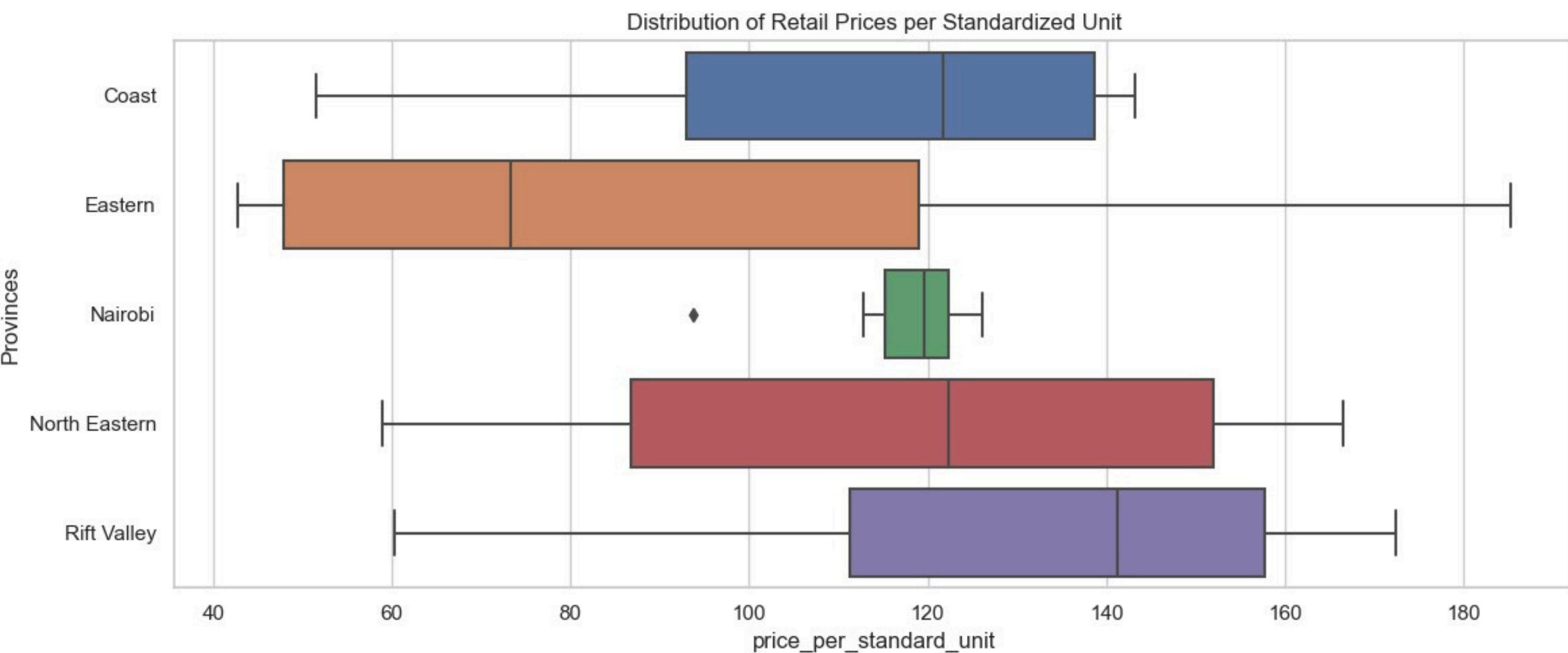


Most popular food categories by count

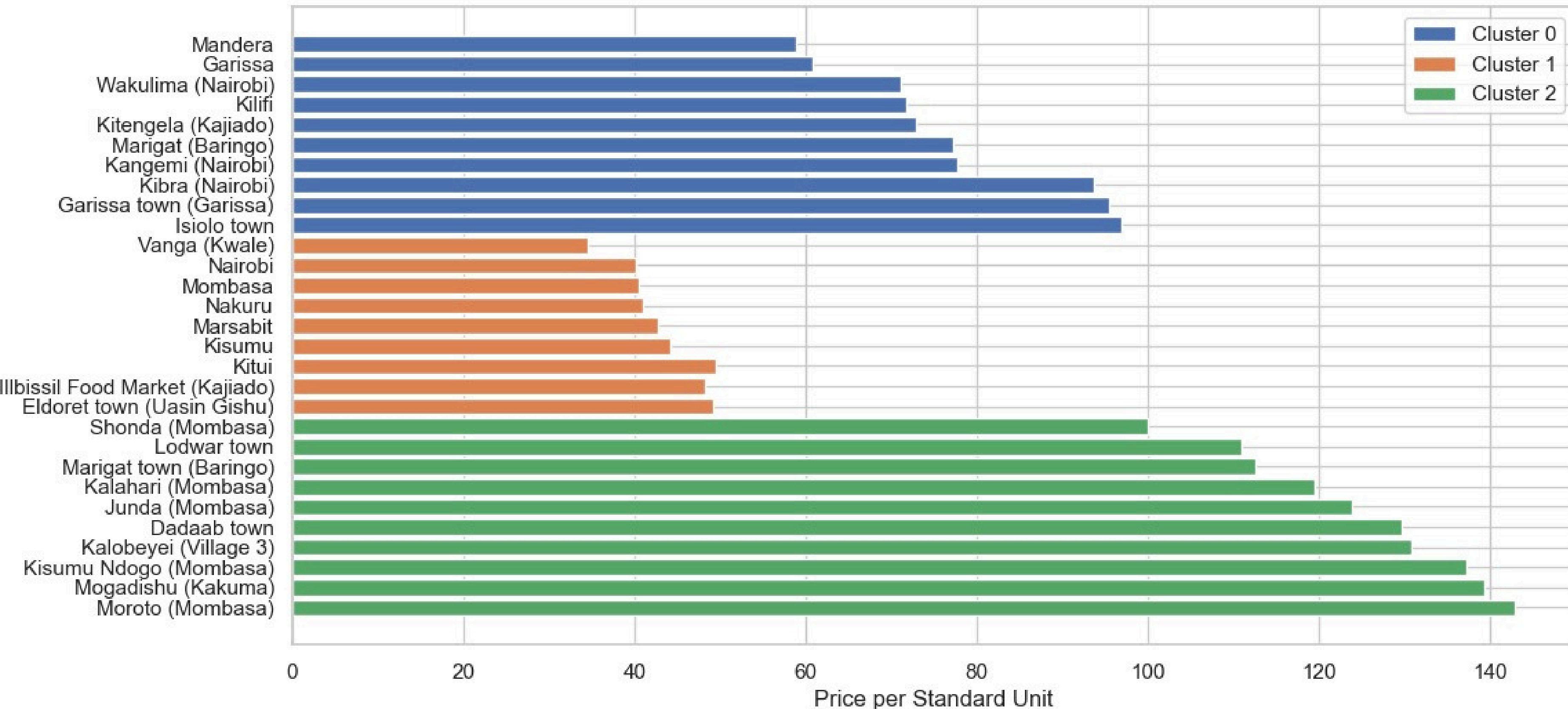


Price Range of Selected Commodities Across Geographical Segments





Markets with Lowest Prices

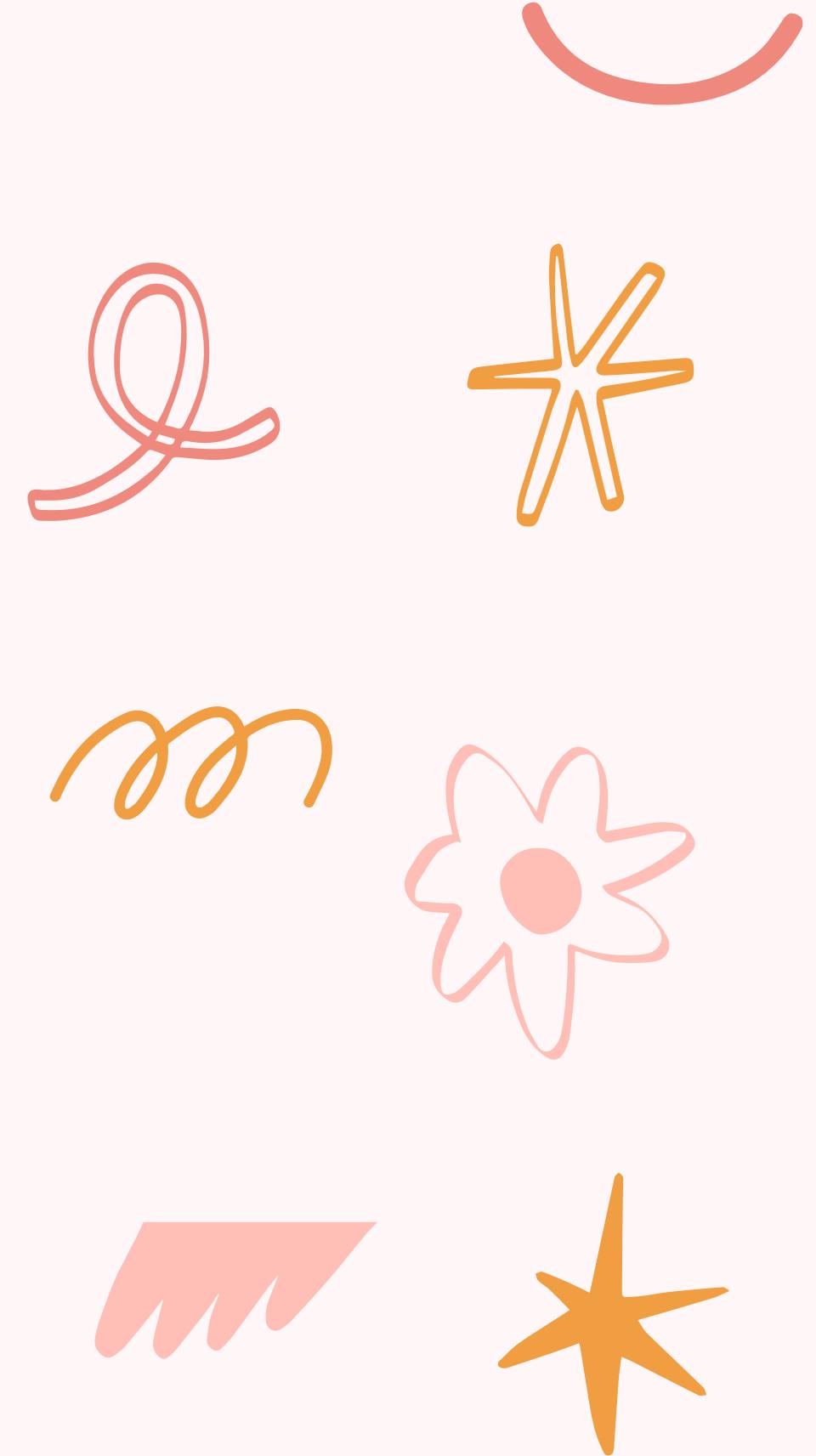


MODELLING



modelling report

After assessing various regression models, including Decision Tree, Gradient Boosting, Random Forest, and Linear Regression, based on MSE and R2 Score metrics, Random Forest Regression emerged as the optimal choice due to its superior performance alongside Gradient Boosting Regression. Both models displayed significantly lower MSE and higher R2 scores compared to others. Random Forest Regression was favored for its computational efficiency and robustness.



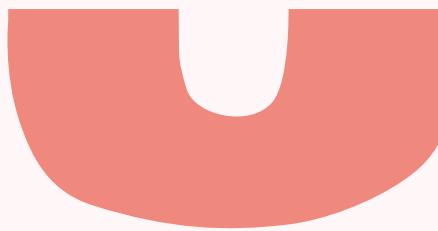
Deployment

The deployment of the machine learning model on the web application enables users to obtain predictions on food categories based on descriptions and year of creation. The application provides a