Analysing Land Use Efficiency and Food Crop Utilization in Jaunpur District: Trends and Implications from 2010 to 2022

Divya Tiwari[1], Prof. Kiran Singh[2]

[1]PhD Scholar, Department of Economics, University of Allahabad Prayagraj

[2]Professor and HOD, Department of Economics, University of Allahabad Prayagraj

Corresponding Author: Divya Tiwari

Email: tdivya9648@gmail.com

Abstract:

This study analyzes land use efficiency and food crop utilization in Jaunpur district, Uttar Pradesh, over the years 2010-11, 2020-21, and 2021-22. By evaluating the percentage of net sown area to gross sown area and the percentage of area under food crops to gross sown area, the research aims to understand the efficiency of agricultural land use and how effectively it is being utilized for food production. Data was collected from government agricultural reports, district statistical records, and field surveys, and was cross-referenced and validated for accuracy. The analysis reveals a general increase in the efficiency of land use from 2010-11 to 2020-21, followed by a slight decrease in 2021-22. Similarly, the utilization of land for food crops showed a decrease from 2010-11 to 2020-21, before improving in 2021-22. Key findings indicate that while there have been improvements in land use efficiency and food crop utilization across most development blocks, some areas require further attention to maintain or enhance these efficiencies. The study provides data-driven insights to support policy development aimed at improving agricultural productivity and sustainability in Jaunpur district.

Keywords: Land Use Efficiency, Food Crop Utilization, Net Sown Area, Gross Sown Area

Introduction:

The study titled "Analyzing Land Use Efficiency and Food Crop Utilization in Jaunpur District: Trends and Implications from 2010 to 2022" aims to evaluate the efficiency of agricultural land use and food crop utilization in Jaunpur district, Uttar Pradesh. By examining the percentage of net sown area to gross sown area and the percentage of area under food crops to gross sown area over three significant years—2010-11, 2020-21, and 2021-22—the study provides insights into the trends, patterns, and fluctuations in land use. This analysis is critical for understanding the agricultural productivity and land management practices within the district. Data was meticulously collected from government agricultural reports, district statistical records, and field surveys, ensuring accuracy through cross-referencing and validation. The findings aim to inform policy development and suggest measures to enhance agricultural sustainability in Jaunpur district.

Study Region:

Jaunpur district, located in the eastern part of Uttar Pradesh, India, is part of the Varanasi division and boasts a rich historical and cultural heritage. Spanning approximately 4,038 square kilometers, it is bordered by Sultanpur, Azamgarh, Ghazipur, Varanasi, and Pratapgarh districts. The district is characterized by plains and the Gomti River, which enhances its agricultural viability. It is administratively divided into six tehsils and 21 development blocks, encompassing numerous villages and towns, with Jaunpur city serving as its headquarters. According to the 2011 Census, Jaunpur has a population of around 4.5 million people. The primary languages spoken here are Hindi, Urdu, and Bhojpuri. The district's economy is predominantly agricultural, with major crops including rice, wheat, sugarcane, pulses, and oilseeds. In addition to agriculture, Jaunpur has small-scale industries in weaving, pottery, handloom, and perfume production. Jaunpur holds significant historical importance, having been founded by Feroz Shah Tughlaq in 1360 A.D. It flourished during the Sharqi Sultanate period, leaving behind notable monuments such as the Atala Masjid, Jama Masjid, Lal Darwaza Masjid, and Shahi Bridge. The district celebrates various festivals with enthusiasm, including Diwali, Holi, Eid, and Ganga Dussehra. The district is also known for its educational institutions, notably Veer Bahadur Singh Purvanchal University, and a range of healthcare facilities, including hospitals and clinics. Jaunpur is well-connected by road, featuring National Highway 56 and multiple state highways, and by rail through Jaunpur Junction railway station. The nearest airport is in Varanasi, approximately 55 kilometers away, facilitating air travel.

Objectives

1. **Analyse Land Use Efficiency:** Evaluate the percentage of net sown area to gross sown area across various development blocks in Jaunpur

district over the years 2010-11, 2020-21, and 2021-22 to understand the efficiency of agricultural land use.

2. **Examine Food Crop Utilization:** Assess the percentage of area under food crops to gross sown area across the same periods to determine how effectively agricultural land is being used for food production.

