DATA VISUALIZATION OF THREE MAJOR CROP YIELDS IN DIFFERENT DISTRICTS OF ANDHRA PRADESH DURING 2018-2023

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Abstract: This paper contains information about the patterns in paddy, rabi, and maize crop yields across Andhra Pradesh districts from 2018 to 2023, which is critical for agricultural planning and resource management. The study utilizes Tableau software and Microsoft Excel for data exploration, providing agricultural stakeholders with insights into temporal and regional changes, enabling informed decisions. By employing data-driven approaches, the study significantly enhances agricultural sustainability and fosters socio-economic growth in the area.

Index Terms: Data Visualization, Crop Yields, Agricultural Planning

I.   INTRODUCTION

The state of Andhra Pradesh, which is located on India's southeast coast, has a wide variety of climates, which have a significant impact on the agricultural industry. Knowing the trends in crop yield is one of the key elements affecting agricultural productivity and is essential for efficient resource allocation and planning. Leveraging Tableau software, we present various data visualizations that offer insights into crop yield patterns across different regions and timeframes. A comprehensive grasp of crop yield patterns enables the implementation of tailored agricultural practices to optimize yields and mitigate risks associated with climatic variability. As such, ongoing monitoring and analysis of crop yield trends are indispensable for sustaining the agricultural industry's growth and resilience in Andhra Pradesh.

II.   PROPOSED SYSTEMS

This study advocates the utilization of sophisticated data visualization tools, specifically Tableau Software and Microsoft Excel, to analyse and depict changes in rice, rabi, and maize crop yields across various districts in Andhra Pradesh from 2018 to 2023.

Microsoft Excel is the key tool for organizing, improving, and displaying data, giving a solid foundation for preliminary analysis. Tableau Software also provides powerful visualization features, allowing users to create interactive dashboards and intelligent images that bring agricultural production statistics to life.

Tableau Software's sophisticated capabilities allow users to look deeper into agricultural yield data, making it easier to identify trends, patterns, and outliers. Its user-friendly interface enables stakeholders such as governments, agricultural professionals, and farmers to acquire vital insights into crop yield differences throughout time and space.

The thorough analysis provided by Tableau Software aids efforts to improve agricultural sustainability and socioeconomic advancement in Andhra Pradesh. This study intends to provide stakeholders with actionable insights for effective agricultural governance and planning by using visually appealing crop output patterns. Using Tableau's sophisticated features, agricultural decision-makers can create evidence-based policies that promote great outcomes for farmers while also contributing to the region's overall growth and development.

III.   TECHNOLOGIES USED

Microsoft Excel: Microsoft Excel, used as a fundamental tool for meticulous data organizing, purification, and basic visualization, provides a strong platform for initial analysis.

Tableau Software: Tableau Software, which is well-known for its strong data visualization capabilities, makes it easy to create dynamic dashboards and comprehensive visual portrayals of crop yield data, allowing for nuanced insights.

Files: Constituting an integral component of data management, files serve as repositories for storing and accessing voluminous datasets pertinent to crop yields, thereby facilitating streamlined data analysis.

Dashboard: Dashboards are methodically constructed using Tableau Software's dynamic features to combine distinct visuals, providing stakeholders with a comprehensive picture of agricultural yield patterns across various districts.

Maps: Incorporating geographic cartography into Tableau visualizations adds location information, enabling stakeholders to perceive subtle variations in crop yield swings throughout Andhra Pradesh's vast topography.

Server: The powerful server architecture is critical in hosting and running the Tableau reporting environment, allowing seamless access to immersive dashboards and visualizations for stakeholders involved in strategic agricultural planning and governance.