convenient and accessible platform for users to utilize the predictive capabilities of the model. Continuous monitoring and updates will be conducted to ensure the optimal performance and reliability of the deployed system.



conclusions

- **Cereals and Tubers Dominate Consumption:** EDA revealed that cereals and tubers are the most consumed food category nationwide.
- **Strategic Sourcing and Selling Locations:** From market cluster analysis, provinces with lower wholesale prices are ideal for sourcing while provinces with higher retail prices offer better selling opportunities.
- **Targeting Specific Markets:** By clustering markets based on average price per standard unit; markets in cluster 1 offer the lowest prices.
- **Localized Sourcing Recommendations:** Analysis identified specific provinces for sourcing various commodities based on price considerations.
- **Effective Price Prediction Model:** Random Forest Regressor proved highly accurate(97% accuracy after tuning). Global Harvest Co. can use it to forecast prices effectively, enabling better procurement and pricing strategies for decision-making.



Recommendations

- Global Harvest Co. should prioritize investments in acquiring and selling cereals and tubers, capitalizing on their high-demand
- Focus on provinces like Coast for sourcing and Rift Valley, North Eastern, and Nairobi for retail sales could optimize profits.
- Global Harvest Co. should consider sourcing from cluster 1 to minimize procurement costs and enhance competitiveness.
- Global Harvest Co. can forecast prices using the Random Forest Regressor model, enabling better procurement and pricing strategies.
- Complete data can be acquired from other trusted sources to make the information more reliable. This will improve prediction accuracy.
- More recent data can be acquired from the World Food Program since this data is updated monthly. This could be via api integration to make this process automatic.

Thank You



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