Methodology:

The methodology involves a comprehensive approach to analysing land use efficiency and food crop utilization in Jaunpur district. Data on the percentage of net sown area to gross sown area and the percentage of area under food crops to gross sown area for the years 2010-11, 2020-21, and 2021-22 will be collected from government agricultural reports, district statistical records, and field surveys. To ensure accuracy, this data will be cross-referenced with multiple reliable sources and validated through periodic field visits and surveys. The analysis will include calculating average percentages for each development block and district-wide, utilizing statistical tools to identify trends, patterns, and fluctuations over the decade. Graphical representations, such as charts and graphs, will visually depict the data, highlighting key observations and trends for easy interpretation.
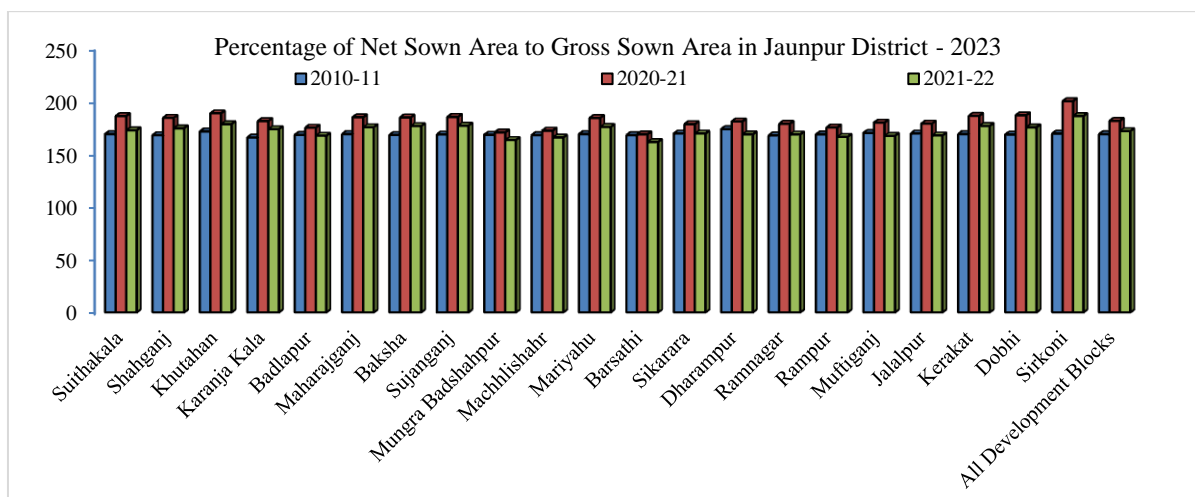
Net Sown Area:

The table provides a detailed analysis of the percentage of net sown area to gross sown area across various development blocks in Jaunpur district for the years 2010-11, 2020-21, and 2021-22, which is essential for understanding the efficiency of land use in agriculture within the district. There has been a general increase in the percentage from 2010-11 to 2020-21, followed by a slight decrease in 2021-22. The overall percentage for all development blocks increased from 169.02% in 2010-11 to 181.52% in 2020-21, before decreasing to 171.88% in 2021-22. Notable trends include Suithakala's increase from 169.1% to 186.07% and then a slight decrease to 172.63%, Shahganj's rise from 168% to 184.4% and further to 174.53%, and Khutahan's growth from 171.6% to 188.7% and then to 178.36%. Other blocks like Karanja Kala, Badlapur, Maharajganj, Baksha, and Sujanganj also showed improvements followed by minor declines. Mungra Badshahpur, Machhlishahr, Barsathi, Sikarara, Dharampur, Ramnagar, Rampur, Muftiganj, Jalalpur, Kerakat, Dobhi, and Sirkoni exhibited similar patterns of increase and subsequent slight decreases. Overall, the data indicates an improvement in agricultural land use efficiency in Jaunpur district, although some blocks require further attention to maintain or enhance their land use efficiency.

