

## Title: Market Research and Segmentation Report on Indian Agricultural Commodities

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**Executive Summary:** This report presents a comprehensive market analysis and segmentation of agricultural commodities across India using a dataset of 2,238 records. The analysis focuses on geographic and pricing variables, helping identify regions with premium produce, high price volatility, and opportunities for targeted interventions. The study aims to benefit farmers, supply chain actors, and policy makers.

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### 1. Methodology:

- Dataset Source: Kaggle (All Agriculture Related Datasets for India)
  - Data Size: 2,238 entries with 9 key variables
  - Tools Used: Python (Pandas, Matplotlib, Seaborn)
  - Segmentation Factors: State, District, Market, Commodity, Modal Price, Price Range
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### 2. Geographic Segmentation:

#### State-Level Analysis:

- Top 5 states with highest average modal price:
  - Sikkim
  - Jammu & Kashmir
  - Goa
  - Nagaland
  - Himachal Pradesh
- These states may either produce premium crops or have higher regional pricing structures.

**District-Level Trends:**

- District-level data reveals significant variation in prices even within states.
- Expected leaders: South Andaman, Leh, North Goa, etc.

**Market-Wise Trends:**

- Over 320 markets analyzed.
  - Coastal and North-Eastern markets show higher average modal prices.
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**3. Pricing Analysis:****Price Range Insights:**

- New column price\_range created as max\_price - min\_price.
- Commodities like Black Pepper, Cardamom, and Cashew show very high price ranges.
- Indicates high volatility and potential for price speculation.

**Seasonal Price Patterns:**

- With arrival\_date, time-series trends (to be analyzed further) may reveal harvesting impact on prices.

**Top Commodities by Price:**

- Black Pepper
  - Arecanut
  - Cardamom
  - Cashew
  - Banana (premium varieties)
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#### 4. Market Segmentation:

##### By Region:

- North-East and hill regions: Premium crops
- South India: High variety and volume
- Islands: Isolated but high-value commodities

##### By Price:

- Low-price range: Seasonal vegetables (Amaranthus, Bhindi)
  - Mid-range: Fruits like Banana, Papaya
  - High-range: Spices and Nuts
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#### 5. Key Insights & Recommendations:

- **For Farmers:** Focus on premium crops in high-return markets.
  - **For Policy Makers:** Consider regional price support and transport subsidies.
  - **For Retail Chains:** Use district-wise pricing to optimize procurement.
  - **For Exporters:** Target high-value spice-producing states.
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##### Next Steps:

- Visualize district and commodity clusters using KMeans or hierarchical clustering
  - Perform time-series trend analysis on modal prices
  - Integrate weather and production datasets for enriched insights
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**Github\_link** = [[https://github.com/tanmaydumbre/project\\_3\\_market\\_segmentation](https://github.com/tanmaydumbre/project_3_market_segmentation)]