IV.　　RESULTS
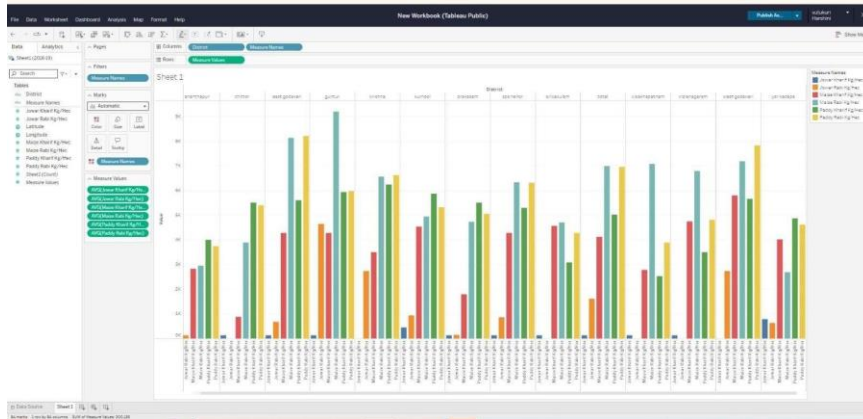
Figure 1.1 Bar chart showing crop yield in kg/hectare of paddy, maize, jowar of kharif and rabi season in the year 2018-19.
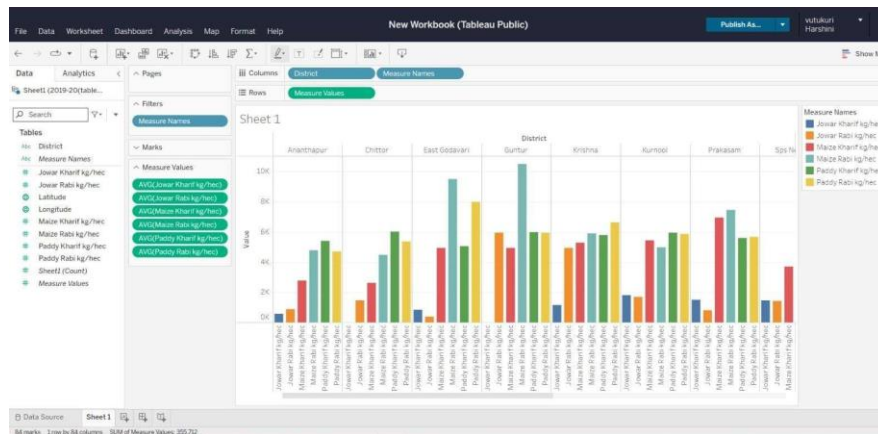

Figure 1.2 Bar chart showing crop yield in kg/hectare of paddy, maize, jowar of kharif and rabi season in the year 2019 - 2020.
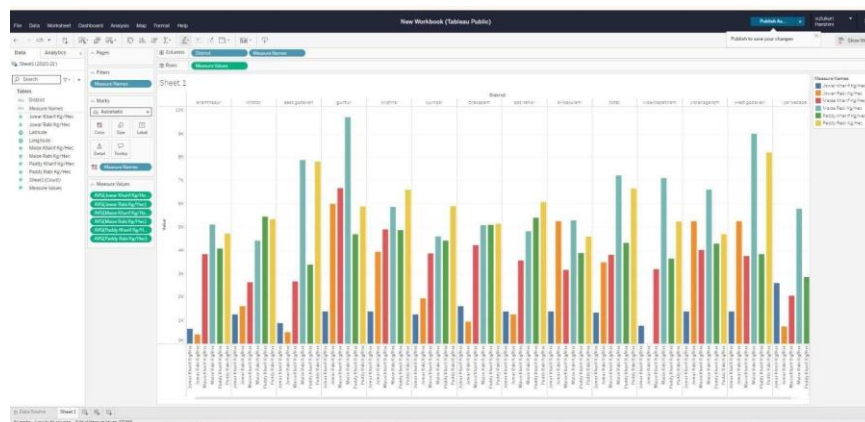
Figure 1.3 Bar chart showing crop yield in kg/hectare of paddy, maize, jowar of kharif and rabi season in the year 2020-21
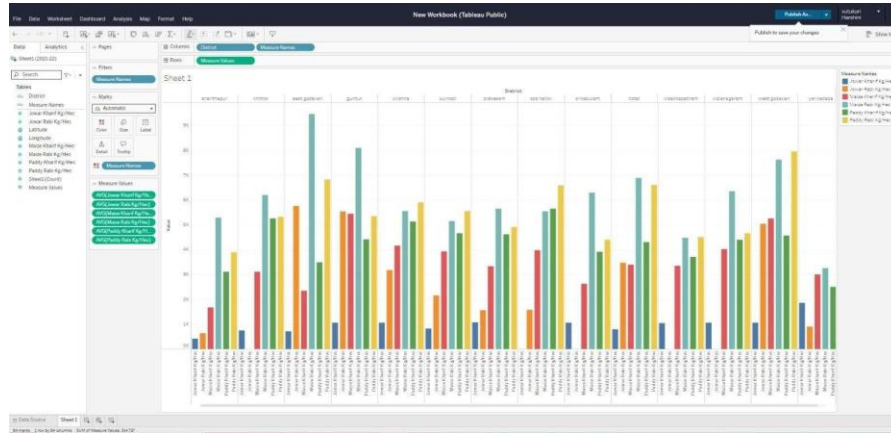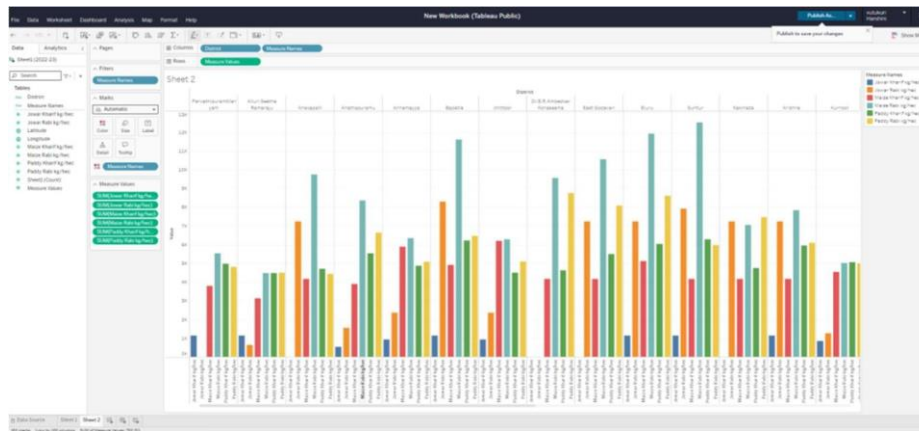