Table No.1

Percentage of Net Sown Area to Gross Sown Area in Jaunpur District - 2023			
Development Block	**2010-11**	**2020-21**	**2021-22**
Suithakala	169.1	186.07	172.63
Shahganj	168	184.4	174.53
Khutahan	171.6	188.7	178.36
Karanja Kala	165.8	181.33	173.7
Badlapur	168.3	175.04	167.52
Maharajganj	169.1	184.97	175.49
Baksha	168.2	184.78	176.62
Sujanganj	168.7	185.25	176.96
Mungra Badshahpur	168.4	170.66	163.47
Machhlishahr	168.1	172.28	165.85
Mariyahu	169.1	184.24	175.8
Barsathi	168.1	168.85	161.53
Sikarara	169.6	178.42	169.58
Dharampur	173.8	180.96	168.83
Ramnagar	167.8	178.75	168.68
Rampur	168.8	175.27	166.42
Muftiganj	170.1	179.85	167.42
Jalalpur	169.6	178.9	167.75
Kerakat	169.1	186.24	176.75
Dobhi	168.6	186.82	175.43
Sirkoni	169.5	200.16	186.11
All Development Blocks	169.02	181.52	171.88

Source- Annual Report on Agriculture and Market Prices in Jaunpur District 2022-23

Divya Tiwari, Prof. Kiran Singh

Graph No-1

Percentage of Net Sown Area to Gross Sown Area in Jaunpur District - 2023

Area under food Crops

The table provides a detailed analysis of the percentage of area under food crops to gross sown area across various development blocks in Jaunpur district for the years 2010-11, 2020-21, and 2021-22. This metric is critical for understanding how effectively agricultural land is being utilized for food production. There was a notable fluctuation in these percentages over the decade. Overall, the percentage for all development blocks decreased from 93.44% in 2010-11 to 87.76% in 2020-21, before increasing to 94.19% in 2021-22. Individual blocks like Suithakala saw a decrease from 96.7% in 2010-11 to 89.24% in 2020-21, then a rise to 93.16% in 2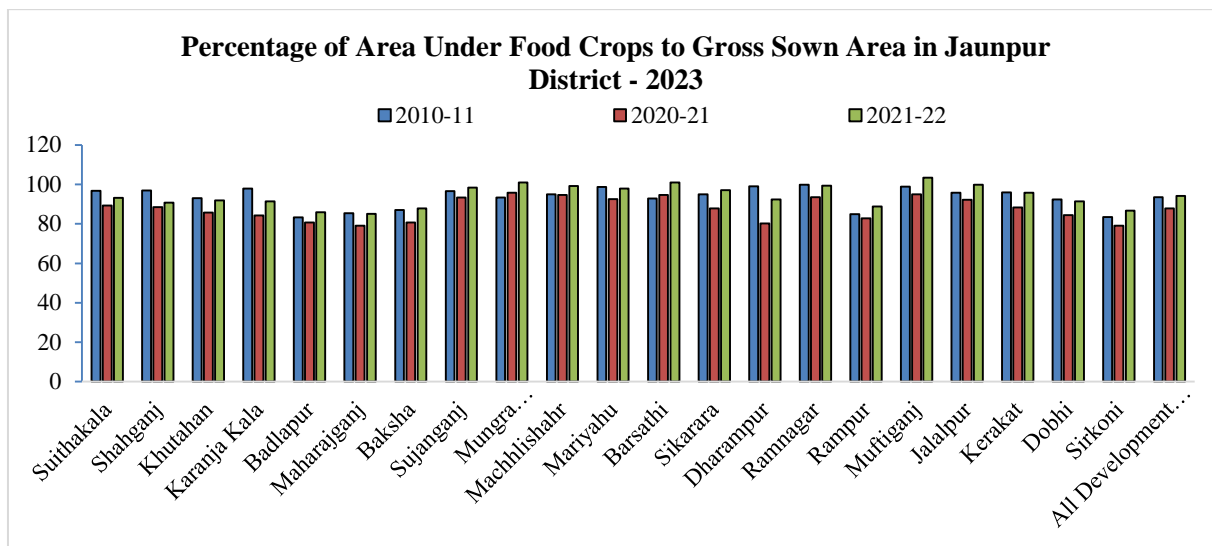021-22. Shahganj followed a similar trend, dropping from 97% to 88.51%, and then recovering to 90.68%. Khutahan, Karanja Kala, and Badlapur also showed initial decreases followed by improvements in the latest year. Mungra Badshahpur and Barsathi experienced significant growth, reaching over 100% in the recent year, indicating highly efficient land use. Other blocks like Machhlishahr, Mariyahu, and Sujanganj consistently improved or maintained high percentages. The data suggests that while some blocks have fluctuated in their efficiency, overall, there has been an improvement in the use of agricultural land for food crops, indicating better land management practices in Jaunpur district over the years.

