**Business Question and Visualization Report**

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| Date | 18 August 2025 |
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| Project Name | Crop Production Trends in India (1997–2021) using Tableau |
| Maximum Marks | 5 Marks |

Visualization development in this project refers to transforming complex agricultural datasets spanning 1997–2021 into insightful visual representations using Tableau. The focus is to analyze crop production trends, yield changes, state-level comparisons, and seasonal variations. These visuals support policymakers, researchers, and farmers in making data-driven agricultural decisions.

# Business Questions and Visualisation

The process involves defining specific business questions to guide the creation of meaningful and actionable visualizations in Tableau. Well-framed questions help in identifying key metrics, selecting relevant data, and building visualisation that provide insights.

1. What are the yearly production trends of Rice, Wheat, and Maize (1997–2021)?  
   Visualization: Line Chart: Year vs Production for selected crops.
2. Which states are the top producers of Rice, Wheat, and Sugarcane?  
   Visualization: Bar Chart: Ranking states by production.
3. How has yield (Production per Hectare) changed over time across major crops?  
   Visualization: Dual-Axis Line Chart: Area vs Yield.
4. Which crops contributed most to India’s total production in 2021 compared to 1997?  
   Visualization: Pie Chart: Crop-wise share comparison.
5. How do Kharif and Rabi crops differ in seasonal performance?  
   Visualization: Grouped Bar Chart: Comparing seasonal crops.
6. Which states consistently underperform compared to the national average yield?  
   Visualization: Map: Yield Gaps across states.
7. What are the regional variations in crop diversification?  
   Visualization: Treemap: State → Crop hierarchy by production.
8. Which crops show the highest growth rates over 25 years?  
   Visualization: Heatmap: Year-on-Year Growth % by crop.
9. Which states exhibit the most volatile production trends?  
   Visualization: Line Chart: With trendlines and volatility bands.
10. How much of production change is due to area expansion vs yield improvement?  
    Visualization: Decomposition Bar Chart: Splitting ΔProduction into ΔArea and ΔYield.