Figure 1.4 Bar chart showing crop yield in kg/hectare of paddy, maize, jowar of kharif and rabi season in the year 2021-22

Figure 1.5.1 Bar chart showing crop yield in kg/hectare of paddy, maize, jowar of kharif and rabi season in the year 2022- 23
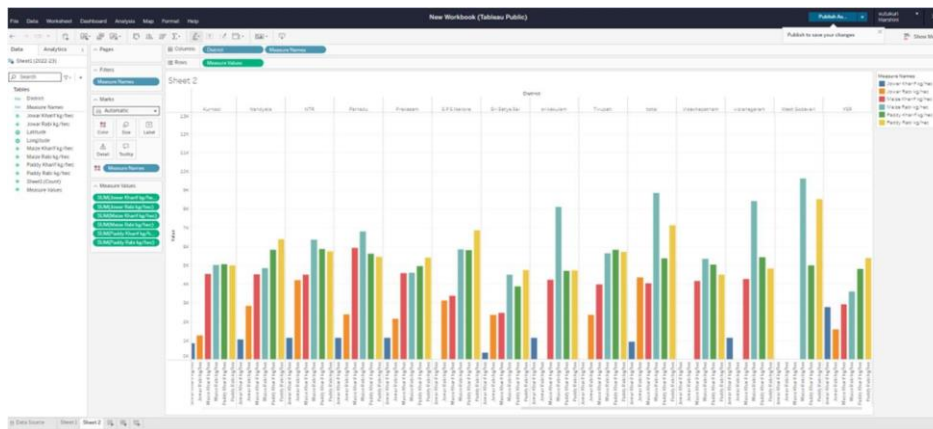