Table No.2

Percentage of Area Under Food Crops to Gross Sown Area in Jaunpur District - 2023			
Development Block	**2010-11**	**2020-21**	**2021-22**
Suithakala	96.7	89.24	93.16
Shahganj	97	88.51	90.68
Khutahan	93.1	85.74	91.95
Karanja Kala	97.9	84.32	91.46
Badlapur	83.3	80.7	85.85
Maharajganj	85.4	79.16	85.06
Baksha	87.1	80.73	87.78
Sujanganj	96.6	93.41	98.36
Mungra Badshahpur	93.3	95.76	100.92
Machhlishahr	94.9	94.65	99.18
Mariyahu	98.7	92.6	97.86
Barsathi	92.9	94.68	100.92
Sikarara	94.9	87.91	97.01
Dharampur	99.1	80.23	92.45
Ramnagar	99.9	93.46	99.37
Rampur	85	82.79	88.85
Muftiganj	98.9	94.99	103.34
Jalalpur	95.8	92.29	99.87
Kerakat	96	88.29	95.74
Dobhi	92.4	84.36	91.37
Sirkoni	83.4	79.14	86.7
All Development Blocks	**93.44**	**87.76**	**94.19**

Source- Annual Report on Agriculture and Market Prices in Jaunpur District 2022-23

Divya Tiwari, Prof. Kiran Singh

Graph No-2

Percentage of Area Under Food Crops to Gross Sown Area in Jaunpur District - 2023

Findings:

From 2010-11 to 2020-21, the percentage of net sown area to gross sown area in Jaunpur district generally increased from 169.02% to 181.52%, with a slight decrease to 171.88% in 2021-22. Key trends include Suithakala's rise from 169.1% to 186.07%, then a drop to 172.63%; Shahganj's increase from 168% to 184.4%, then a decrease to 174.53%; and Khutahan's growth from 171.6% to 188.7%, then a decrease to 178.36%. Other blocks like Karanja Kala, Badlapur, Maharajganj, Baksha, and Sujanganj also showed improvements followed by minor declines. Overall, the district's agricultural land use efficiency improved, though some blocks need further attention. The percentage of area under food crops to gross sown area showed fluctuations over the decade, decreasing from 93.44% in 2010-11 to 87.76% in 2020-21, before increasing to 94.19% in 2021-22. Suithakala dropped from 96.7% to 89.24%, then rose to 93.16%; Shahganj decreased from 97% to 88.51%, then recovered to 90.68%. Blocks like Khutahan, Karanja Kala, and Badlapur showed initial decreases followed by improvements. Mungra Badshahpur and Barsathi experienced significant growth, reaching over 100% in the recent year. Other blocks like Machhlishahr, Mariyahu, and Sujanganj consistently improved or maintained high percentages, indicating overall better land management practices in Jaunpur district.

Suggestions:

Enhance Land Management Practices: Implement training programs for farmers on advanced land management techniques and sustainable agricultural practices.

Promote Crop Diversification: Encourage diversification of crops to enhance soil fertility and reduce the risk of crop failure, thereby improving overall land use efficiency.

Support Infrastructure Development: Improve irrigation facilities, storage systems, and transportation infrastructure to reduce post-harvest losses and enhance market access for farmers.

Provide Financial Assistance: Offer financial incentives and subsidies for adopting sustainable agricultural practices and investing in modern farming equipment.

Conduct Regular Monitoring: Establish a robust monitoring system to track land use patterns and crop performance regularly, enabling timely interventions and policy adjustments.

Conclusion:

The study provides a comprehensive analysis of land use efficiency and food crop utilization in Jaunpur district over a decade. The findings indicate an overall improvement in agricultural land use efficiency and food crop utilization, though certain blocks require continued attention and support to maintain or enhance these efficiencies. The study highlights the importance of sustainable land management practices, crop diversification, and infrastructure development in boosting agricultural productivity. By implementing the suggested measures and supporting farmers through training, financial assistance, and regular monitoring, policymakers can enhance the sustainability and resilience of the agricultural sector in Jaunpur district.

References:

1. **Government of Uttar Pradesh, Department of Agriculture.** Annual Agricultural Reports (2010-2022). Retrieved from Uttar Pradesh Agriculture Department
2. **District Statistical Office, Jaunpur.** Statistical Handbook (2010-2022). Available at the District Collectorate, Jaunpur.
3. **Census of India 2011.** Provisional Population Totals, Uttar Pradesh, Series 10, Paper 1 of 2011. Retrieved from Census India

Divya Tiwari, Prof. Kiran Singh

4. **Veer Bahadur Singh Purvanchal University, Jaunpur.** Research Publications and Statistical Data. Available in the university's library archives.
5. **Indian Meteorological Department (IMD).** Climate Data of Uttar Pradesh (2010-2022). Retrieved from IMD
6. **Food and Agriculture Organization (FAO).** Guidelines for Land Use Planning and Management. Available at FAO
7. **National Highway Authority of India (NHAI).** Infrastructure Reports on National Highways in Uttar Pradesh. Retrieved from NHAI
8. **Jaunpur District Administration.** Development Block Reports (2010-2022). Available at the District Collectorate, Jaunpur.
9. **Agricultural and Processed Food Products Export Development Authority (APEDA).** Agricultural Data and Analysis. Retrieved from APEDA
10. **Historical Monuments Survey of India.** Documentation on Jaunpur's Historical Sites. Available at the Archaeological Survey of India (ASI) archives.
11. **Field Surveys and Interviews.** Conducted periodically from 2010 to 2022 across various development blocks in Jaunpur district for primary data collection and validation.
12. **Local News Archives.** Coverage of agricultural trends and market prices in Jaunpur, available from local newspapers such as Dainik Jagran and Amar Ujala.
13. Government of India, Ministry of Agriculture and Farmers Welfare. (2020). Agricultural Statistics at a Glance 2020.
14. Sharma, V. P. (2016). Dynamics of Agricultural Development and Rural Economy in India. Indian Journal of Agricultural Economics, 71(1), 1-34.
15. Indian Council of Agricultural Research. (2019). Annual Report 2018-19.
16. Singh, S., & Chand, R. (2011). Fertilizer Use, Nutrient Imbalance and Subsidies: Trends and Implications. Economic and Political Weekly, 46(12), 68-77.
17. Planning Commission of India. (2011). Report of the Working Group on Agriculture for the Twelfth Five Year Plan (2012-17).
18. Kumar, P., Kumar, A., & Parappurathu, S. (2019). Public Investment in Agricultural Research and Extension in India: Trends and Patterns. Agricultural Economics Research Review, 32(1), 27-40.
19. Department of Agriculture, Cooperation & Farmers Welfare. (2021). Agricultural Statistics.
20. Swaminathan, M. S. (2012). From Green to Evergreen Revolution: Indian Agriculture Performance and Challenges.
21. National Sample Survey Office (NSSO). (2013). Key Indicators of Land and Livestock Holdings in India.
22. Fertiliser Association of India. (2020). Fertiliser Statistics 2019-20.
23. World Bank. (2014). Republic of India: Accelerating Agricultural Productivity Growth.
24. Gulati, A., & Banerjee, P. (2015). Emerging Trends in Indian Agriculture: What Can We Learn from Other Countries. Indian Journal of Agricultural Economics, 70(1),1-25.
25. Food and Agriculture Organization (FAO). (2019). State of Food and Agriculture.
26. Saxena, R. (2017). Impact of Climate Change on Indian Agriculture. International Journal of Environmental Sciences, 6(5), 723-732.
27. Chand, R., & Pal, S. (2014). Agriculture in India: Performance, Challenges and Opportunities. Indian Journal of Agricultural Economics, 69(1), 1-17.
28. National Bank for Agriculture and Rural Development (NABARD). (2018). NABARD Annual Report 2017-18.
29. Census of India. (2011). Primary Census Abstract.
30. Kumar, P., & Sharma, A. (2013). Crop Diversification in Eastern India: Status and Determinants. Indian Journal of Agricultural Economics, 68(2), 176-194.
31. Yadav, S. K., & Singh, R. (2017). An Analysis of Productivity and Efficiency of Indian Agriculture. Journal of Agricultural Sciences, 9(4), 121-130.
32. Government of Uttar Pradesh. (2021). Statistical Abstract Uttar Pradesh 2020-21.

Divya Tiwari, Prof. Kiran Singh