Figure 1.5.2 Bar chart showing crop yield in kg/hectare of paddy, maize, jowar of kharif and rabi season in the year 2022- 23
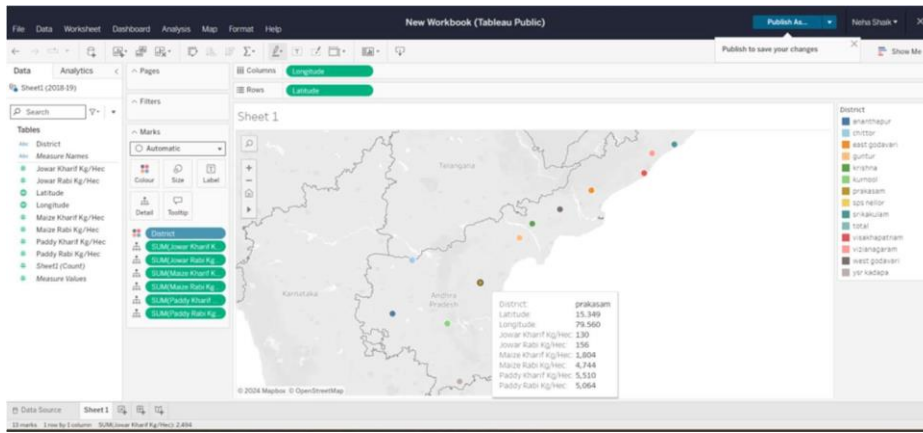
Figure 2.1 Located map showing crop yield in kg/hectare of paddy, maize, jowar of kharif and rabi season in the year 2018-19
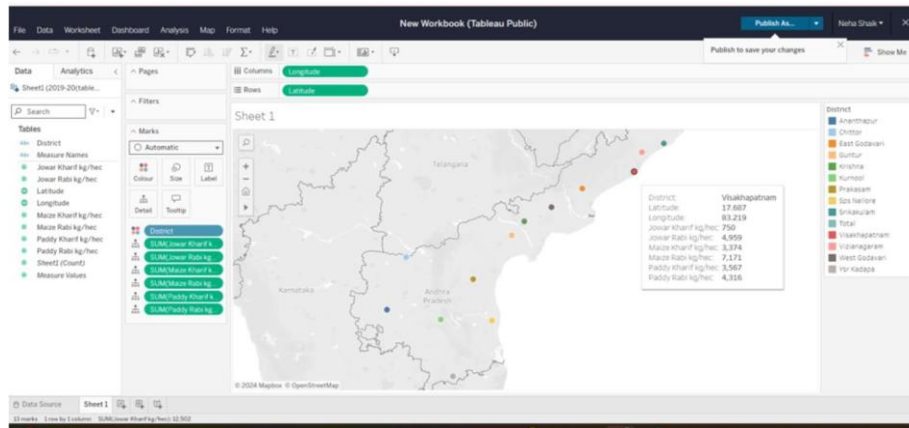

Figure 2.2 Located map showing crop yield in kg/hectare of paddy, maize, jowar of kharif and rabi season in the year 2019-20
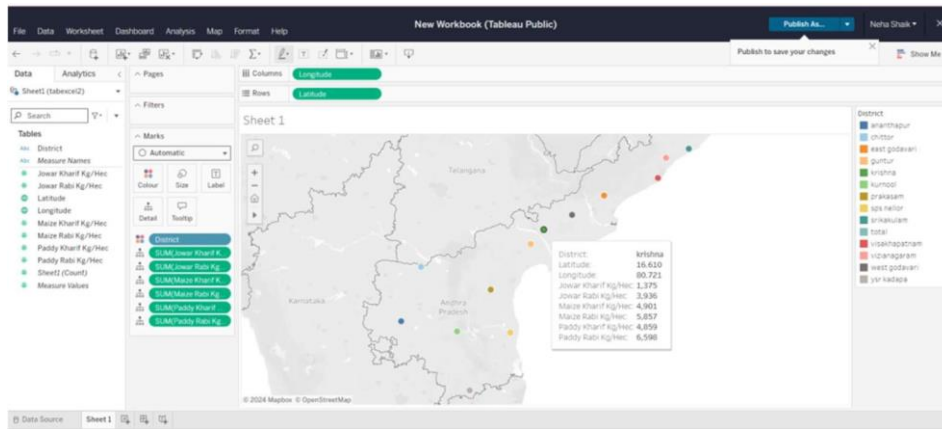

Figure 2.3 Located map showing crop yield in kg/hectare of paddy, maize, jowar of kharif and rabi season in the year 2020-21
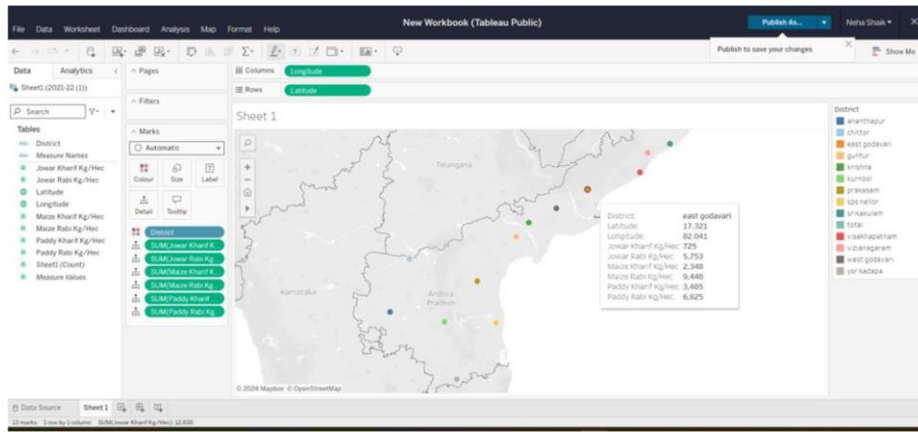
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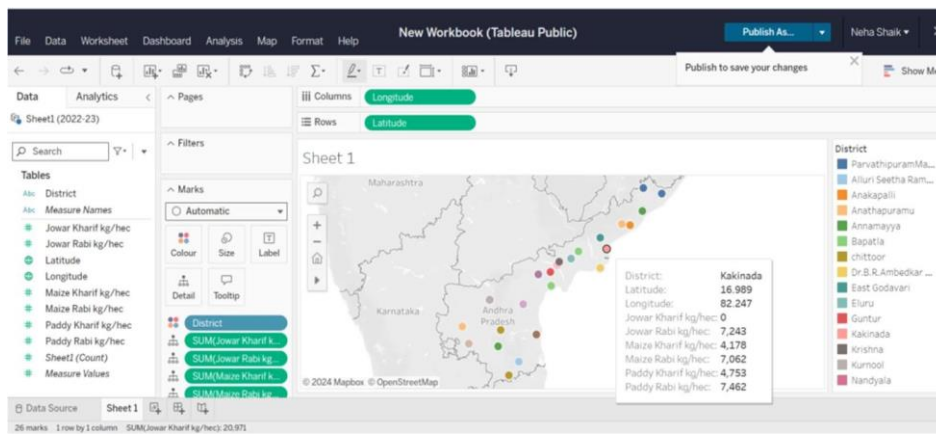

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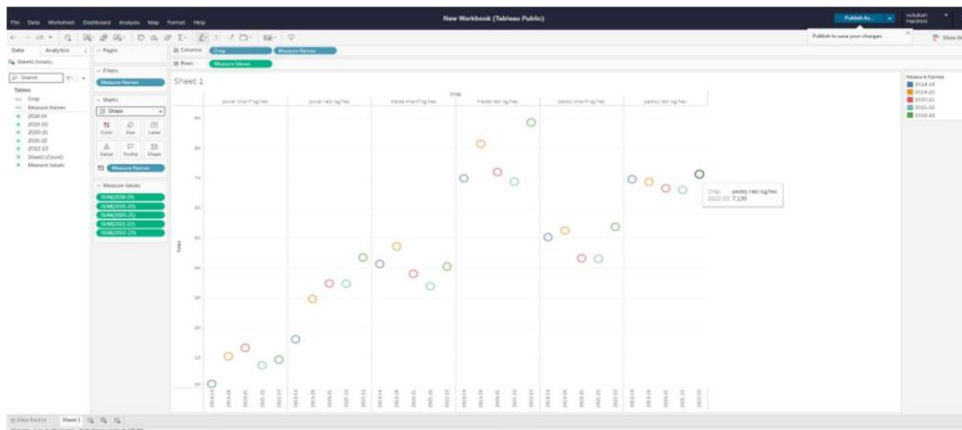

Figure 3   Scatter plot showing the crop yields from 2018-2023

V.   Conclusion

This study discusses the complicated dynamics of Andhra Pradesh's maize, rabi, and rice crop yields from 2018 to 2023. The study reveals large temporal and regional oscillations in agricultural productivity using a variety of technological resources and advanced data visualization tools such as Tableau Software and Microsoft Excel.

These insights enable stakeholders to make better decisions about resource allocation, intervention techniques, and agricultural planning. This study underlines the importance of technology in enhancing agricultural results and encouraging long-term growth in the area by prioritizing data-driven strategies.

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